

Volume 2: Appendices

# Victoria's infrastructure strategy 2021-2051





## About us

**Infrastructure Victoria is an independent advisory body with three functions:**

- \ Preparing a 30-year infrastructure strategy for Victoria, which is refreshed every three to five years
- \ Providing written advice to government on specific infrastructure matters
- \ Publishing research on infrastructure-related issues.

Infrastructure Victoria also supports government departments and agencies to develop sectoral infrastructure plans.

Infrastructure Victoria takes a long-term, evidence-based view of infrastructure planning, and informs community discussion about infrastructure provision.

Infrastructure Victoria does not directly oversee or fund infrastructure projects.

### Aboriginal acknowledgment

Infrastructure Victoria acknowledges the Traditional Owners of Country in Victoria and pays respect to their elders past and present, as well as elders of other Aboriginal communities. We recognise that the state's infrastructure is built on land that has been managed by Aboriginal people for millennia.





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## Appendix A

# Recommendations by sector

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This appendix lists the recommendations that align with the nine infrastructure sectors listed in the *Victorian Infrastructure Plan 2017-22*. For the transport sector, we further categorise those relating to public transport; active transport and micro-mobility; roads, parking and private vehicles; and freight. We also include land use planning as a tenth sector, to capture potential changes relating to the land use planning system. Some recommendations will appear more than once where they pertain to more than one sector.





## 01. Transport sector

### 1A. Public transport

22. Facilitate integration of public transport with new mobility services
24. Introduce new road network demand management technology
32. Produce public plans for priority infrastructure sectors
33. Publish Victoria's transport plan
41. Reallocate road space to priority transport modes
42. Redesign tram routes
43. Activate urban renewal with new tram links
44. Plan for and fund public transport accessibility, including tram stop upgrades
45. Adopt permanent off-peak discounts for public transport fares
46. Reduce bus and tram fares
47. Remove the free tram zone
48. Appoint an independent transport pricing adviser
50. Price parking at major public transport hubs
57. Reshape the metropolitan bus network and introduce 'next generation' bus services
58. Connect suburban jobs through 'next generation' buses and road upgrades
59. Increase off-peak service frequencies and suburban rail corridor capacity
60. Reconfigure the City Loop for more frequent and reliable services
61. Prepare for Melbourne Metro Two and direct Geelong rail services
72. Prioritise and oversee infrastructure delivery in growing communities
74. Extend rail services in Melbourne's western and northern growth areas
75. Link outer suburbs to rail with 'next generation' buses
76. Expand and upgrade Melbourne's outer suburban road and bus networks
83. Redesign regional public transport to meet local needs

### 1B. Active transport and micro-mobility

23. Incorporate personal mobility devices in regulation
32. Produce public plans for priority infrastructure sectors
33. Publish Victoria's transport plan
37. Develop an interconnected open space network
38. Partner with local governments to fund pedestrian infrastructure
39. Transform cycling in Melbourne, Ballarat, Bendigo and Geelong
40. Improve walking and cycling data to better estimate travel, health and safety impacts and benefits
41. Reallocate road space to priority transport modes
72. Prioritise and oversee infrastructure delivery in growing communities

### 1C. Roads, parking and private vehicles

01. Accelerate consumers' purchases of zero emissions vehicles
02. Transition government fleet and freight vehicles to zero emissions technologies
21. Prepare for increasingly automated vehicle fleets
24. Introduce new road network demand management technology
32. Produce public plans for priority infrastructure sectors
33. Publish Victoria's transport plan
41. Reallocate road space to priority transport modes
48. Appoint an independent transport pricing adviser
49. Reduce inner Melbourne congestion by further reforming parking pricing
50. Price parking at major public transport hubs
51. Incorporate congestion pricing for all new metropolitan freeways
52. Trial full-scale congestion pricing in inner Melbourne

53. Phase out fixed road user charges and introduce user pays charging
58. Connect suburban jobs through 'next generation' buses and road upgrades
62. Protect a long-term option for a new cross-city motorway
66. Construct an outer metropolitan road and rail corridor
72. Prioritise and oversee infrastructure delivery in growing communities
76. Expand and upgrade Melbourne's outer suburban road and bus networks
78. Deliver long-term funding certainty for regional road maintenance and upgrades

### 1D. Freight

02. Transition government fleet and freight vehicles to zero emissions technologies
32. Produce public plans for priority infrastructure sectors
33. Publish Victoria's transport plan
62. Protect a long-term option for a new cross-city motorway
63. Optimise capacity at the Port of Melbourne
64. Act now to protect the future Bay West Port option
65. Deliver a new intermodal freight terminal for Inland Rail
66. Construct an outer metropolitan road and rail corridor
78. Deliver long-term funding certainty for regional road maintenance and upgrades
79. Fund and plan for ongoing regional rail freight network development and maintenance



## 02. Culture, sport and community

- 19. Build back better after emergencies
- 32. Produce public plans for priority infrastructure sectors
- 54. Require accessible buildings for public services
- 67. Co-design an Aboriginal community-controlled infrastructure plan
- 72. Prioritise and oversee infrastructure delivery in growing communities
- 73. Fund libraries and aquatic centres in growth areas
- 81. Plan for and facilitate regional nature-based tourism investment
- 82. Develop a Victorian Aboriginal tourism strategy with Aboriginal communities
- 86. Fund regional libraries to provide better internet access
- 88. Deliver multipurpose shared social service facilities in the regions
- 89. Update community infrastructure
- 90. Create climate-adapted facilities for rural communities

## 03. Digital connectivity

- 20. Improve critical infrastructure information flows and embed resilience
- 21. Prepare for increasingly automated vehicle fleets
- 22. Facilitate integration of public transport with new mobility services
- 24. Introduce new on-road demand management technology
- 25. Use innovation to deliver better models of health care
- 26. Modernise courts through digitisation and contemporary shared facilities
- 27. Improve technology and infrastructure for a responsive police service
- 84. Address regional Victoria's digital connectivity gaps
- 85. Improve regional telecommunications infrastructure resilience
- 86. Fund regional libraries to provide better internet access
- 87. Use rural schools for children's specialist and allied telehealth services

## 04. Education and training

- 19. Build back better after emergencies
- 32. Produce public plans for priority infrastructure sectors
- 54. Require accessible buildings for public services
- 72. Prioritise and oversee infrastructure delivery in growing communities
- 87. Use rural schools for children's specialist and allied telehealth services
- 88. Deliver multipurpose shared social service facilities in the regions
- 92. Fund more Youth Foyers in regional Victoria

## 05. Energy

- 01. Accelerate consumers' purchases of zero emissions vehicles
- 02. Transition government fleet and freight vehicles to zero emissions technologies
- 03. Augment electricity transmission for renewable energy and resilience
- 04. Identify and coordinate Renewable Energy Zones
- 05. Require 7-star energy-rated new homes by 2022, and increase afterwards
- 06. Mandate a home energy disclosure scheme
- 07. Strengthen minimum energy efficiency standards for rented homes
- 08. Make Victorian Government buildings more energy efficient
- 09. Encourage demand management pricing to reduce peaks and optimise distributed energy
- 10. Confirm gas policies and pathways to reach net zero emissions and allow new gas-free homes
- 19. Build back better after emergencies
- 80. Upgrade power supply for agriculture and regional industry
- 85. Improve regional telecommunications infrastructure resilience
- 94. Make social housing suitable for changing local climates



## 06. Environment

11. Specify climate scenarios and carbon value in assessing infrastructure
12. Strategically review climate consequences for infrastructure
18. Invest in protection and adaptation for Victoria's coasts
28. Facilitate improved recycling infrastructure for priority materials
29. Strengthen end markets for recycled materials
30. Address barriers to recycling and reducing waste
31. Minimise waste and improve residual waste infrastructure planning
32. Produce public plans for priority infrastructure sectors
37. Develop an interconnected open space network
77. Target 30% tree canopy coverage in new growth areas
81. Plan for and facilitate regional nature-based tourism investment

## 07. Health and human services

19. Build back better after emergencies
20. Improve critical infrastructure information flows and embed resilience
25. Use innovation to deliver better models of health care
32. Produce public plans for priority infrastructure sectors
36. Use value-capture mechanisms to deliver very low income housing
54. Require accessible buildings for public services
55. Rapidly renew old public housing
56. Upgrade and rebuild public hospital infrastructure
67. Co-design an Aboriginal Community-Controlled Infrastructure Plan
68. Set targets to grow social housing

69. Build new hospital capacity
70. Deliver infrastructure for a more responsive and integrated mental health system
72. Prioritise and oversee infrastructure delivery in growing communities
87. Use rural schools for children's specialist and allied telehealth services
88. Deliver multipurpose shared social service facilities in the regions
89. Update community infrastructure
90. Create climate-adapted facilities for rural communities
91. Build regional residential alcohol and drug rehabilitation facilities
92. Fund more Youth Foyers in regional Victoria
93. Expand social housing in regional centres, in locations with good access
94. Make social housing suitable for changing local climates

## 08. Justice and emergency services

19. Build back better after emergencies
20. Improve critical infrastructure information flows and embed resilience
26. Modernise courts through digitisation and contemporary shared facilities
27. Improve technology and infrastructure for a responsive police service
32. Produce public plans for priority infrastructure sectors
54. Require accessible buildings for public services
71. Plan and consistently deliver corrections and youth justice infrastructure while managing demand with policy settings
72. Prioritise and oversee infrastructure delivery in growing communities
85. Improve regional telecommunications infrastructure resilience

## 09. Water

13. Consider all water supply sources
14. Progress integrated water cycle management
15. Improve decision-making for urban water investment
16. Strengthen agricultural water security by modernising irrigation
17. Upgrade Victoria's emergency water network
32. Produce public plans for priority infrastructure sectors

## 10. Land use planning

04. Identify and coordinate Renewable Energy Zones
10. Confirm gas policies and pathways to reach net zero emissions and allow new gas-free homes
14. Progress integrated water cycle management
18. Invest in protection and adaptation for Victoria's coasts
21. Prepare for increasingly automated vehicle fleets
32. Produce public plans for priority infrastructure sectors
33. Publish Victoria's transport plan
34. Review Victoria's infrastructure contribution system to cover gaps
35. Support more homes in priority established places
36. Use value-capture mechanisms to deliver very low income housing
37. Develop an interconnected open space network
64. Act now to protect the future Bay West Port option
65. Deliver a new intermodal freight terminal for Inland Rail
72. Prioritise and oversee infrastructure delivery in growing communities
77. Target 30% tree canopy coverage in new growth areas



Appendix B

# Meeting the objectives for Victoria's infrastructure strategy

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2021–2051





This strategy makes 94 recommendations towards achieving the 10 objectives of Victoria's infrastructure strategy 2021–2051. The objectives are:

**01**

**Prepare for population change**

Victoria's infrastructure meets new and shifting demands from a growing and changing population. Change will vary and occur in different ways including changing demographics, family structures, and cultural diversity.

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**02**

**Foster healthy, safe and inclusive communities**

Victorians achieve and maintain good physical and mental health. They feel safe in their homes and communities, free from harm. They maintain social connections and participate in civic, cultural and community life.

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**03**

**Reduce disadvantage**

All Victorians have the resources and capabilities for a good quality of life. They have equal access to opportunities regardless of their backgrounds, attributes or locations.

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**04**

**Enable workforce participation**

Victorians develop the capabilities, and have the opportunities, to engage in enough secure and meaningful work.

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**05**

**Lift productivity**

Victorians can maintain a good standard of living from an economy boosted by enhanced skills, innovation, market access and efficient investment.

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**06**

**Drive Victoria's changing, globally integrated economy**

Victoria remains prosperous by staying attractive for trade and investment nationally and internationally, adapting to change and capitalising on economic opportunities.

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**07**

**Promote sustainable production and consumption**

Victoria manages its resources sustainably, by minimising waste and preserving our natural assets for future generations.

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**08**

**Protect and enhance natural environments**

Victoria protects natural environmental systems to preserve and enhance healthy, resilient and biodiverse ecosystems for future generations.

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**09**

**Advance climate change mitigation and adaptation**

Victoria's community and economy adapts to the impacts of climate change and achieves the legislated target of net zero greenhouse gas emissions by 2050.

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**10**

**10. Build resilience to shocks**

Victoria can better prevent, respond to, and recover from shocks. Victoria is less vulnerable to economic, technological, biological, ecological, and geopolitical disruptions and emergencies.

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**→**

A common theme running through this strategy is integrating land use and infrastructure. The following table maps out how our recommendations align to the strategy objectives, and with land use and infrastructure integration.



No	Recommendation	Prepare for population change Foster healthy, safe and inclusive communities Reduce disadvantage Enable workforce participation Lift productivity Drive Victoria's changing, globally integrated economy Promote sustainable production and consumption Protect and enhance natural environments Advance climate change mitigation and adaptation Build resilience to shocks Align with land use and infrastructure integration										
		1	2	3	4	5	6	7	8	9	10	
1.	Accelerate consumers' purchases of zero emissions vehicles		●			●		●		●		
2.	Transition government fleet and freight vehicles to zero emissions technologies		●			●		●		●		
3.	Augment electricity transmission for renewable energy and resilience					●	●	●		●	●	
4.	Identify and coordinate Renewable Energy Zones					●	●	●	●	●	●	●
5.	Require 7-star energy-rated new homes by 2022, and increase afterwards		●			●		●		●	●	
6.	Mandate a home energy disclosure scheme		●			●		●		●	●	
7.	Strengthen minimum energy efficiency standards for rented homes		●			●		●		●	●	
8.	Make Victorian Government buildings more energy efficient		●			●		●		●	●	
9.	Encourage demand management pricing to reduce peaks and optimise distributed energy			●		●		●		●	●	
10.	Confirm gas policies and pathways to reach net zero emissions and allow new gas-free homes							●	●	●	●	●
11.	Specify climate scenarios and carbon value in assessing infrastructure									●	●	
12.	Strategically review climate consequences for infrastructure							●	●	●	●	
13.	Consider all water supply sources	●	●			●		●		●	●	
14.	Progress integrated water cycle management	●	●			●		●		●	●	●
15.	Improve decision-making for urban water investment	●				●		●			●	
16.	Strengthen agricultural water security by modernising irrigation					●	●	●		●	●	
17.	Upgrade Victoria's emergency water network		●							●	●	
18.	Invest in protection and adaptation for Victoria's coasts								●	●	●	●
19.	Build back better after emergencies		●	●						●	●	●
20.	Improve critical infrastructure information flows and embed resilience		●	●						●	●	
21.	Prepare for increasingly automated vehicle fleets		●		●	●				●	●	●
22.	Facilitate integration of public transport with new mobility services		●	●	●	●					●	
23.	Incorporate personal mobility devices in regulation		●		●			●	●			
24.	Introduce new road network demand management technology		●			●						



No	Recommendation	<div style="display: flex; justify-content: space-between; text-align: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Prepare for population change</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Foster healthy, safe and inclusive communities</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Reduce disadvantage</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Enable workforce participation</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Lift productivity</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Drive Victoria's changing, globally integrated economy</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Promote sustainable production and consumption</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Protect and enhance natural environments</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Advance climate change mitigation and adaptation</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Build resilience to shocks</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Align with land use and infrastructure integration</div> </div>												
		1	2	3	4	5	6	7	8	9	10			
25.	Use innovation to deliver better models of health care	●	●	●		●				●	●			
26.	Modernise courts through digitisation and contemporary shared facilities	●				●								
27.	Improve technology and infrastructure for a responsive police service		●											
28.	Facilitate improved recycling infrastructure for priority materials					●	●	●	●	●	●	●		
29.	Strengthen end markets for recycled materials					●	●	●		●				
30.	Address barriers to recycling and reducing waste					●		●		●				
31.	Minimise waste and improve residual waste infrastructure planning					●		●		●				
32.	Produce public plans for priority infrastructure sectors	●	●	●	●	●	●			●	●	●		
33.	Publish Victoria's transport plan	●	●	●	●	●	●			●	●	●		
34.	Review Victoria's infrastructure contribution system to cover gaps	●									●	●		
35.	Support more homes in priority established places	●	●		●	●			●			●		
36.	Use value-capture mechanisms to deliver very low income housing	●	●	●	●							●		
37.	Develop an interconnected open space network	●	●						●	●		●		
38.	Partner with local governments to fund pedestrian infrastructure	●	●	●						●	●	●		
39.	Transform cycling in Melbourne, Ballarat, Bendigo and Geelong	●	●	●						●	●	●		
40.	Improve walking and cycling data to better estimate travel, health and safety impacts and benefits		●		●	●				●	●			
41.	Reallocate road space to priority transport modes	●			●	●		●		●		●		
42.	Redesign tram routes	●	●			●								
43.	Activate urban renewal with new tram links	●	●	●	●	●	●					●		
44.	Plan for and fund public transport accessibility, including tram stop upgrades	●	●	●	●							●		
45.	Adopt permanent off-peak discounts for public transport fares	●			●	●		●			●			
46.	Reduce bus and tram fares			●				●						
47.	Remove the free tram zone		●			●		●						
48.	Appoint an independent transport pricing adviser			●		●		●						

No	Recommendation	Prepare for population change Foster healthy, safe and inclusive communities Reduce disadvantage Enable workforce participation Lift productivity Drive Victoria's changing, globally integrated economy Promote sustainable production and consumption Protect and enhance natural environments Advance climate change mitigation and adaptation Build resilience to shocks Align with land use and infrastructure integration									
		1	2	3	4	5	6	7	8	9	10
49.	Reduce inner Melbourne congestion by further reforming parking pricing	●				●		●			
50.	Price parking at major public transport hubs	●		●				●			
51.	Incorporate congestion pricing for all new metropolitan freeways	●				●		●			
52.	Trial full-scale congestion pricing in inner Melbourne	●				●		●			
53.	Phase out fixed road user charges and introduce user pays charging	●				●		●	●		
54.	Require accessible buildings for public services	●	●	●	●						
55.	Rapidly renew old public housing	●	●	●							●
56.	Upgrade and rebuild public hospital infrastructure	●	●			●				●	
57.	Reshape the metropolitan bus network and introduce 'next generation' bus services	●	●		●				●		
58.	Connect suburban jobs through 'next generation' buses and road upgrades	●	●		●	●	●		●		●
59.	Increase off-peak service frequencies and suburban rail corridor capacity	●			●	●	●				●
60.	Reconfigure the City Loop for more frequent and reliable services	●			●	●	●				
61.	Prepare for Melbourne Metro Two and direct Geelong rail services	●			●	●	●				●
62.	Protect a long-term option for a new cross-city motorway	●			●	●	●				●
63.	Optimise capacity at the Port of Melbourne	●				●			●		
64.	Act now to protect the future Bay West Port option	●				●			●		●
65.	Deliver a new intermodal freight terminal for Inland Rail	●			●	●	●				●
66.	Construct an outer metropolitan road and rail corridor	●					●	●		●	●
67.	Co-design an Aboriginal community-controlled infrastructure plan	●	●	●	●	●					
68.	Set targets to grow social housing	●	●	●							●
69.	Build new hospital capacity	●	●	●						●	●
70.	Deliver infrastructure for a more responsive and integrated mental health system	●	●	●	●	●				●	
71.	Plan and consistently deliver corrections and youth justice infrastructure while managing demand with policy settings	●	●			●				●	



No	Recommendation	<div style="display: flex; justify-content: space-between; text-align: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Prepare for population change</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Foster healthy, safe and inclusive communities</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Reduce disadvantage</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Enable workforce participation</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Lift productivity</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Drive Victoria's changing, globally integrated economy</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Promote sustainable production and consumption</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Protect and enhance natural environments</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Advance climate change mitigation and adaptation</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Build resilience to shocks</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">Align with land use and infrastructure integration</div> </div>												
		1	2	3	4	5	6	7	8	9	10			
72.	Prioritise and oversee infrastructure delivery in growing communities	●	●			●						●		
73.	Fund libraries and aquatic centres in growth areas	●	●	●								●		
74.	Extend rail services in Melbourne's western and northern growth areas	●	●	●	●	●	●					●		
75.	Link outer suburbs to rail with 'next generation' buses	●	●	●	●	●	●					●		
76.	Expand and upgrade Melbourne's outer suburban road and bus networks	●	●		●	●	●					●		
77.	Target 30% tree canopy coverage in new growth areas	●	●	●					●	●		●		
78.	Deliver long-term funding certainty for regional road maintenance and upgrades	●	●		●	●	●			●	●			
79.	Fund and plan for ongoing regional rail freight network development and maintenance	●	●			●	●							
80.	Upgrade power supply for agriculture and regional industry					●	●				●			
81.	Plan for and facilitate regional nature-based tourism investment				●	●	●		●			●		
82.	Develop a Victorian Aboriginal tourism strategy with Aboriginal communities		●	●	●		●					●		
83.	Redesign regional public transport to meet local needs	●	●	●	●						●	●		
84.	Address regional Victoria's digital connectivity gaps		●	●	●	●	●				●			
85.	Improve regional telecommunications infrastructure resilience		●	●		●				●	●			
86.	Fund regional libraries to provide better internet access	●	●	●	●									
87.	Use rural schools for children's specialist and allied telehealth services		●	●	●	●								
88.	Deliver multipurpose shared social service facilities in the regions	●	●	●		●						●		
89.	Update community infrastructure		●	●		●						●		
90.	Create climate-adapted facilities for rural communities		●	●					●	●				
91.	Build regional residential alcohol and drug rehabilitation facilities		●	●										
92.	Fund more Youth Foyers in regional Victoria		●	●	●									
93.	Expand social housing in regional centres, in locations with good access	●	●	●								●		
94.	Make social housing suitable for changing local climates		●	●				●		●	●			

Appendix C

# Cost range, timing and funding of recommendations





## 1.0 Introduction

This appendix estimates the cost to the Victorian Government for each recommendation in the strategy, and the proposed timing for each recommendation. This appendix also sets out funding options for recommendations containing specified major projects, policies or reforms with significant capital costs incurred by the Victorian Government. You can find the costing, funding and timing of each recommendation in Section 2 of this appendix. A consolidated diagram showing the timing for each recommendation is in Section 3 of this appendix.

We prepared this data to provide high-level advice to the Victorian Government of the potential costs of recommendations in *Victoria's infrastructure strategy 2021-2051*. Other parties should not rely on it for other purposes. The Victorian Government will need to undertake more detailed costing work and develop business cases through existing investment planning processes. This further planning and more detailed development can consider the necessary implementation, construction and

procurement details, and determine the final scope. Before making an investment decision, the costs and benefits of a project must be re-assessed based on final scope to achieve value for money.

### 1.1 Basis of cost estimates

This appendix sets out strategic level costings only. The appendix documents the assumptions we made to generate the estimates. The Victorian Government will need to undertake further work to fully detail the projects, policies and reforms, and cost them as part of regular investment processes.

The estimated implementation and capital cost range includes, where relevant, staff and consultancy costs to develop a proposal and manage its implementation. Where the recommendation proposes upgrading existing infrastructure, or providing new infrastructure, the estimated capital cost includes the cost to scope, specify and procure that infrastructure. We also comment on potential infrastructure operational costs the Victorian Government could incur to operate and maintain the infrastructure over the 30 years of the strategy, where we can estimate it,

or alternatively, we discuss the whole-of-life value for money a recommendation can achieve. We do not comment on the costs of delivering services from the infrastructure, such as health or education services.

We have estimated a cost range for each recommendation, rather than provide an absolute number. This reflects the uncertainty inherent in preparing costs for strategic initiatives in early development. Example cost ranges are:

- \ <\$1 million
- \ \$1 million to \$5 million\*
- \ \$1 million to \$10 million\*
- \ \$10 million to \$25 million
- \ \$25 million to \$50 million

*\* Note a range of both \$1 million to \$5 million and \$1 million to \$10 million has been adopted to reflect how there is less certainty around the role for government for some recommendations than others, and therefore a greater cost range is required.*

**Table 1: Expected cost accuracy for projects at different stages**

Stage	Processes	Estimate	Description and design accuracy
1. Business case (investment case)	<b>Investment logic</b> Problem, benefits identification, response options, indicative solutions	Order of magnitude estimate type -40% to +60%	This estimate is used for screening and is based on historical information. Order of magnitude estimates are developed when a quick estimate is needed and few details are available. It is typically developed to support 'what if' analyses. It is helpful for examining differences in high-level alternatives to see which are the most feasible. As it is developed from limited data, and in a short time, a rough order of magnitude analysis should never be considered a budget-quality cost estimate.
	<b>Project scoping</b> Project option appraisal, defined project scope (and options for further consideration) with concept design	Concept estimate -30% to +60%	This estimate is based on concept design data. For less complex projects, this level of estimate accuracy is sufficient to robustly compare project options. Project definition is likely to be 1% to 10% complete. In many cases, benchmark project data will be available that considerably reduces uncertainty (increase accuracy). For example, if a project were a new school, extensive industry benchmark data from previous school developments is available.

Source: *Department of Treasury and Finance, Victorian Government investment lifecycle and high value high risk guidelines: overview and glossary, 2019, p. 16*

Table 2: Escalation rates for historic costs

Column	A	B	C	D	E
Source	ABS Producer Price Indexes, Australia, 6427.0 Table 17 Output of the Construction industries			ABS CPI 64.1.0 Table 5	Rate adopted in estimates
ABS Index	Road & Bridge construction Vic	Heavy & Civil Engineering construction Aus	Other Heavy & Civil Engineering construction Aus	All groups Melbourne	
ABS Index No.	3101	31	3109	3109	
Series ID	A2333706A	A85219099L	A85220823L	A2325811C	
2015 to 2020	11.7%	9.0%	9.2%	8.0%	9.0%
2016 to 2020	14.2%	9.3%	9.4%	6.5%	9.3%
2017 to 2020	13.3%	7.6%	7.9%	4.2%	7.6%
2018 to 2020	2.5%	4.1%	4.5%	1.7%	4.1%
2019 to 2020	-0.6%	1.0%	1.5%	0.3%	1.0%

For recommendations more than \$50 million, the cost range may be very wide, based on the certainty of information available at the time. All estimated costs in this report are nominal dollars at June 2020. We do not cite reference sources where the cost is based on confidential data.

The capital cost estimates presented in this report typically provide an 'order of magnitude' cost, as defined in the *Victorian Government investment lifecycle and high value high risk guidelines* (see Table 1 ).<sup>1</sup> We have applied this range to our calculated estimates. In some cases, we have used a narrower cost range where there could be a lower delivery risk or lower level of uncertainty.

Where we used previous infrastructure cost estimates, developed from 2015 to 2020, we used the rates shown in column E of Table 2 to provide a value in June 2020 dollars. The rates in column E, provided by the ABS, are higher than the Consumer Price Index (CPI), the measure for general inflation, recognising that construction prices in general have tended to increase at a higher rate than CPI. We used the rates in column E for all

infrastructure sectors, except for road and bridge construction where we used the ABS producer price index for that category (column A). Road and bridge construction prices have increased more than other construction categories in recent years, except in 2019-20.

## 1.2 Estimated capital cost for Victoria's infrastructure strategy 2021-2051

Based on our strategic level costings, we estimate the recommendations in *Victoria's infrastructure strategy 2021-2051* represent approximately \$100 billion in capital infrastructure investment over the next 30 years. Some of these costs are for new initiatives, such as building the E6 roadway as part of the outer metropolitan road corridor (recommendation 66 – 'Construct an outer metropolitan road and rail corridor'). Other recommendations can be characterised as 'business as usual expenditure', such as the cost for ongoing rail corridor upgrades (recommendation 59 – 'Increase off-peak service frequencies and suburban rail corridor capacity'), although we have included these costs in our overall estimate.

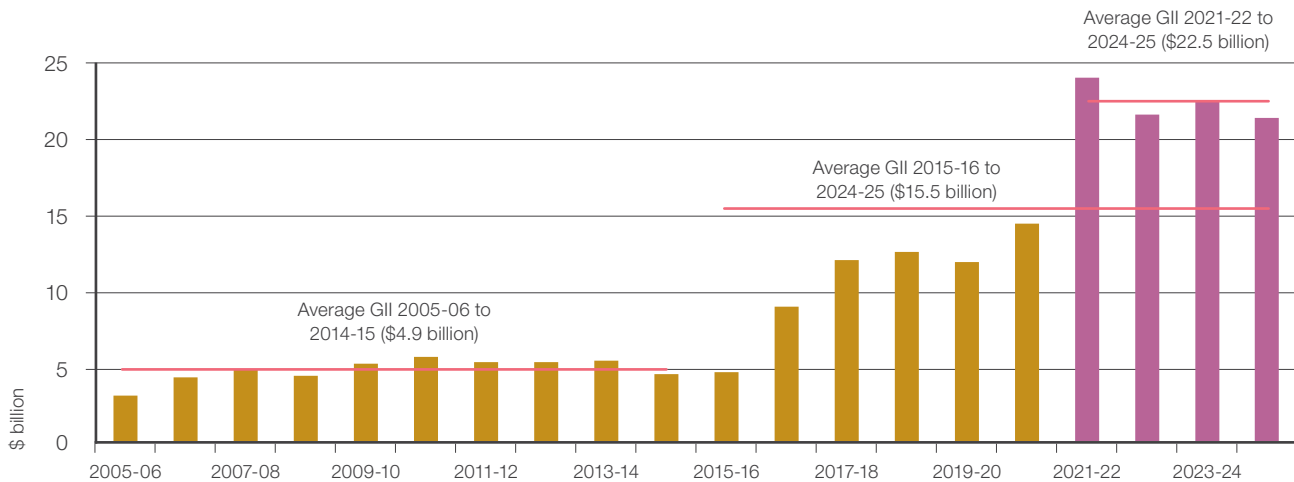
The recommendations do not cover all necessary Victorian Government infrastructure investment over the next 30 years. Victoria will require other ongoing 'business as usual' capital expenditure on infrastructure, such as building new schools to meet population growth.

The estimated capital cost profile for the recommendations averages approximately \$3 billion for each year for the first four years from 2021. The Victorian Government has already committed funding for components of some recommendations in this initial period, such as for its Big Housing Build program.<sup>2</sup> Other strategy recommendations require initial planning in the next few years before construction starts, which keeps expenditure low. Estimated capital costs rises to around \$8 billion each year from 2025 to 2030.

Beyond 2031, the estimated capital cost profile for the recommendations is around \$4 billion each year from 2031 to 2035, before reducing to approximately \$1 billion each year from 2036 to 2050. This reflects that strategy recommendations are focused on planning and preparing for



Figure 1: Government infrastructure investment (GII)



## Notes:

- (a) Includes general government net infrastructure investment and estimated cash flows for public private partnership projects.  
 (b) Includes the estimated private sector construction related expenditure associated with the North East Link held in the PNFC sector.  
 (c) Excludes the impact of the medium term lease over the operations of the Port of Melbourne and the divestment of Victoria's share of Snowy Hydro Limited.  
 (d) The figure for 2020-21 is an estimate

Source: Department of Treasury and Finance, Victorian Budget 2021-22: Strategy and outlook, 2021, p. 69

major infrastructure projects, monitoring demand for them, and making decisions to proceed closer to the time for implementation.

Of the 94 recommendations, only 41 involve Victorian Government infrastructure capital investment. The other 53 relate to policy work, legislative reform and better planning. Of the 41 recommendations involving capital infrastructure investment, 12 relate to upgrading or replacing existing infrastructure that it not operating efficiently.

Figure 1 shows the Victorian Government's current infrastructure investment profile.<sup>3</sup> Current government infrastructure investment is at record levels, and averages \$15.5 billion each year from 2015-16 to 2024-25. While we considered the broad cost implications of the recommendations, this strategy is not a budgeting exercise. Victorian Government budget figures are forward-looking for four years only, and the government is ultimately responsible for prioritising infrastructure spending according to Victoria's prevailing financial position and broader fiscal policy settings.

### 1.3 Basis of funding recommendations

Under the *Infrastructure Victoria Act 2015*, the 30-year infrastructure strategy must include recommendations regarding the funding options for specified major projects, policies, or reforms. Funding is the revenue needed to pay for infrastructure. The revenue ultimately comes from the community from taxation, direct user charges or by reallocating government spending from other initiatives.

Financing is a different concept to funding. The type of financing a government adopts dictates when it pays for infrastructure. Governments can finance in different ways, including using current revenue, existing cash balances, or by borrowing. Borrowing requires paying interest on the debt and repaying it later. Borrowing is a financing instrument, not a funding source. Decisions on financing are typically determined when government procures infrastructure, after deciding to proceed with and fund a project.

### Funding sources affect who pays for infrastructure

General government revenue raised through taxation from the community often funds public infrastructure. This traditional funding model is generally simple, transparent and effective. But it is not always the fairest or most efficient method. Government infrastructure spending sometimes benefits particular individuals or businesses. For example, a logistics firm may save money because a new road allows them to transport goods faster and more cheaply. Alternatively, a nearby landowner may receive a windfall gain, as new infrastructure makes their land more attractive to potential buyers, allowing them to sell it for more money. Asking these beneficiaries to contribute can be more equitable, and reduce the need for general government revenue.

The Victorian Government can also look to add value to its infrastructure investment, and partner with the private sector to deliver more benefits. For example, leasing parts of a train station to commercial businesses can collect extra revenue and help to offset some of the construction costs.

When developing infrastructure investment proposals, Victorian Government departments and agencies must consider relevant alternative funding sources that may offset part of the costs of a proposal.<sup>4</sup> Alternative funding sources may never completely fund a major infrastructure project, but they can contribute. Alternative funding sources do not change a proposal's underlying merits. Proper investment management processes should ensure that projects stack up on their merits, including by completing a robust business case.

### Mechanisms to help fund infrastructure

Funding mechanisms are ways to generate revenue from infrastructure and planning decisions. Each individual project must consider funding mechanisms to assess their fairness and ability to be implemented. Infrastructure Victoria encourages the Victorian Government to consider a mix of funding mechanisms in its infrastructure investment and planning decisions. This means directing general government revenue to initiatives with wide public benefits, and collecting contributions from beneficiaries when benefits are higher for some groups.

In this appendix, we consider the following funding mechanisms for infrastructure and planning:

**User charges** – contributions made by the businesses or individuals who directly use the infrastructure. User charges reduce the call on community-wide funding, and when there is full cost recovery, those who do not use the infrastructure do not pay for it.

**Beneficiary charges** – contributions from businesses or individuals who indirectly benefit from infrastructure investment, or a related planning decision. Beneficiary charges often accrue to landowners located near the infrastructure, or benefit from related planning and zoning changes, even if they do not actually use the infrastructure. These can include:

- \ Developer contributions
- \ Betterment levies
- \ Major beneficiary contributions.

**Property development rights** – selling land or airspace development rights near or as part of public infrastructure, or commercially leasing space in buildings.

**Asset sales or long leases** – selling or privatising public infrastructure, or providing long asset leases.

**Donations and bequests** – individuals or groups may contribute towards public infrastructure they feel a personal connection to, for instance, a local school or hospital.

These different funding mechanisms are discussed more fully in our reports, *Funding and financing – draft additional information paper*,<sup>5</sup> and *Value capture – options, challenges and opportunities for Victoria*,<sup>6</sup> available at [infrastructurevictoria.com.au](http://infrastructurevictoria.com.au).

### Funding recommendations for specified major projects, policies and reforms

*Victoria's infrastructure strategy 2021-2051* makes several recommendations to improve existing funding mechanisms or proposes new funding ones. These major policies and reforms seek to improve incentives for people to use infrastructure more efficiently by managing or shifting demand, or help recover the cost of infrastructure in better, fairer ways.

They include policies and reforms to:

#### Road user charges:

- \ Reduce inner Melbourne congestion by further reforming parking pricing (recommendation 49)
- \ Price parking at major public transport hubs (recommendation 50)
- \ Incorporate congestion pricing for all new metropolitan freeways (recommendation 51)
- \ Phase out fixed road user charges and introduce user pays charging (recommendation 53).

#### Public transport fares:

- \ Adopt permanent off-peak discounts for public transport fares (recommendation 45)
- \ Reduce bus and tram fares (recommendation 46)
- \ Remove the free tram zone (recommendation 47).

#### Developer contributions:

- \ Encourage demand management pricing to reduce peaks and optimise distributed energy (recommendation 9).
- \ Review Victoria's infrastructure contributions system to cover gaps (recommendation 34)
- \ Use value capture mechanisms to deliver very low income housing (recommendation 36)
- \ Develop an interconnected open space network (recommendation 37).

#### Long leases:

- \ Plan for and facilitate regional nature-based tourism investments (recommendation 81).

Road user charges and public transport fares already contribute to general government revenue as a significant revenue stream. Motorists currently pay a set of fixed charges including registration, accident insurance, stamp duty, and some pay fuel excise and heavy vehicle charges. These charges do not reflect all the costs of road infrastructure including congestion, air and noise pollution, emissions, and road trauma. Public transport fares currently only recoup a small portion of train, tram and bus operating costs, and do not fund infrastructure. Our proposed reforms will manage congestion and get better use from existing infrastructure. Reforms to these charges can be done in a way that is revenue neutral, as discussed in our research *Good move: fixing transport congestion*<sup>7</sup> and *Fair move: better public transport fares for Melbourne*.<sup>8</sup>

In this appendix, we provide further funding advice for new infrastructure projects and programs with significant capital costs to the Victorian Government in the short to medium term. We also provide advice about projects and programs where significant opportunities likely exist for government to leverage alternative funding mechanisms.



## 2.0 Recommendation cost range, timing and funding recommendations

Recommendation	Pg	Recommendation	Pg
1. Accelerate consumer purchases of zero emissions vehicles	21	22. Facilitate integration of public transport with new mobility services	30
2. Transition government fleet and freight vehicles to zero emissions technologies	21	23. Incorporate personal mobility devices in regulation	31
3. Augment electricity transmission for renewable energy and resilience	22	24. Introduce new road network demand management technology	31
4. Identify and coordinate Renewable Energy Zones	22	25. Use innovation to deliver better models of health care	32
5. Require 7-star energy-rated new homes by 2022, and increase afterwards	23	26. Modernise courts through digitisation and contemporary shared facilities	32
6. Mandate a home energy disclosure scheme	23	27. Improve technology and infrastructure for a responsive police service	33
7. Strengthen minimum energy efficiency standards for rented homes	24	28. Facilitate improved recycling infrastructure for priority materials	33
8. Make Victorian Government buildings more energy efficient	24	29. Strengthen end markets for recycled materials	34
9. Encourage demand management pricing to reduce peaks and optimise distributed energy	25	30. Address barriers to recycling and reducing waste	34
10. Confirm gas policies and pathways to reach net zero emissions and allow new gas-free homes	25	31. Minimise waste and improve residual waste infrastructure planning	35
11. Specify climate scenarios and carbon value in assessing infrastructure	26	32. Produce public plans for priority infrastructure sectors	35
12. Strategically review climate consequences for infrastructure	26	33. Publish Victoria's transport plan	36
13. Consider all water supply sources	26	34. Review Victoria's infrastructure contribution system to cover gaps	36
14. Progress integrated water cycle management	27	35. Support more homes in priority established places	37
15. Improve decision-making for urban water investment	27	36. Use value-capture mechanisms to deliver very low income housing	37
16. Strengthen agricultural water security by modernising irrigation	27	37. Develop an interconnected open space network	38
17. Upgrade Victoria's emergency water network	28	38. Partner with local governments to fund pedestrian infrastructure	38
18. Invest in protection and adaptation for Victoria's coasts	28	39. Transform cycling in Melbourne, Ballarat, Bendigo and Geelong	39
19. Build back better after emergencies	29	40. Improve walking and cycling data to better estimate travel, health and safety impacts and benefits	39
20. Improve critical infrastructure information flows and embed resilience	29	41. Reallocate road space to priority transport modes	40
21. Prepare for increasingly autonomous vehicle fleets	30	42. Redesign tram routes	40
		43. Activate urban renewal with new tram links	41

Recommendation	Pg
44. Plan for and fund public transport accessibility, including tram stop upgrades	42
45. Adopt permanent off-peak discounts for public transport fares	43
46. Reduce bus and tram fares	43
47. Remove the free tram zone	44
48. Appoint an independent transport pricing adviser	44
49. Reduce inner Melbourne congestion by further reforming parking pricing	44
50. Price parking at major public transport hubs	45
51. Incorporate congestion pricing for all new metropolitan freeways	45
52. Trial full-scale congestion pricing in inner Melbourne	46
53. Phase out fixed road user charges and introduce user pays charging	46
54. Require accessible buildings for public services	47
55. Rapidly renew old public housing	48
56. Upgrade and rebuild public hospital infrastructure	49
57. Reshape the metropolitan bus network and introduce 'next generation' bus services	50
58. Connect suburban jobs through 'next generation' buses and road upgrades	50
59. Increase off-peak service frequencies and suburban rail corridor capacity	51
60. Reconfigure the City Loop for more frequent and reliable services	52
61. Prepare for Melbourne Metro Two and direct Geelong rail services	53
62. Protect a long-term option for a new cross-city motorway	54
63. Optimise capacity at the Port of Melbourne	55
64. Act now to protect the future Bay West Port option	56
65. Deliver a new intermodal freight terminal for Inland Rail	57
66. Construct an outer metropolitan road and rail corridor	58
67. Co-design an Aboriginal community-controlled infrastructure plan	59
68. Set targets to grow social housing	60
69. Build new hospital capacity	61
70. Deliver infrastructure for a more responsive and integrated mental health system	62

Recommendation	Pg
71. Plan and consistently deliver corrections and youth justice infrastructure while managing demand with policy settings	63
72. Prioritise and oversee infrastructure delivery in growing communities	63
73. Fund libraries and aquatic centres in growth areas	64
74. Extend rail services in Melbourne's western and northern growth areas	65
75. Link outer suburbs to rail with 'next generation' buses	66
76. Expand and upgrade Melbourne's outer suburban road and bus networks	67
77. Target 30% tree canopy coverage in new growth areas	67
78. Deliver long-term funding certainty for regional road maintenance and upgrades	68
79. Fund and plan for ongoing regional rail freight network development and maintenance	68
80. Upgrade power supply for agriculture and regional industry	69
81. Plan for and facilitate regional nature-based tourism investments	69
82. Develop a Victorian Aboriginal tourism strategy with Aboriginal communities	70
83. Redesign regional public transport to meet local needs	70
84. Address regional Victoria's digital connectivity gaps	71
85. Improve regional telecommunications infrastructure resilience	71
86. Fund regional libraries to provide better internet access	72
87. Use rural schools for children's specialist and allied telehealth services	72
88. Deliver multipurpose shared social service facilities in the regions	72
89. Update community infrastructure	73
90. Create climate-adapted facilities for rural communities	73
91. Build regional residential alcohol and drug rehabilitation facilities	74
92. Fund more Youth Foyers in regional Victoria	74
93. Expand social housing in regional centres, in locations with good access	74
94. Make social housing suitable for changing local climates	75



**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

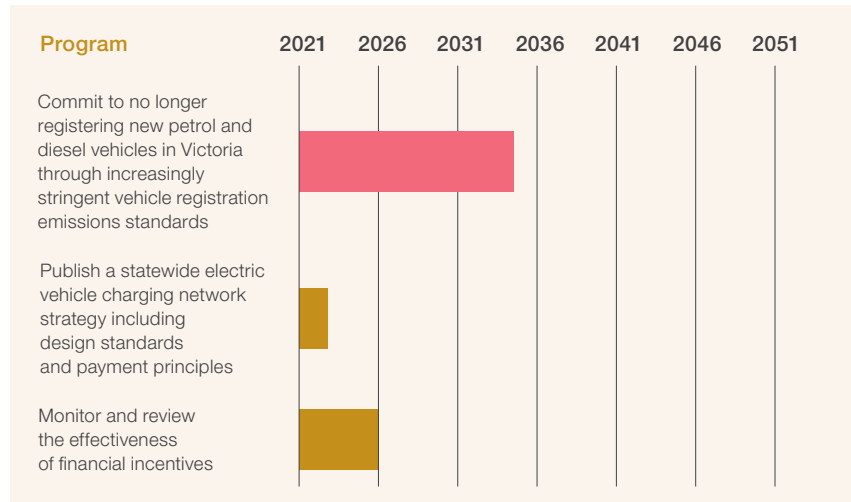
**Recommendation 1**

### Accelerate consumer purchases of zero emissions vehicles

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$5 million to \$10 million

**Infrastructure operational cost:**  
Not applicable



The cost range makes staffing assumptions for implementing, reviewing and monitoring policy and regulatory changes over five years, to encourage the uptake of zero emissions vehicles. It also allows for staff costs and consultancies to investigate the development of a vehicle charging network strategy.

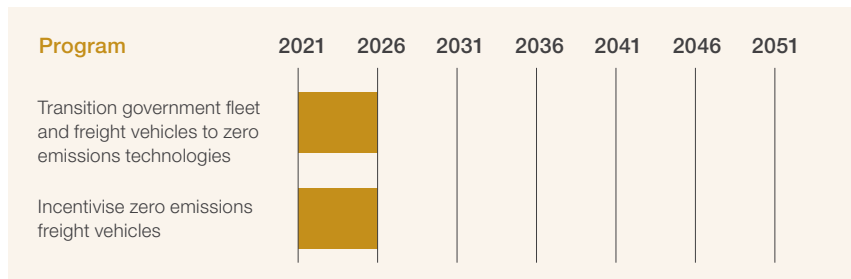
**Recommendation 2**

### Transition government fleet and freight vehicles to zero emissions technologies

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$10 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes staffing costs and consultancies for reviewing policies, undertaking consultation and changing regulations to allow zero emissions freight vehicles to travel in more areas at more times, and charging infrastructure costs for the Victorian Government passenger fleet. For Victorian Government passenger fleet charging infrastructure, we have assumed two fast electric charging points for passenger vehicles at three city office locations and 23 office locations across Victoria, based on the Department of Education regional locations,<sup>9</sup> at a cost of around \$40,000 for each charging point.<sup>10</sup>

The cost of upgrading the electricity network is not included in the cost range. Moving the Victorian Government passenger fleet to electric vehicles is assumed to be cost neutral, given electric vehicles have lower running costs compared with internal combustion engine vehicles. We have not provided an estimated cost for hydrogen vehicles and hydrogen charging infrastructure, though this could be an implementation option.

We assume the transition to a zero emissions public bus fleet and associated charging infrastructure are already committed by the Victorian Government,<sup>11</sup> and these costs are not included in the cost range.

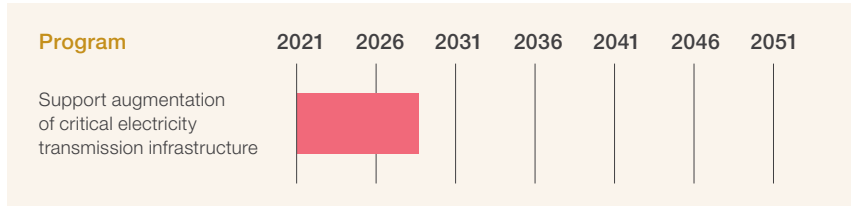
Recommendation 3

### Augment electricity transmission for renewable energy and resilience

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
1 million to \$10 million

**Infrastructure operational cost:**  
Not applicable



The recommendation proposes supporting the delivery of the Victoria to New South Wales Interconnector West (VNI West) and Marinus Link transmission infrastructure through expediting planning and approval processes. The implementation and capital cost range has been derived from estimated departmental costs to streamline the Environmental Effects Statement process and involves no capital cost.<sup>12</sup> The private sector provides and runs electricity transmission infrastructure, with electricity users funding it through their power bills so there is not necessarily a need for capital investment by the Victorian Government.

We recommend the existing mix of mechanisms fund the projects, including user charges and beneficiary charges. The Australian Energy Regulator (AER) oversees the sector, allowing distribution of infrastructure costs over the asset’s life, and ensuring companies do not overcharge consumers. The AER sets maximum revenues that the transmission network business can recover from consumers through network charges. The current cost estimates for VNI West are \$1.2 billion to \$2.2 billion for a Shepparton route, and \$1.7 billion to \$3.1 billion for a Kerang route.<sup>13</sup> The cost estimate for Marinus Link stage 1 is currently \$1.2 billion to \$2.4 billion.<sup>14</sup>

The transmission network business can also directly fund infrastructure by negotiating with another party. For example, an electricity generator or large factory may need an infrastructure upgrade and be willing to pay for it.<sup>15</sup> Governments have also contributed to transmission investment in recent years to support timely delivery. For example, the Australian and Victorian governments have provided funding to the VNI West project to underwrite some early works,<sup>16</sup> and the Australian Government has contributed funding to progress Marinus Link.<sup>17</sup>

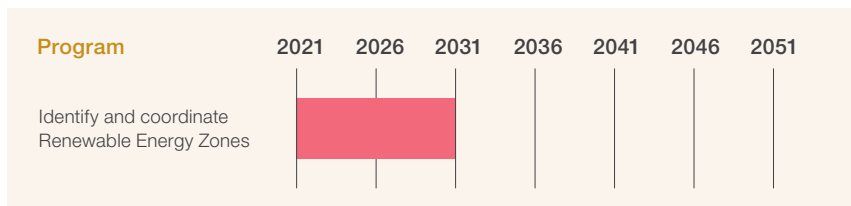
Recommendation 4

### Identify and coordinate Renewable Energy Zones

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$25 million to \$50 million

**Infrastructure operational cost:**  
Not applicable



The cost range assumes an ongoing role for VicGrid as the steward of Victoria’s Renewable Energy Zones for 10 years from 2022 to 2031. It is based on an assumed staffing cost and involves no capital cost. We did not include VicGrid’s establishment costs because the Victorian Government has already set the organisation up.

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

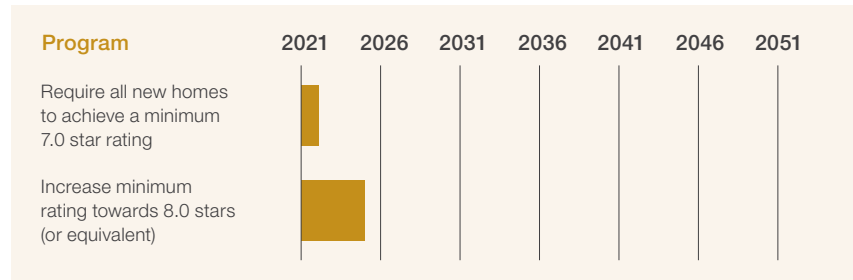
**Recommendation 5**

Require 7-star energy-rated new homes by 2022, and increase afterwards

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$10 million

**Infrastructure operational cost:**  
Not applicable



The cost range recognises the Victorian Government has provided funding to implement a 7-star energy efficiency standard,<sup>18</sup> and applies the same funding level to progress towards 8-stars or equivalent standard, and includes developing a Regulatory Impact Statement.

Regulatory Impact Statements examine the costs and benefits of reform, including who is impacted. In this case, homeowners will bear the costs of incorporating improved energy efficiency measures in new homes, as well as receive the benefits. This recommendation does not create any Victorian Government capital or infrastructure operational costs.

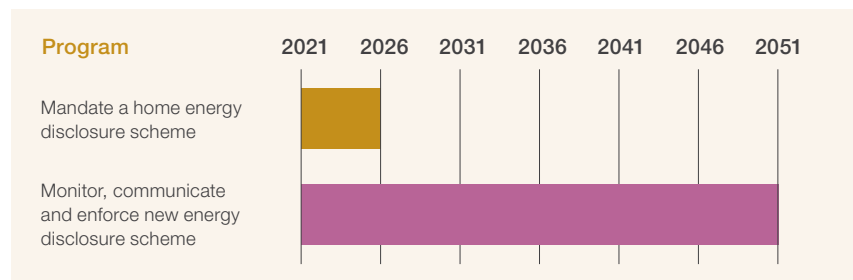
**Recommendation 6**

Mandate a home energy disclosure scheme

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$10 million

**Infrastructure operational cost:**  
Not applicable



The cost range assumes policy, legislative and ongoing monitoring, compliance, and enforcement activities. It is based on staffing assumptions and draws upon costs developed by the Cooperative Research Centre for Low Carbon Living which includes upfront initial investment to establish and promote the home disclosure scheme, with cost recovery coming into effect after five years.<sup>19</sup>

A mandatory disclosure scheme can have significant benefits. National modelling to 2050 estimated an economic benefit of \$1.2 billion from a disclosure scheme for detached houses alone, saving the equivalent of 6.2 million homes' annual energy use, with 106.7 petajoules of energy saved.<sup>20</sup> This also saves energy infrastructure costs. Such a scheme does not force homeowners to undertake upgrades, but they can do so where cost-effective. This recommendation does not create any Victorian Government capital or infrastructure operational costs.



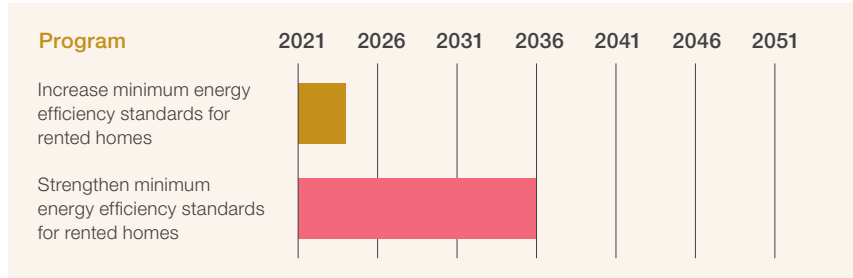
Recommendation 7

### Strengthen minimum energy efficiency standards for rented homes

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$10 million to \$15 million

**Infrastructure operational cost:**  
Not applicable



The cost range is based on staffing assumptions to develop and consult on the regulatory changes, including preparation of a Regulatory Impact Statement, and other resources for monitoring, enforcement, and communicating with renters and landlords. It also assumes some extra costs to build upon existing incentive programs to improve the ability of renters to discuss and negotiate improvements above minimum requirements.

Minimum rental standards also apply to social housing. As such, this recommendation also has a capital cost to the Victorian Government, which we estimate in recommendation 94 – ‘Make social housing suitable for changing local climates’.

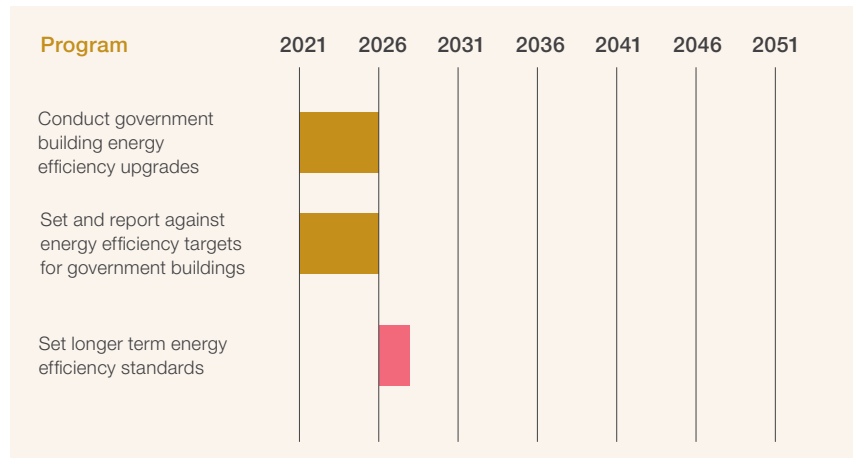
Recommendation 8

### Make Victorian Government buildings more energy efficient

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not assessed



The cost range is based on the provision of minimal additional resources to set and report against a retrofitting target to support delivery of energy use savings in owned and leased Victorian Government buildings, as resources are already allocated to this under the whole of Victorian Government emissions reduction pledge.<sup>21</sup> The cost also allows for a review to gather further information about buildings and upgrades to support setting a longer-term target after five years. The costing also assumes the Greener Government Buildings program continues to provide adequate support in the next five years, noting the savings generated from energy efficiency upgrades will be reinvested in further upgrades across the Victorian Government.<sup>22</sup>

Infrastructure capital and operational costs to implement this recommendation have not been included in the estimated cost range. Savings to Victorian Government operating costs have not been assessed, but the Greener Government Buildings program has delivered \$27 million of annual savings through \$200 million investment in energy efficiency and renewable energy projects.<sup>23</sup>

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

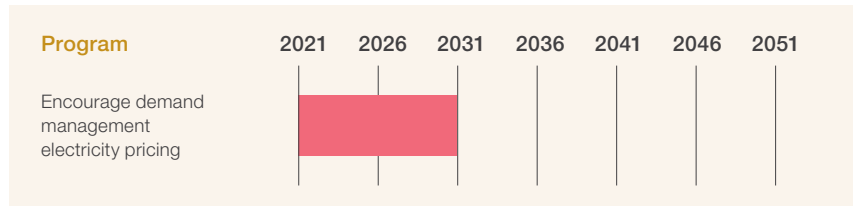
**Recommendation 9**

Encourage demand management pricing to reduce peaks and optimise distributed energy

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 to \$10 million

**Infrastructure operational cost:**  
Not applicable



The cost range includes activities to encourage existing electricity customers to switch to demand management pricing. This includes working with energy distributors and retailers, and monitoring equity issues. The costing does not include adjustments to energy concessions or other measures, as this depends on the findings of monitoring. The cost is based on previous estimates developed for Infrastructure Victoria for a similar policy initiative in 2016.<sup>24</sup>

This recommendation does not have any anticipated capital or infrastructure operational costs for the Victorian Government.

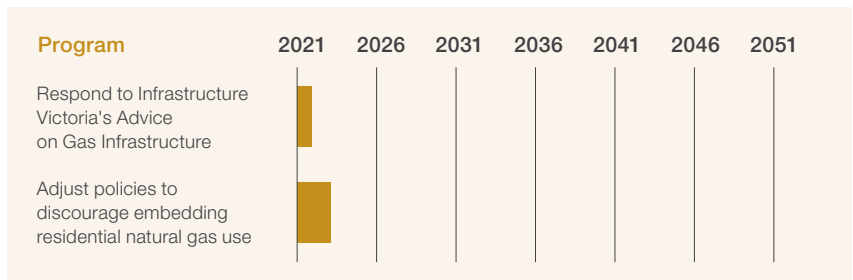
**Recommendation 10**

Confirm gas policies and pathways to reach net zero emissions and allow new gas-free homes

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not applicable



The cost range makes staffing assumptions for policy and regulatory changes, following delivery of Infrastructure Victoria's advice. Infrastructure Victoria has been asked to advise the Victorian Government on Victoria's gas transmission and distribution networks in different 2050 energy sector scenarios.<sup>25</sup> The advice will inform the Victorian Government's *Gas substitution roadmap*.<sup>26</sup> The recommendation does not include any capital or infrastructure operational costs for the Victorian Government.

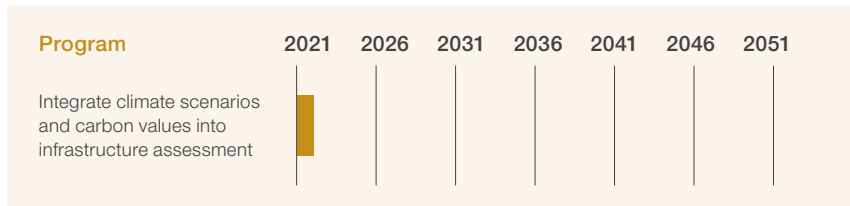
**Recommendation 11**

Specify climate scenarios and carbon value in assessing infrastructure

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
Less than \$1 million

**Infrastructure operational cost:**  
Not applicable



The cost range makes staffing assumptions to update the Victorian Government's infrastructure assessment guidance.<sup>27</sup> It is assumed minimal resources are needed as existing and growing literature can be leveraged. This recommendation does not include any capital or infrastructure operational costs for the Victorian Government.

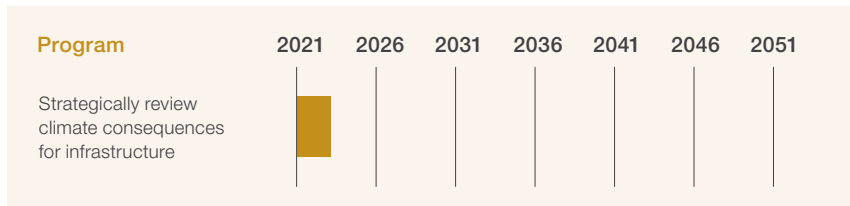
**Recommendation 12**

Strategically review climate consequences for infrastructure

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not applicable



The cost range is based on Infrastructure Victoria's experience with small, 12-month project teams to develop in-depth advice to the Victorian Government, with resources for technical services.

This recommendation does not create any Victorian Government capital or infrastructure operational costs in undertaking the review.

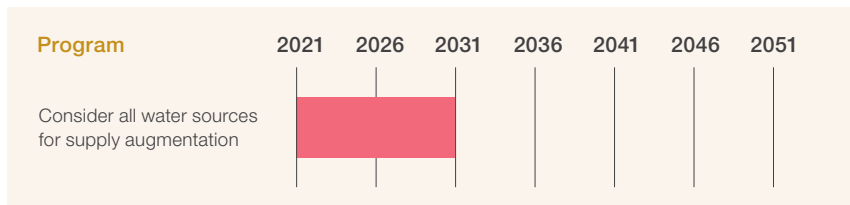
**Recommendation 13**

Consider all water supply sources

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$50 million to \$100 million

**Infrastructure operational cost over 30 years:**  
Not applicable



The cost range includes the activities of developing policy, undertaking community and regulator consultation and education, providing funding for health studies, and supporting pilot programs. The cost makes staffing assumptions and uses national health research grants related to water as a benchmark, although these are not directly related to recycled water.<sup>28</sup> The cost also incorporates information on the Western Australian groundwater replenishment trial.<sup>29</sup>

This recommendation does not include any Victorian Government capital or infrastructure operational costs.



**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

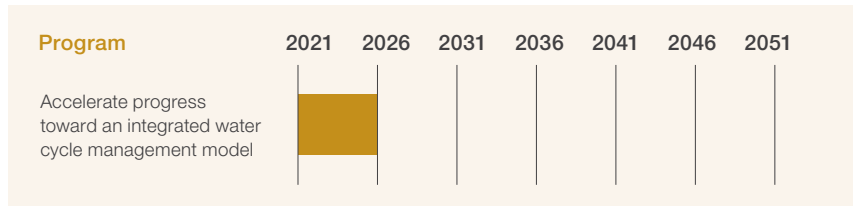
**Recommendation 14**

### Progress integrated water cycle management

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not applicable



The cost range includes policy, planning and regulatory change, and broad community and stakeholder consultation. The costing assumes the recommended activities require a dedicated policy team for five years.

This recommendation does not include any Victorian Government capital or infrastructure operational costs.

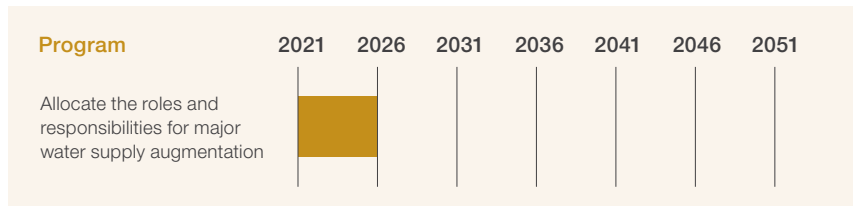
**Recommendation 15**

### Improve decision-making for urban water investment

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not applicable



The cost range includes policy development and water sector consultation. It assumes a small project team, with some implementation costs. This recommendation does not include any Victorian Government capital or infrastructure operational costs.

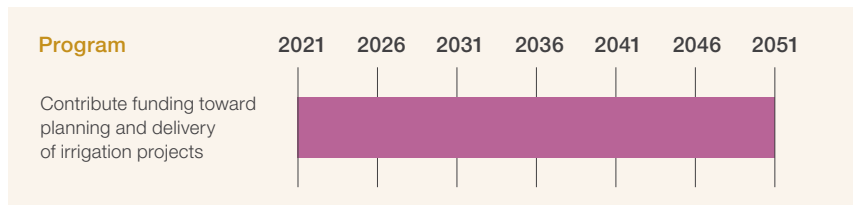
**Recommendation 16**

### Strengthen agricultural water security by modernising irrigation

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$50 million to \$100 million

**Infrastructure operational cost:**  
Not applicable



The cost range includes contributing to early planning studies and district-scale irrigation projects. It assumes one planning study is supported every year for up to \$750,000, and one project is funded for up to \$10 million every five years. This is based on previous commitments by the Victorian and Australian governments. For example, the Victorian Government is contributing \$10.4 million of the total \$62.7 million cost of Stage 2 of the Macalister Irrigation District. The Australian Government is contributing \$31 million, with the remaining \$21.3 million being paid for by Southern Rural Water Macalister Irrigation District customers.<sup>30</sup>

Water infrastructure is owned by the public water corporations, with economic regulation applied to services. This means that ongoing operational costs would be funded through user charges.

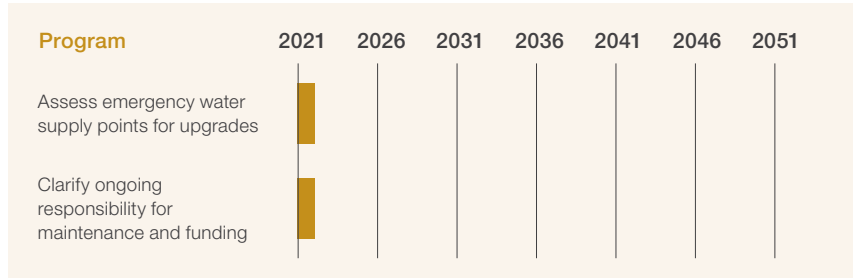
Recommendation 17

### Upgrade Victoria's emergency water network

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not assessed



The cost range for upgrading Victoria's emergency water network includes undertaking an assessment of emergency water supply points, identifying needs and ongoing responsibilities for maintenance and funding, and some infrastructure upgrades or replacement. The cost range is based on earlier Victorian Government investments toward improving access to supply points.<sup>31</sup>

Future capital and infrastructure operational costs are not assessed as this recommendation calls for a full assessment to decide future action.

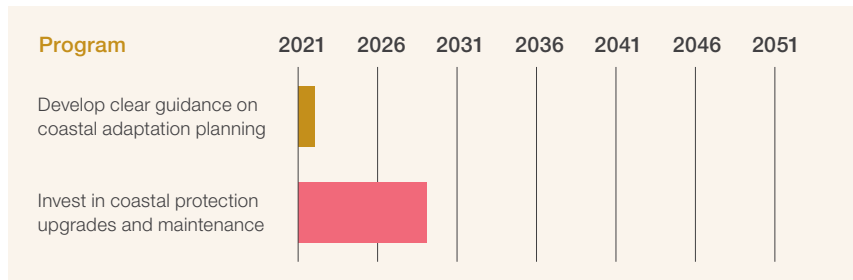
Recommendation 18

### Invest in protection and adaptation for Victoria's coasts

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$25 million to \$50 million

**Infrastructure operational cost:**  
Not assessed



The cost range is based on the existing Climate Ready Victorian Infrastructure – Critical Coastal Protection Assets capital funding<sup>32</sup> and assumes a similar capital funding level of \$3.75 million each year to provide a level of funding certainty.

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

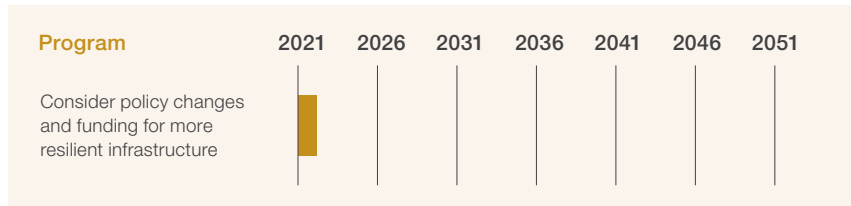
**Recommendation 19**

Build back better after emergencies

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
Less than \$1 million

**Infrastructure operational cost:**  
Not applicable



The cost range estimates the resources to investigate measures, review agreements, identify funding mechanisms to enable ‘building back better’, and establish processes. It does not include an amount for building after an emergency, as this may vary.

A dedicated recovery betterment fund is one such funding mechanism. For instance, the Queensland and Australian governments jointly established a \$100 million betterment program to build back better, more resilient essential public infrastructure damaged by the North and Far North Queensland Monsoon Trough (25 January – 14 February 2019). This leveraged Australian Government–State Government disaster recovery cost sharing arrangements,<sup>33</sup> and could be a good starting benchmark.

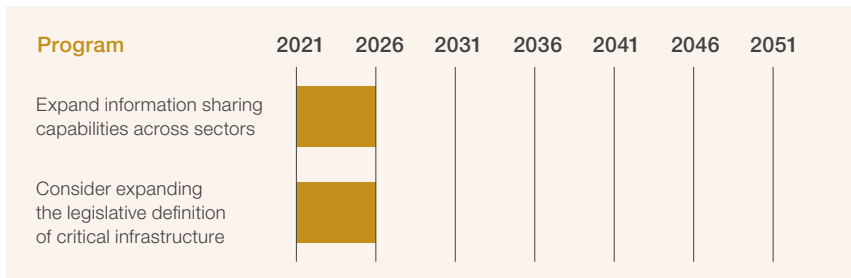
**Recommendation 20**

Improve critical infrastructure information flows and embed resilience

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$5 million to \$10 million

**Infrastructure operational cost:**  
Not assessed



The cost range estimates resources to review and potentially change legislation, and facilitate information sharing to improve critical infrastructure information flows. This costing does not include any Victorian Government capital or infrastructure operational costs.



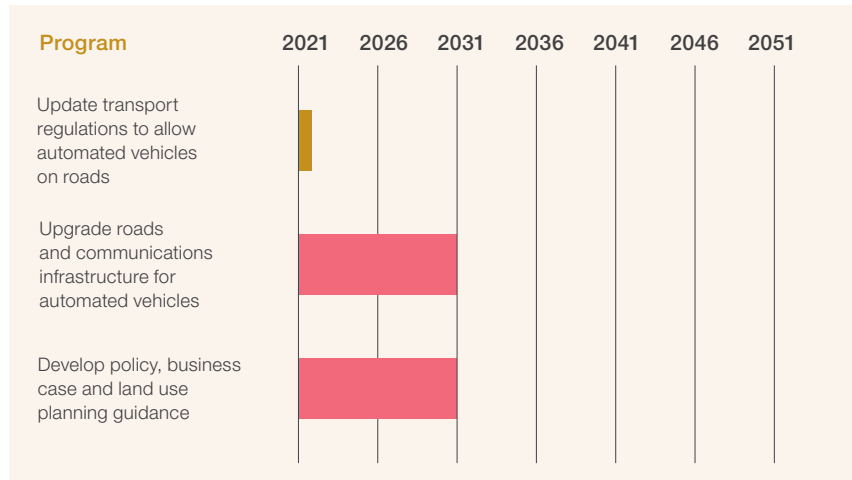
Recommendation 21

## Prepare for increasingly autonomous vehicle fleets

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$300 million to \$800 million

**Infrastructure operational cost:**  
Not applicable



The majority of the estimated cost is attributed to capital costs for road upgrades, with the scope including line marking,<sup>34</sup> vehicle-to-vehicle information and communications technology (ICT)<sup>35</sup> and basic mobile network communications,<sup>36</sup> as identified in our *Advice on automated and zero emissions vehicles infrastructure* (2018). Our advice identified that the design of existing road infrastructure is largely expected to be sufficient as automated vehicles are currently being designed to operate on most roads without the need for modifications. Instead, in-vehicle systems are used to 'read' current infrastructure, including lines, signs and traffic lights with a variety of sensors, including cameras, radar and light detection and ranging (LIDAR). In the short to medium term, as the technology is still in development, clear and consistent infrastructure (for example, lines and signs) and approaches to road operations (for example, maintenance) are useful for enabling automated vehicles on roads. We have therefore adopted the lower end of the cost spectrum for infrastructure initiatives provided in our *Advice on automated and zero emissions vehicles infrastructure*.

The cost range estimate also includes approximately \$3 million to \$5 million for staff and consultancy services to develop and implement policy, regulation and guidance material to prepare for automated vehicle operations, based on previous and potentially cost-comparable initiatives.

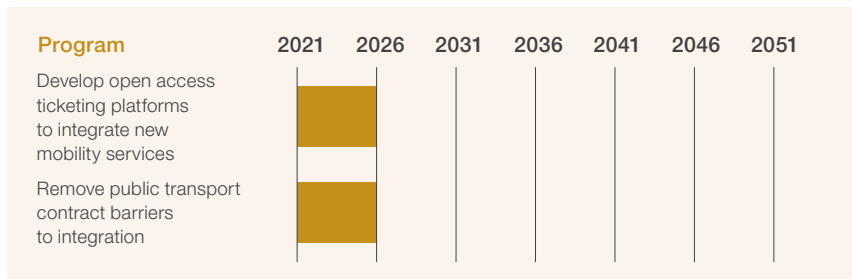
Recommendation 22

## Facilitate integration of public transport with new mobility services

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
Less than \$1 million

**Infrastructure operational cost:**  
Not assessed



The cost range assumes accommodating new mobility service providers is low or zero cost, as the required changes can be incorporated into processes already underway, including the update of ticketing services tender due in 2023 and public transport operator contract renewals.

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

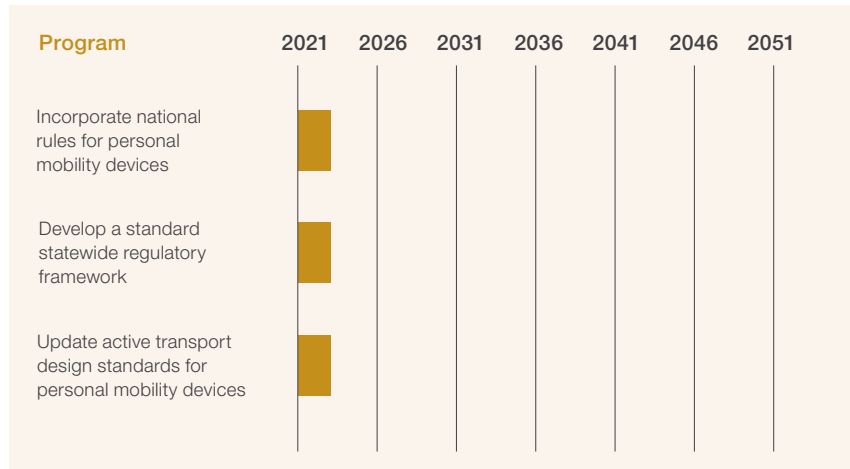
**Recommendation 23**

### Incorporate personal mobility devices in regulation

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not applicable



The cost range includes developing legislation, design standards and a regulatory framework. The cost has been derived by comparison with previous similar initiatives. This recommendation does not have any anticipated capital or infrastructure operational costs for the Victorian Government.

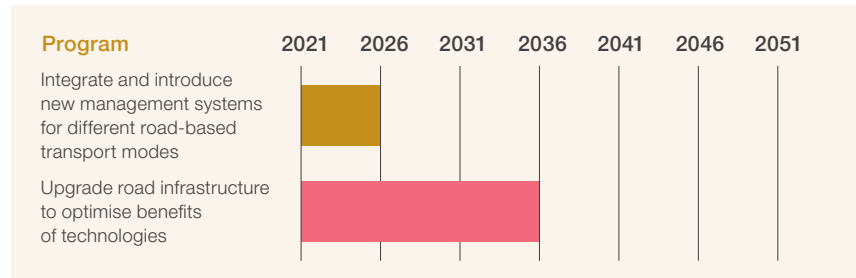
**Recommendation 24**

### Introduce new road network demand management technology

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$4.6 billion to \$5.3 billion

**Infrastructure operational cost:**  
\$20 million a year



As detailed in Infrastructure Victoria’s *Major transport program costing report*,<sup>37</sup> the cost range covers:

- \ An initial investment for updating the road network operations management system, creating a modern integrated multimodal system
- \ Increased operational staff and capability to plan for and respond to congestion incidents
- \ Increased data collection and monitoring
- \ A road infrastructure upgrade program to optimise the benefits of technologies.

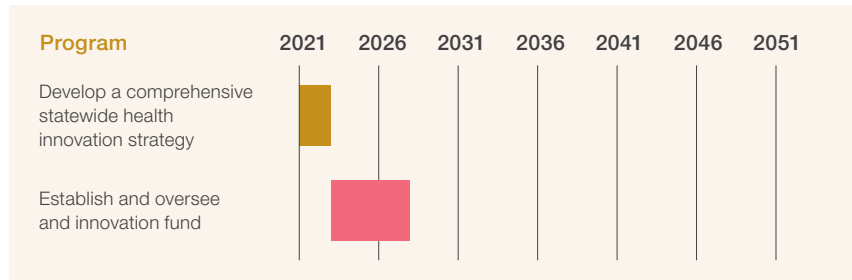
Recommendation 25

Use innovation to deliver better models of health care

Estimated Victorian Government cost range

**Implementation and capital cost:** \$300 million to \$500 million

**Infrastructure operational cost:** Not assessed



The cost range assumes approximately \$10 million is required to develop a strategy and \$300 million is spent over five years for the fund. The recommendation proposes that the work should be overseen by an entity already responsible for health service planning and integrated with other innovation initiatives, so existing resources could be allocated to this initiative.

While this recommendation assumes most of the innovation fund will be focused on health service delivery and business models, some funds could go towards ICT infrastructure or facility modifications.

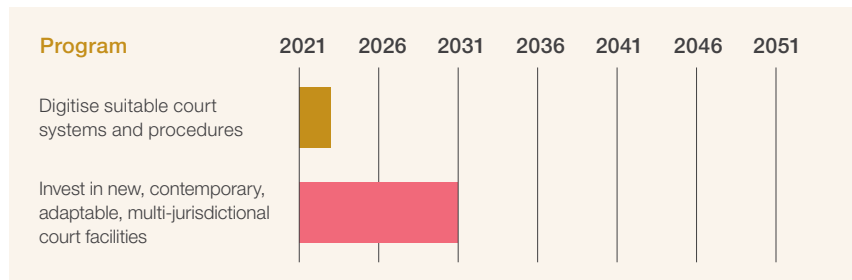
Recommendation 26

Modernise courts through digitisation and contemporary shared facilities

Estimated Victorian Government cost range

**Implementation and capital cost:** \$3 billion to \$4.5 billion

**Infrastructure operational cost:** Neutral



The cost range largely relates to capital expenditure, with works assumed to include:

- \ Providing a new integrated city precinct for the Supreme Court, County Court, Magistrates' Court and specialist courts, Children's Court, and support services
- \ Providing two more court facilities in Greater Melbourne
- \ Upgrades of business and ICT initiatives
- \ Rationalisation of 30% of existing court facilities across regional Victoria.

The costing does not include a new facility for Victorian Civil and Administrative Tribunal (VCAT) as it is assumed premises will be rented.

The recommendation involves expanding and replacing inefficient, end-of-life facilities with high maintenance costs. It includes some expansion, but we assume infrastructure operational costs will not increase.

General government revenue will continue to be a major source of funding for this recommendation, but we encourage it to be offset by other sources where possible. The investments benefit the wider community with timely and efficient justice services and procedural fairness.

New court facilities can consider property development as a funding mechanism, such as by commercially leasing parts of premises within or around new court facilities. For example, for cafés and shops, or co-location of complementary services. Past court projects have used property development. The Victorian County Court project involved private sector construction on Victorian Government land, leased to the contractor for an extended period.<sup>38</sup> Surplus buildings and remaining land holdings can be sold. This can help fund new or expanded facilities and make sites available for other uses.



**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

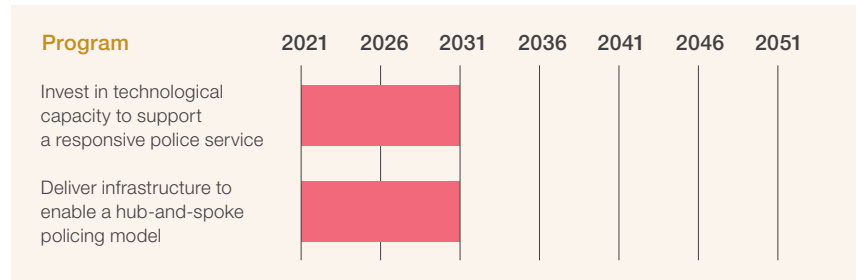
**Recommendation 27**

### Improve technology and infrastructure for a responsive police service

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$300 million to \$450 million

**Infrastructure operational cost:**  
Neutral



The cost range is largely capital expenditure, and includes:

- \ Developing more flexible and dynamic business processes to better manage, structure and store information, and maintain a central, reliable record
- \ Providing better technology, such as continuing and increasing mobile device use
- \ Delivering eight police stations.

The estimated costs for the first two items have been based on extending the Victoria Police system enhancements and resources initiative announced in the 2020–21 Victorian Budget, at a rate of \$7.5 million each year from four to 10 years.<sup>39</sup> The estimated cost for delivering police stations is adapted from cost analysis undertaken for Infrastructure Victoria in 2016.<sup>40</sup>

The recommendation involves replacing end-of-life facilities that have high maintenance costs. With more modern facilities, infrastructure operational costs are unlikely to increase.

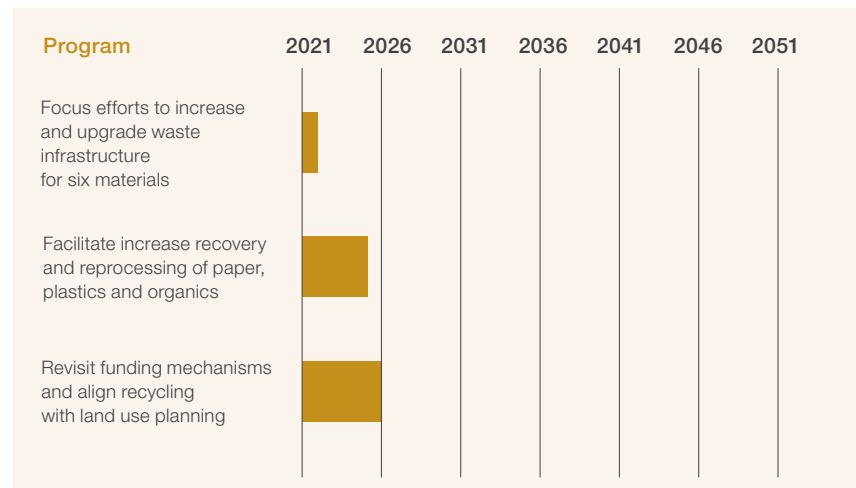
**Recommendation 28**

### Facilitate improved recycling infrastructure for priority materials

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$40 million to \$60 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes staffing costs for reviewing and developing policies, and includes targeted incentives to facilitate new and upgraded recovery and reprocessing infrastructure. The private sector will predominately fund estimated capital costs of \$800 million to \$1.1 billion.<sup>41</sup>

The Victorian Government does not fund the infrastructure operating costs, and we have not quantified them for the private sector or local government. These are likely to vary between projects.

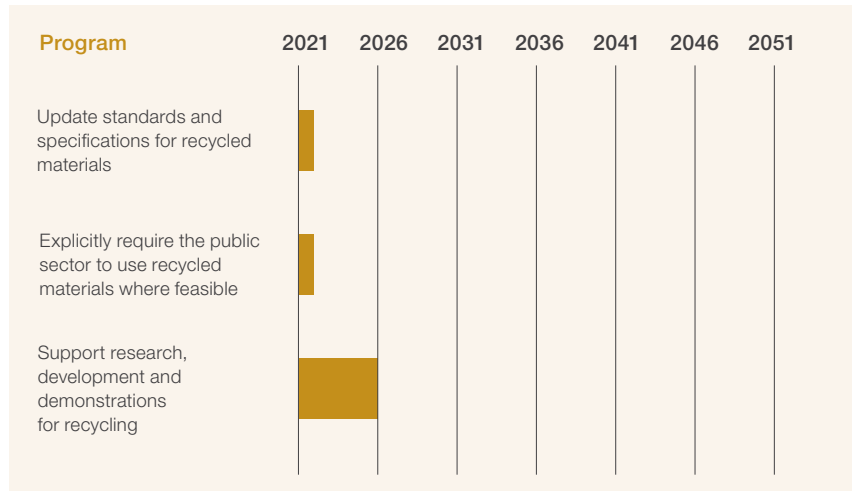
Recommendation 29

### Strengthen end markets for recycled materials

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$30 million to \$50 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes staffing for policy development and updating regulations, and support for research and development. This support could be minor or substantial, but we have used an example research program scoped in our *Advice on recycling and resource recovery infrastructure* as the basis for the estimated implementation cost.<sup>42</sup> Depending on the success of the initial project, the Victorian Government can review and extend the program after the proposed initial five-year period.

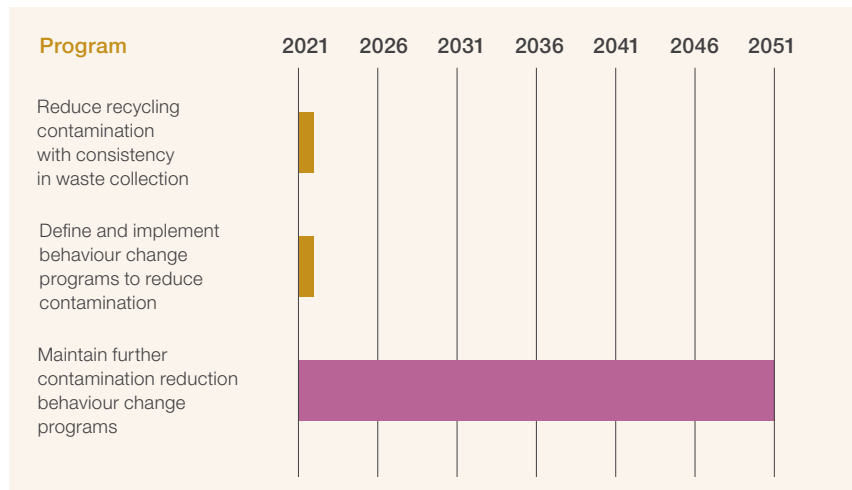
Recommendation 30

### Address barriers to recycling and reducing waste

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$60 million to \$120 million

**Infrastructure operational cost:**  
Not assessed



The cost range assumes better use of existing public sector resources, and investing in behaviour change programs to reduce contamination of recycled waste. Creating consistency in waste collection is a statewide issue with behaviour change targeted at individuals, private sector producers and local government. Consequently, we have costed the recommendation in the mid-range of Victorian Government spending on media campaign advertising activities,<sup>43</sup> at \$2 million to \$4 million a year for 30 years.

Recommendation 31

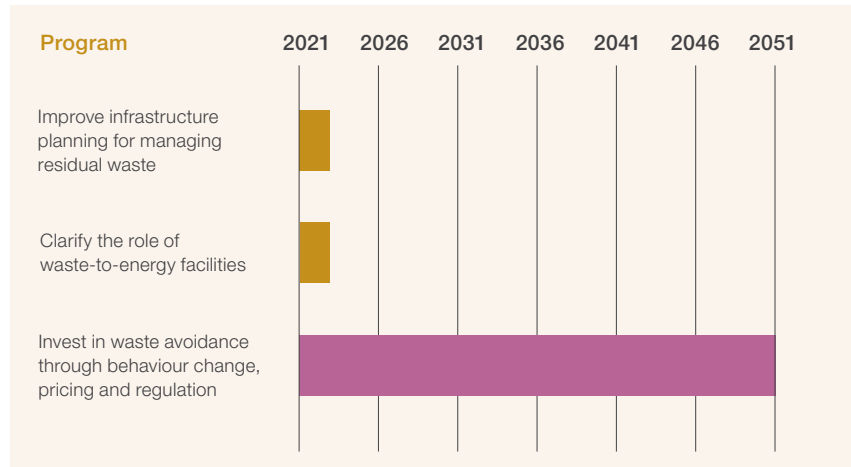
### Minimise waste and improve residual waste infrastructure planning

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$60 million to \$120 million

**Infrastructure operational cost:**  
Not assessed

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051



The cost range assumes better using existing public sector resources, and investing in behaviour change programs to avoid waste. It is proposed to:

- \ Increase and accelerate efforts to minimise waste production across all sectors through behaviour change programs, pricing (including the landfill levy), rules and regulations (including planning or operational permits) and other incentives
- \ Improve monitoring of the production, composition and destiny of residual waste with better data collection, analysis and reporting
- \ Strengthen infrastructure planning to manage residual waste
- \ Develop a waste-to-energy framework
- \ Implement changes to the landfill levy, previously announced by the Victorian Government.

This is a statewide issue targeted at individuals, private sector producers and local government. Consequently, we have costed the recommendation in the mid-range of Victorian Government spending on media campaign advertising activities,<sup>44</sup> at \$2 million to \$4 million a year.

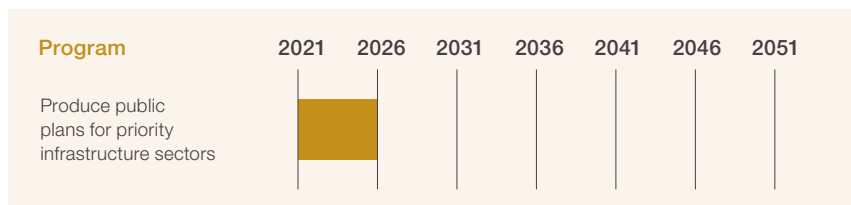
Recommendation 32

### Produce public plans for priority infrastructure sectors

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$50 million to \$70 million

**Infrastructure operational cost:**  
Not applicable



The cost range assumes that seven plans would be produced which would include public consultations. The estimate is based on previous similar initiatives such as *Plan Melbourne*,<sup>45</sup> and includes government staff costs and consultancies, although it recognises that existing data, planning and strategic capacity within departments can be used to help develop the plans. The estimate also recognises that some plans could cost more to provide further depth to existing planning, involve extra complexity and breadth, and require additional resources for integration and consultation between and across government departments, agencies and local government.

The recommendation has no capital or operational costs, as it emphasises sharing and coordinating plans within a sector and across other departments, agencies and stakeholders.

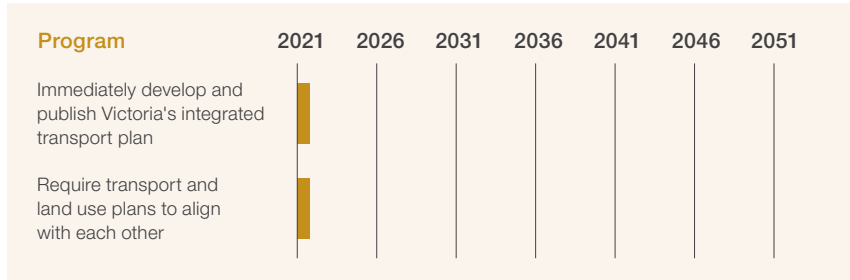
Recommendation 33

## Publish Victoria's transport plan

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$5 million to \$10 million

**Infrastructure operational cost:**  
Not applicable



The cost range includes government staff costs and consultancies and is based on previous similar planning initiatives such as *Plan Melbourne*.<sup>46</sup> Existing data, planning and strategic capacity should be used to develop the transport plan, although the estimate range recognises that considerable effort will be needed to align transport and land use plans.

This recommendation does not have any anticipated capital or infrastructure operational costs for the Victorian Government as this would be considered when developing the plan.

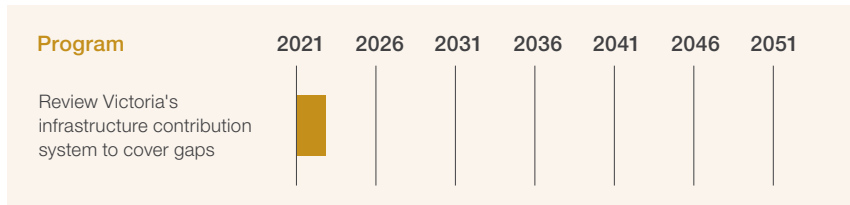
Recommendation 34

## Review Victoria's infrastructure contribution system to cover gaps

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$5 million to \$10 million

**Infrastructure operational cost:**  
Not applicable



The cost range includes government staff costs and consultancies over two years to undertake a consultative review and regulatory change. The Victorian Government has already undertaken significant investigation and consultation in greenfield areas, inner industrial precincts and regional cities. This recommendation does not have any anticipated capital or infrastructure operational costs for the Victorian Government.



**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

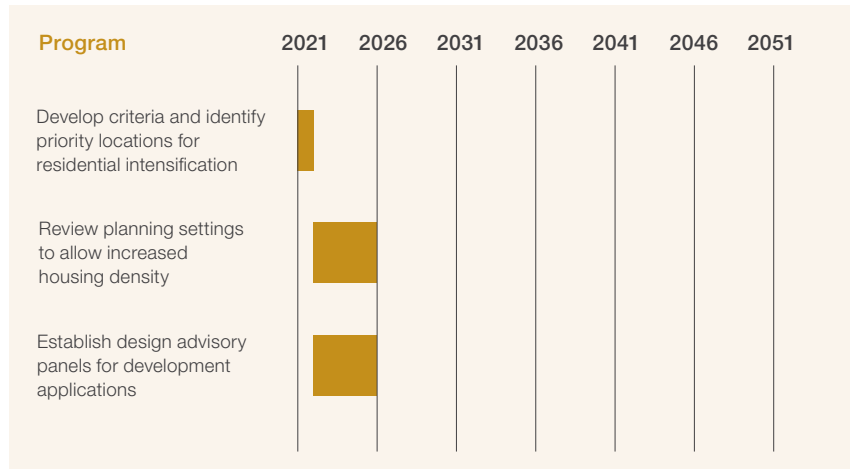
**Recommendation 35**

Support more homes in priority established places

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$5 million to \$10 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes developing and implementing policy in collaboration with local government. This recommendation does not have any anticipated capital or infrastructure operational costs for the Victorian Government.

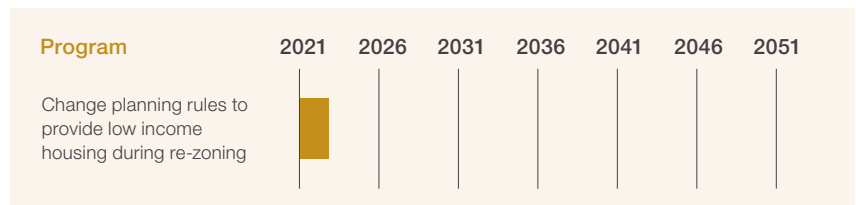
**Recommendation 36**

Use value-capture mechanisms to deliver very low income housing

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not applicable



The cost range includes developing and implementing policy in collaboration with local government. This recommendation does not have any anticipated capital or infrastructure operational costs for the Victorian Government.

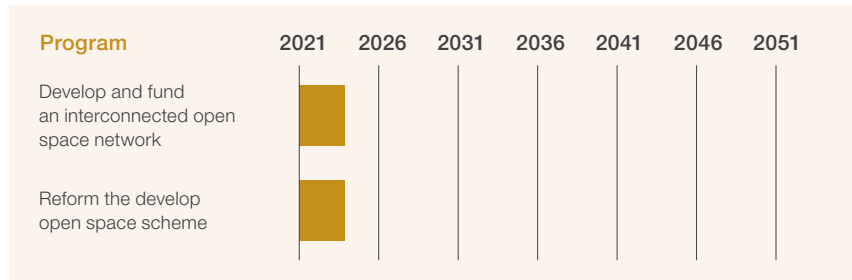
Recommendation 37

## Develop an interconnected open space network

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$5 million to \$10 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes assumed staffing to develop and implement reforms to the existing developer open space contribution scheme over the next three years. It also includes some capital cost for tree planting in established suburbs, based on the Victorian Government’s \$5 million program to plant 500,000 trees in the western suburbs of Melbourne.<sup>47</sup> We have not included costs for land acquisition as existing developer contributions and Victorian Government funding has already been allocated to park land acquisition.<sup>48</sup>

General government revenue is the appropriate funding source for reviewing and reforming the developer open space contribution scheme, and in three years, once the system is reformed, developer contributions can contribute most of the funding for ongoing parks capital investment.

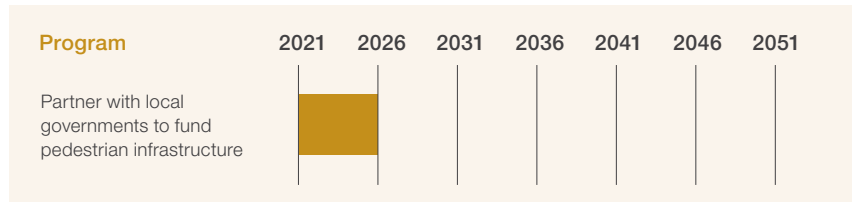
Recommendation 38

## Partner with local governments to fund pedestrian infrastructure

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$150 million to \$250 million

**Infrastructure operational cost:**  
\$0.2 million to \$0.4 million a year



The cost range assumes the Victorian Government contributes around \$5 million at 40 locations over five years, and is based on recent funding in the 2021 Victorian Budget for three active transport projects.<sup>49</sup>

This recommendation seeks to increase recent funding levels and strategically target the location and type of projects to be developed. The operational cost range is based on benchmark rates, identified in the cost analysis undertaken for Infrastructure Victoria in 2021.<sup>50</sup>

Recommendation 39

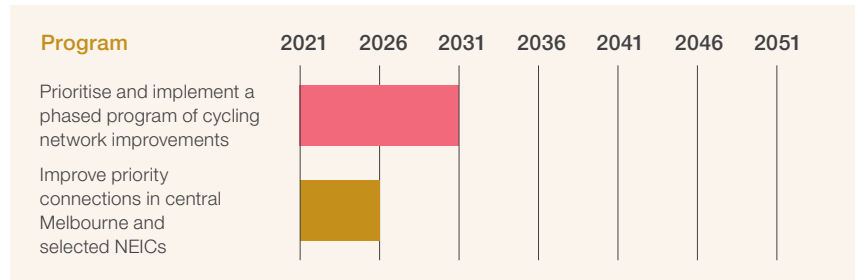
## Transform cycling in Melbourne, Ballarat, Bendigo and Geelong

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$500 million to \$1 billion

**Infrastructure operational cost:**  
\$0.75 million to \$1.5 million a year

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051



The cost range assumes the Victorian Government contributes \$50 to \$100 million each year for 10 years, in addition to pre-existing commitments for new cycling infrastructure.

Costing the expansion of cycling networks is complex, as the creation of a new cycling corridor can involve works ranging from painting a line on an existing pavement, through to a complete place-making redevelopment involving relocation of utility services, civil works and provision of new pavements and landscaping. Drawing on recently completed projects, benchmark costs on a per kilometre basis range from \$160,000 per kilometre<sup>51</sup> through to \$800,000 per kilometre.<sup>52</sup> Using these benchmark costs, the \$50 to \$100 million investment each year could provide 60 to 600 kilometres of additional cycling paths each year. The current Victorian Government investment in the cycling network remains relatively small at \$20 million per year, as identified in the *Victorian cycling strategy 2018-2028*.<sup>53</sup> This has been recently supplemented with an additional \$16 million for pop-up cycling routes.<sup>54</sup>

We have adopted the cost range of \$50 to \$100 million each year for 10 years because it represents a step change in the amount of investment by the Victorian Government to enable significant benefit if value for money projects are prioritised.

The operational cost range has been determined based on benchmark rates, identified in the cost analysis undertaken for Infrastructure Victoria in 2021.<sup>55</sup>

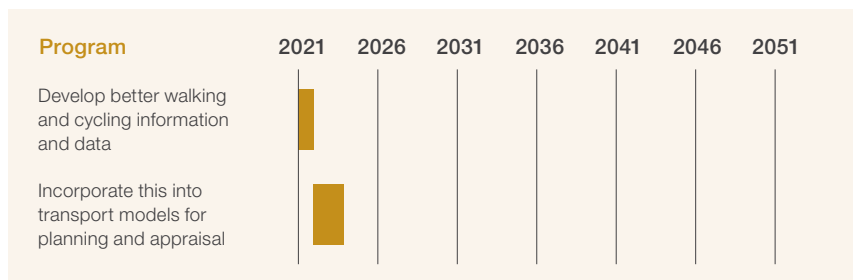
Recommendation 40

## Improve walking and cycling data to better estimate travel, health and safety impacts and benefits

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$5 million to \$10 million

**Infrastructure operational cost:**  
Not assessed



Cycling and pedestrian data is currently captured in different ways, including through fixed loops, surveys (including the census), and physical roadside counts. As such, data capture only applies to specific locations and times of day, which may not provide accurate traffic volumes. The cost range for this recommendation is based on developing transport models to incorporate non-motorised travel, increasing current data collection methods and implementing new data capture technologies, such as connecting on a more real time basis with people who use cycling and walking as a primary form of travel.<sup>56</sup> The new methods of capturing data and modelling walking and cycling journeys is proposed as a trial, and may result in expansion of the program after the initial three-year period.

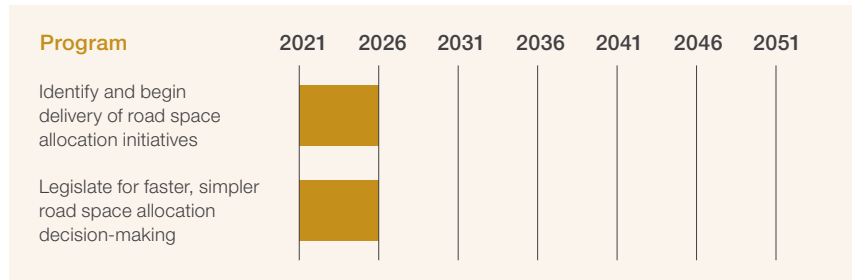
Recommendation 41

## Reallocate road space to priority transport modes

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$500 million to \$900 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes planning and policy work to identify priority transport modes in different locations, legislating for faster, simpler and more consultative decision-making, and delivering a program of road space reallocations. The latter represents the majority of the cost, drawing on cost analysis undertaken for Infrastructure Victoria in 2016.<sup>57</sup>

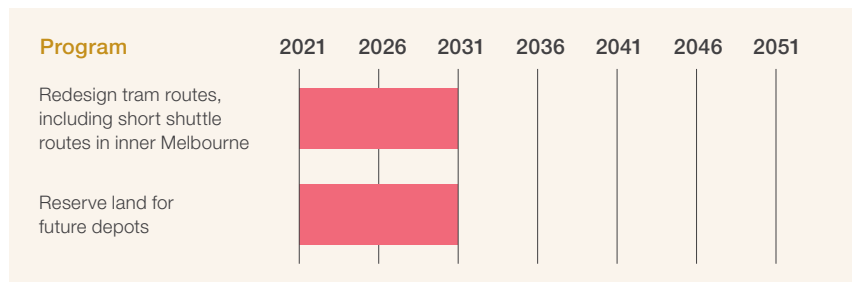
Recommendation 42

## Redesign tram routes

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$25 million to \$55 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes government staff, consultancies, and land reservation costs, and is based on previous initiatives involving transport network reconfiguration. We have included \$20 million to \$50 million in this cost range in case early land acquisition is required for new tram depots. In 2016 the existing Preston tram depot was redeveloped to enable it to accommodate growth in the tram fleet,<sup>58</sup> without additional land required, although existing sites may not have the capacity to support all future growth.

This recommendation assumes that there are no further additional infrastructure capital and operational costs for the Victorian Government, which needs to be confirmed as part of detailed planning.



**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

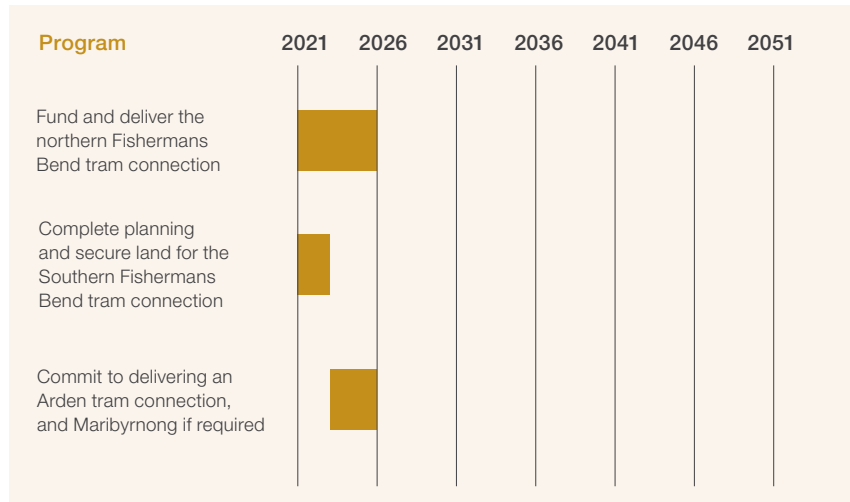
**Recommendation 43**

## Activate urban renewal with new tram links

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1.5 billion to \$2.5 billion

**Infrastructure operational cost:**  
Less than \$50,000 a year



The cost range assumes three tram extensions are delivered to the Northern Fishermans Bend link, the Arden Precinct link from Spencer Street to Boundary Road and a link from the existing route 82 tram through the former defence site at Maribyrnong. The Fishermans Bend link is estimated to cost approximately \$1 billion to \$1.5 billion as it is in a high density area and will require bridges to be constructed over the Yarra River and the M1 Freeway. This figure is a high-level estimate, based on the CBD South East Sydney Light Rail per kilometre cost<sup>59</sup>, with allowances made for the bridges.<sup>60</sup> The other two extensions are estimated at lower costs due to the reduced complexity and route length. The implementation and capital cost estimate also incorporates developing business cases and applying planning overlays to secure land for the three developments, a second southern tram extension in Fishermans Bend and an additional tram extension along Dynon Road.

The infrastructure operational cost includes the cost of operating the additional tram services, and maintenance and asset renewal of the corridor and rolling stock.

The Victorian Government can consider a mix of funding mechanisms to contribute funding towards these projects. General government revenue will likely be a major source of funding for new tram links. The Victorian Government could explore opportunities to seek Australian Government funding. The Australian Government has previously funded similar projects, such as the Gold Coast light rail tram project.<sup>61</sup> Infrastructure Australia has listed public transport access to Fishermans Bend as a priority initiative.<sup>62</sup>

The Fishermans Bend Taskforce is developing an infrastructure plan that includes development contributions,<sup>63</sup> and the Arden urban renewal precinct has an interim development contributions plan.<sup>64</sup> Value capture mechanisms will be used for the future Maribyrnong urban renewal area to ensure development contributes to public infrastructure costs.<sup>65</sup> These should contribute to new tram links where possible.

The Victorian Government can consider beneficiary charges, particularly if there is a substantial uplift in land values and business activity in the vicinity of the new tram links. These include those levied on new developments near new infrastructure in the precincts.

The Victorian Government can consider property development on government land, or selling or leasing surplus land. Property development can create value from underutilised government land and space by improving amenity and access to services in the urban renewal areas.

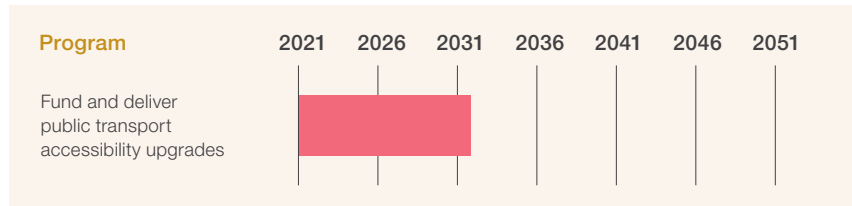
Recommendation 44

## Plan for and fund public transport accessibility, including tram stop upgrades

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 billion to \$1.5 billion

**Infrastructure operational cost:**  
Not assessed



To achieve the legislated 2032 accessibility targets, the Victorian Government is required to upgrade approximately 1300 tram stops, 9400 bus stops and an unquantified number of train stations. The cost range is an estimate for priority tram and bus accessibility improvements to make progress towards the legislated accessibility targets, and does not include costs for any train accessibility improvements.

Tram stop upgrade requirements and costs were drawn from the Victorian Auditor-General's report into the accessibility of tram services, which identified that costs were in excess of \$2 billion.<sup>66</sup> The report also highlights that tram network compliance data is not reliable, and construction innovations could reduce this cost. The report indicates implementation costs could range from \$754 million, based on 2009 data, to at least \$2 billion to just make the stops level, rather than achieving full compliance with the *Disability Discrimination Act 1992*.

More than 65% of the 18,500 metropolitan bus stops and 56% of the 6700 regional bus stops are wheelchair accessible.<sup>67</sup> Based on costs reported for the City of Brisbane bus stop accessibility program,<sup>68</sup> we estimated an average upgrade cost of approximately \$22,000 per bus stop. Applying this cost rate to the number of bus stops yet to be upgraded indicates an overall cost of \$200 million to \$300 million is needed to achieve bus stop compliance across Victoria.

The bus and tram fleet will also require upgrades. The cost range includes \$70 million for regional bus upgrades, based on cost analysis undertaken for Infrastructure Victoria in 2016.<sup>69</sup> We have not included tram fleet upgrades in the cost range as the *Yarra Trams Accessibility action plan* indicates all trams will be low-floor models by 2031,<sup>70</sup> though we note the Victorian Auditor-General has identified a risk this will not be achieved.<sup>71</sup>

Combining all of these costs we have identified a cost range of \$1 billion to \$1.5 billion as a lower bound estimate for tram and bus accessibility, subject to the Victorian Government undertaking innovative approaches to achieving the accessibility requirements.

We have not assessed operational costs, but assume they are unlikely to significantly increase. Existing stops to be upgraded already require maintenance, and newer tram and bus models will have lower operating costs.

We recommend the Victorian Government consider its funding options for this program, but it is likely general government revenue will continue to be the major source of funding for public transport accessibility. The benefits from such investment are widely distributed across the community and the Victorian Government has an obligation to meet legislated requirements.

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

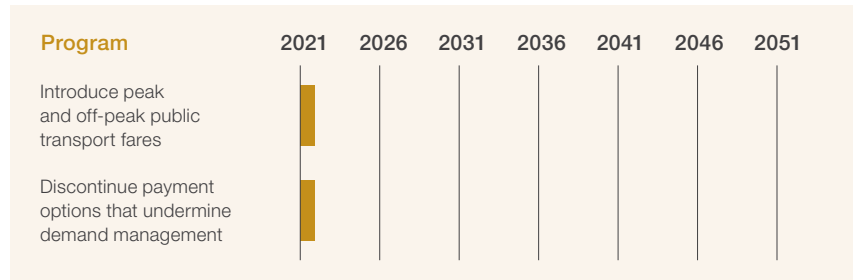
**Recommendation 45**

### Adopt permanent off-peak discounts for public transport fares

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not assessed



The cost range assumes no extra cost to continue off-peak public transport fares, except if the Victorian Government improves some fare settings, which may involve some more flexible ticketing functionality. For discontinuing payment options, we assume the current ticketing system can readily do this. We assume implementation would require updating policies including the *Victorian fares and ticketing manual*,<sup>72</sup> removal of branding, updating public messaging and running a media campaign. We have made an approximation of the staff and advertising cost to do this. We note the Victorian Government updates the fares and ticketing manual every year.

There are no assumed capital or operational costs to the Victorian Government associated with this recommendation. We note that new transport trips attracted by this recommendation will contribute to additional fare revenue, helping to offset any decline in farebox from lower off-peak fares.

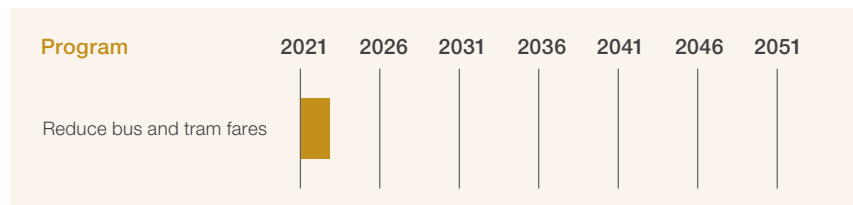
**Recommendation 46**

### Reduce bus and tram fares

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes staffing for policy development, updating public messaging and running a media campaign, and a potential cost for recoding the current ticketing system.

There are no assumed capital or infrastructure operational costs to the Victorian Government associated with this recommendation. We note that new transport trips attracted by this recommendation will contribute to additional fares revenue, helping to offset any decline in farebox from lower bus and tram fares.

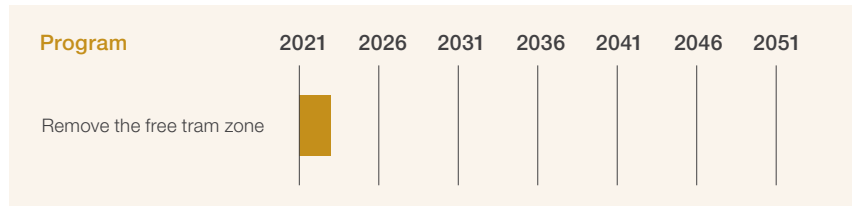
Recommendation 47

## Remove the free tram zone

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes updating signage, public messaging and running a media campaign, based on previous spending for a public transport messaging program.<sup>73</sup> We have assumed no cost to change the ticketing system as the current ticketing system charges a standard fare for a 'touch on' within the free tram zone, so only a change in messaging is required.

There are no assumed capital or operational costs to the Victorian Government associated with this recommendation. We note the current free tram zone reduces potential farebox revenue, and that removing the free tram zone can generate revenue.<sup>74</sup>

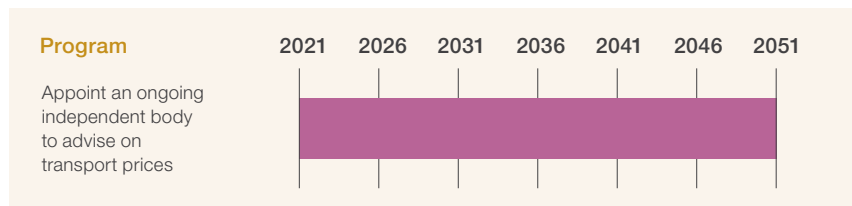
Recommendation 48

## Appoint an independent transport pricing adviser

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$50 million to \$100 million

**Infrastructure operational cost:**  
Not applicable



The cost range assumes leveraging the Essential Services Commission's capabilities, and is based on increasing its operating expenses by 5% to 10% each year for 30 years, using its 2019-20 expenses as the base.<sup>75</sup>

There are no assumed capital or infrastructure operational costs to the Victorian Government associated with this recommendation.

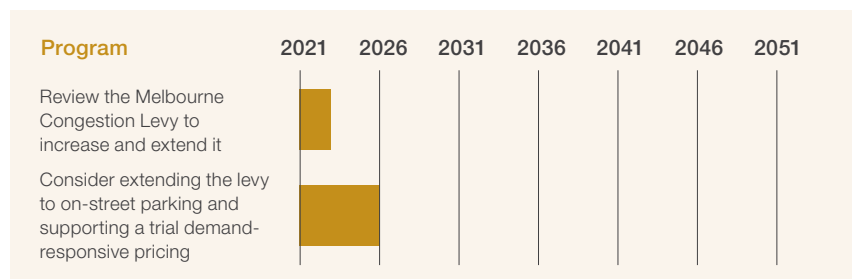
Recommendation 49

## Reduce inner Melbourne congestion by further reforming parking pricing

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not assessed



The cost range is based on staffing assumptions to review the Melbourne Congestion Levy, work with local governments, and implement any legislation. It does not include estimated costs for supporting the City of Melbourne to conduct a trial for dynamic parking pricing which would require negotiation.

There are no assumed capital or infrastructure operational costs to the Victorian Government associated with this recommendation. This recommendation will also generate revenue, and the Victorian Government should establish revenue sharing arrangements with each local council subject to the levy.



**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

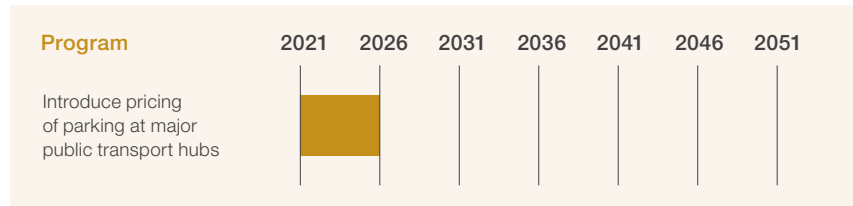
**Recommendation 50**

## Price parking at major public transport hubs

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$10 million

**Infrastructure operational cost:**  
Not assessed



The cost range assumes government staff resources over five years to develop parking pricing policies, and a small budget for technical services.

We have not included infrastructure costs such as fee collection systems, barriers and sensors as it could be site dependent and depend on the technology used. However, this recommendation will generate revenue which can help offset costs. We developed an illustrative example with Perth’s car parking model,<sup>76</sup> with some updated assumptions for inflation and finance costs. Car park construction for 141 bays, similar to Footscray Station at-grade car parking, with a fee collection system is estimated to cost around \$500,000 to \$1 million depending on the complexity of design. Assuming a parking price of \$3 a day, which we used in our previous research, *Good move: fixing transport congestion*,<sup>77</sup> revenue is estimated at nearly \$125,000 per annum which over time can offset costs. We note that car parking prices can be adjusted.

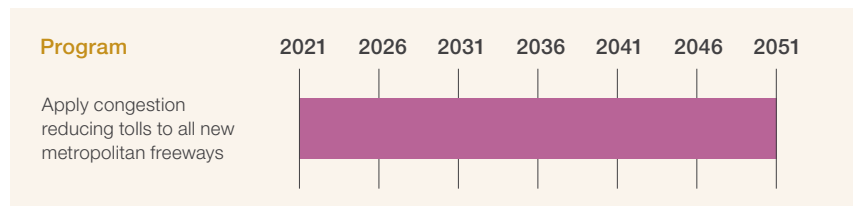
**Recommendation 51**

## Incorporate congestion pricing for all new metropolitan freeways

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
Less than \$1 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes staffing costs to develop and implement legislation to support congestion pricing. Legislation is generally developed to implement tolling on new freeways. Most recently, the *North East Link Act 2020* establishes a state tolling corporation and provides for the imposition, collection and enforcement of tolls in relation to North East Link. This potentially provides a model Act, making legislative development less complex.

The cost of the infrastructure to support congestion pricing, such as gantries, are not included in this cost range as the technology for tolling is rapidly evolving. For instance, CityLink is moving to licence plate recognition technology,<sup>78</sup> EastLink has updated to licence plate technology as previous technology is now obsolete,<sup>79</sup> and Singapore is moving towards Global Positioning System (GPS) technology.<sup>80</sup>

We note costs could be offset from revenue generated, depending on the pricing objectives.

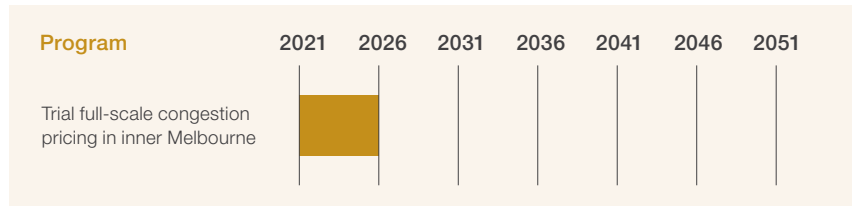
Recommendation 52

### Trial full-scale congestion pricing in inner Melbourne

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$20 million to \$100 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes staffing for legislative development, communication and evaluation, as well as infrastructure which may be needed to implement the trial. For example, some research estimates costs for implementing congestion pricing in Melbourne cost at around \$100 million, which represents tolling technology infrastructure and detection points.<sup>81</sup> This estimate could be significantly reduced by making use of barrier-like features in the design of the area, such as river crossings. Our cost range is also wide as it depends on the technology used for the trial, such as fixed gantries, or potentially GPS technology. Car technology is changing which may mean less public infrastructure could be needed.

While operational costs will be experienced during the trial, this initiative creates revenue through user charges during the trial period which may or may not offset the trial costs. However, research suggests that revenue could offset the capital and implementation costs depending on the scheme design,<sup>82</sup> but would also depend on the pricing objectives for such a scheme.

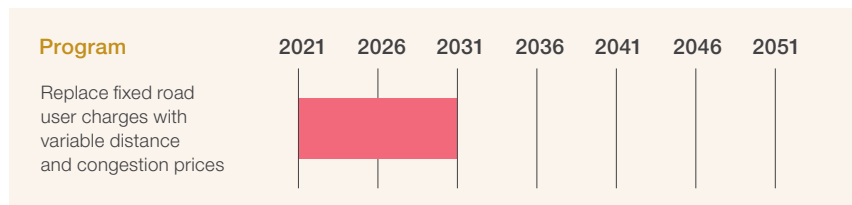
Recommendation 53

### Phase out fixed road user charges and introduce user pays charging

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$10 million to \$25 million

**Infrastructure operational cost:**  
Not assessed



The cost range assumes a small policy team maintained over 10 years to review policies, develop legislative and regulatory changes, and a small budget for technical services.

We have not included infrastructure costs to physically implement a user pays charging scheme, as technology is rapidly changing which affects costs. Technology choices include gantries, licence plate recognition, GPS and simple odometer reporting (as is the case for the distance-based charge for zero and low emissions vehicles). Car technology is also changing which may mean less public infrastructure could be needed.

Recommendation 51 – ‘Incorporate congestion pricing for all new metropolitan freeways’ and recommendation 52 – ‘Trial full-scale congestion pricing in inner Melbourne’ are potential building blocks for phasing out fixed road user charges and introducing user pays charging. We discuss costs for these recommendations earlier. We note that implementing user pays charging should not cost more than the revenue collected.

**Key**  Short term up to 2026  Medium term up to 2036  Long term up to 2051

Our research modelled the current set of road charges and public transport fares against a set of pricing reforms.<sup>83</sup> The modelled pricing reforms returned the same revenue as earned from myki, registration, TAC, car stamp duty and fuel excise. We also modelled a pricing reform with around \$1.4 billion worth of discounts targeted at concessions, meaning a total annual revenue reduction from \$7.5 billion to around \$6.1 billion. We found substantial benefits from introducing transport network pricing reforms, even with discounts, including:

- \ Up to 85% of people would pay less than they do today for transport
- \ Up to 168,000 car trips a day would be removed, reducing pressure on the road network
- \ A greater shift to public transport in the inner area with excellent public transport options, also resulting in up to 25% speed increase for cars
- \ An 8% reduction of time spent by drivers in congestion.<sup>84</sup>

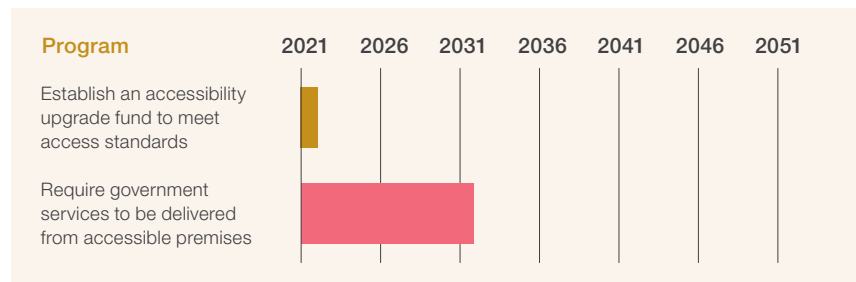
**Recommendation 54**

## Require accessible buildings for public services

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$500 million to \$1.5 billion

**Infrastructure operational cost:**  
Not assessed



The cost range for this recommendation has not been estimated due to a lack of information on buildings delivering public services. The quantum of such a fund is likely to be large, and we have nominally included a very wide range of \$500 million to \$1.5 billion in capital costs in our overall estimate for the strategy. Any figure will need to be confirmed through immediately including identifying and costing priority upgrades, which the Victorian Government will need to do to establish a suitably sized fund.

The accessibility capital upgrades will have a negligible impact on the operational cost for buildings, but will allow more Victorians to access the services they need.

In some instances, the Victorian Government can relocate services from inaccessible buildings to accessible ones, especially if the buildings are leased. It may be more cost effective to retire old government-owned buildings than retrofit them. Sites that are no longer fit for purpose and surplus to government requirements can be sold which provides a one-off funding boost, and can offset some costs of this recommendation. It has the additional benefit of allowing locations to be available for another use.

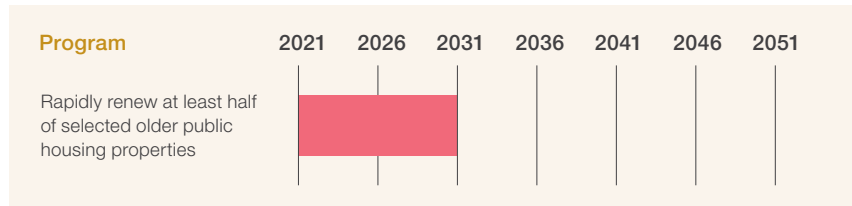
Recommendation 55

## Rapidly renew old public housing

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1.5 billion to \$2 billion

**Infrastructure operational cost:**  
Reduced



The cost range of this recommendation is largely a capital cost to renew at least half of all older low-rise apartments and older three-bedroom detached dwellings in the public housing stock by 2031. This cost estimate assumes 9200 dwellings will be upgraded at a cost of \$165,000 to \$225,000, based on the cost to provide a new dwelling.<sup>85</sup> While not all old public housing dwellings will be demolished and built as new, many will be due to the lack of functionality and age of the stock, and the opportunity to replace large stand-alone dwellings with higher density dwellings, leveraging the land value of the property. The estimated cost range is broad as there are many variables affecting the extent of building upgrades and locational requirements. The estimated capital cost does not include funds already allocated as part of the Big Housing Build program.<sup>86</sup>

The recommendation involves upgrading and replacing existing dwellings that are at the end of their asset life, are inefficient and have high maintenance costs. Infrastructure operational costs will therefore be reduced as a result of this recommendation.

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards this program. General government revenue will continue to be the major source of funding to rapidly renew old public housing.

Property development should also be considered. Opportunities to sell land or provide development rights could be examined to deliver a combination of public and private housing. Other opportunities could also be examined, such as leasing parts of premises within or around public housing. For example, leasing ground floor premises with a street frontage for commercial purposes such as a supermarket, café, or laundromat.

In 2016, we undertook high-level modelling that examined increasing and improving the asset base of an existing public housing estate through an alternative asset development model.<sup>87</sup> This was a hypothetical scenario and was to demonstrate a possible value capture approach for public housing. The scenario involved transferring the rights of the surplus or underutilised land around a social housing development to community housing providers to develop new housing stock – half social housing, the other half private housing. The new public housing stock would be funded by the private unit sales. The analysis suggested potentially significant benefits from integrating public and private housing stock, and leveraging underused assets to fund infrastructure upgrades.<sup>88</sup>

Any sites that are no longer fit for purpose and surplus to government requirements can be sold providing a one-off funding boost.

Public housing rental payments are collected, which are a form of user charge that partially contributes to the ongoing maintenance of stock. Public housing rents are capped at 25% of household income including wages and payments from Centrelink and the Department of Veterans' Affairs.<sup>89</sup>



**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

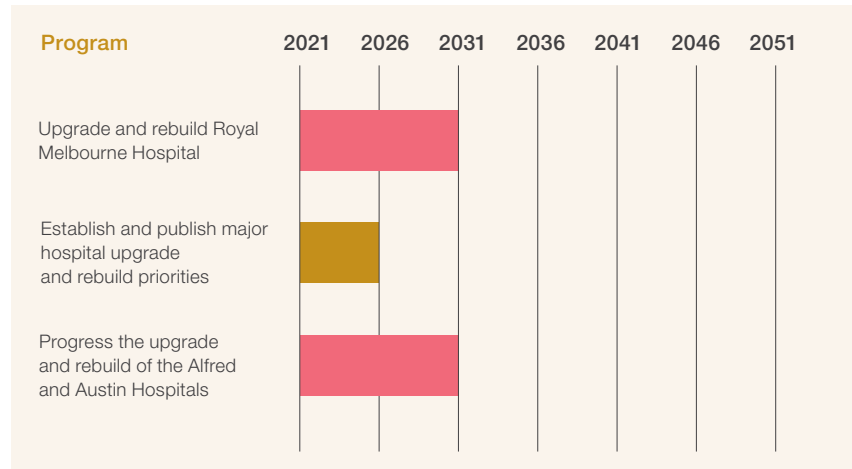
**Recommendation 56**

## Upgrade and rebuild public hospital infrastructure

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$5 billion to \$8 billion

**Infrastructure operational cost:**  
Not assessed



The cost range of this recommendation is predominantly a capital cost to fully redevelop the Royal Melbourne Hospital, and Alfred Hospital and Austin Hospital campuses over the next 10 years. This cost may be deferred depending on the progress of upgrades and rebuilds of the Alfred Hospital and Austin Hospital. The new Footscray Hospital project has been taken as a benchmark cost at \$1.5 billion,<sup>90</sup> and increased to \$2 billion to allow for the higher land cost and greater decanting complexity of building on the campuses nominated.

The recommendation involves expansion and replacement of existing facilities that are at the end of their asset life, and are therefore inefficient and have high maintenance costs. While some expansion of facilities is included in the scope, it is unlikely that infrastructure operational cost will increase due to the high maintenance cost of existing facilities.

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards these projects. General government revenue will continue to be a major source of funding for upgrading and rebuilding public hospitals. The benefits from such investment are widely distributed across the community.

Property development should be considered, such as commercially leasing parts of the premises within or around a new hospital or expansion of a hospital. Property development has been used in previous significant hospital projects, such as the Royal Children’s Hospital project where the new hospital provides expanded childcare facilities and includes a mix of shops and services for staff, patients, families, carers, and visitors.<sup>91</sup>

In 2016, we undertook high-level modelling on value capture for a hypothetical major hospital redevelopment. This was to demonstrate possible value capture strategies and approaches. We examined property development (commercial leases) and a betterment levy which are likely to make only a very small contribution to a project. We found commercial leases can deliver additional benefits, such as attracting private hospital and support services to co-locate at a public health facility.<sup>92</sup>

Any hospital sites that are no longer fit for purpose and surplus to government requirements should be sold which can provide a one-off funding boost. Other funding sources for hospitals include property income, revenue from carparking and other services, donations and bequests.

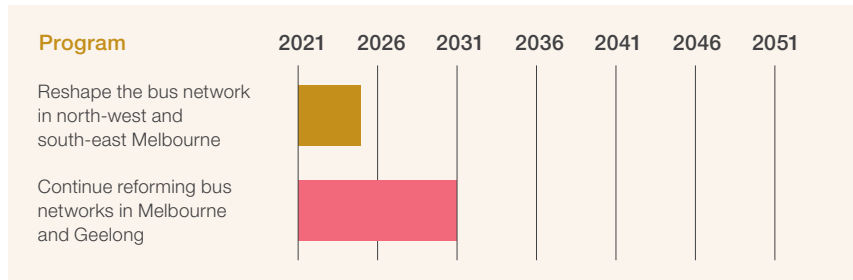
Recommendation 57

## Reshape the metropolitan bus network and introduce 'next generation' bus services

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Around \$85 million a year for 10 years



The cost range is for reshaping the metropolitan local and connector bus network in Geelong and Melbourne, with the cost of introducing new 'next generation' buses excluded from this cost range, but covered under recommendation 58 – 'Connect suburban jobs through 'next generation' buses and road upgrades'.

The implementation and capital cost range represents assumed Victorian Government staff costs and technical consultancies to reform the metropolitan bus coverage standard and reshape and reform the bus network. No capital cost is included in the range as existing bus stop infrastructure should support the reshaped services.

The operational cost range assumes the annual cost of maintaining and operating the bus services during the reform of the network increases operational costs by approximately 10% or around \$85 million per annum over a 10-year period,<sup>93</sup> relating to additional transitional costs as bus routes are altered.

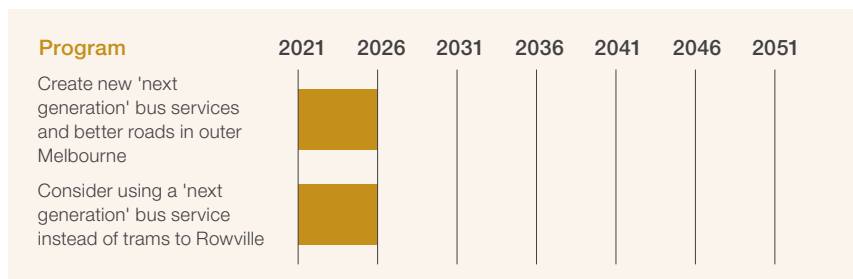
Recommendation 58

## Connect suburban jobs through 'next generation' buses and road upgrades

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$100 million to \$150 million

**Infrastructure operational cost:**  
\$30 million to \$50 million a year



The cost range includes the cost of creating new 'next generation' bus services, as proposed in this recommendation and also recommendation 57 – 'Reshape the metropolitan bus network and introduce 'next generation' bus services', and recommendation 61 - 'Prepare for Melbourne Metro Two and direct Geelong rail services'. The capital cost includes purchasing a new bus fleet and road upgrades to accommodate the new 'next generation' bus services. It does not cover road improvements to improve general vehicle movements (see recommendation 76 – 'Expand and upgrade Melbourne's outer suburban road and bus networks') or the reallocation of road space to accommodate multiple road usages (see recommendation 41 – 'Reallocate road space to priority transport modes').

We have assumed that six to eight new 'next generation' bus routes are introduced, adopting similar service levels and service kilometres to existing SmartBus services. We have then utilised cost data provided in the business case analysis undertaken for Mornington Peninsula transport options to estimate operational and capital costs,<sup>94</sup> adjusting the capital costs to allow for infrastructure upgrades to be delivered in a denser metropolitan setting.

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards this program. General government revenue is likely to be a major source of funding for 'next generation' buses and road upgrades across suburban

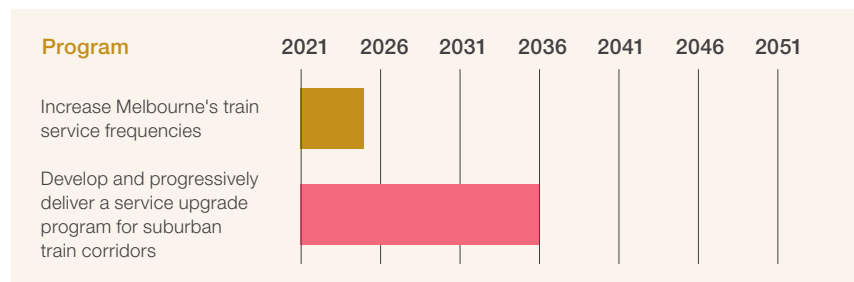
**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

Melbourne. This program provides a broad public benefit by increasing access to employment across the metropolitan area. Existing user charges, such as public transport fares and motorists' fixed charges, currently form part of general government revenue. We recommend comprehensive reforms to these through transport network pricing to reduce congestion and get the most from the transport system.

Beneficiary charges could also be considered if there is a substantial uplift in land values and business activity near new projects. These include developer contributions, which could be levied on new developments occurring in the vicinity of new infrastructure.

Recommendation 59

Increase off-peak service frequencies and suburban rail corridor capacity



Estimated Victorian Government cost range

**Implementation and capital cost:** \$4 billion to \$10 billion

**Infrastructure operational cost:** \$120 million to \$200 million a year

The cost range includes:

- \ \$2 million to \$5 million to develop a network services upgrade program, estimated by comparison with similar past initiatives. The estimate covers government staff costs and consultancies.
- \ \$4 billion to \$10 billion in capital cost for the delivery of rail corridor upgrades, drawing on estimates developed for Infrastructure Victoria in 2016<sup>95</sup> and extending the program to run over 15, rather than five years. As these are existing rail corridors, a significant increase in operational cost from the rail infrastructure should not result from the capital investment.
- \ \$120 million to \$200 million a year in operational costs to support increased train frequencies for off-peak, counter-peak and weekend services, over a 30-year period. The upper estimate is based on a 2019 Parliamentary Budget Office estimate for increased train services.<sup>96</sup> Operational costs are likely to be lower than this estimate as there have been improvements since 2019, including timetable and frequency improvements introduced in January 2021 on selected lines, such as the Cranbourne to Pakenham line.<sup>97</sup>

The capital cost range is broad as the works will need to be defined by the upgrade program that is recommended to be developed. The works may be undertaken as maintenance works, individual projects or as a component of a major project.

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards this program. General government revenue is likely to be a major funding source for programs like increasing off-peak service frequencies and suburban rail corridor capacity. The benefits of the program are shared by users across the metropolitan rail network. The rail capacity upgrades would also provide some relief to congested road networks across Melbourne. Existing user charges, such as public transport fares, currently form part of general government revenue and only cover a small portion of train operating costs. We recommend reforms to public transport fares to reduce crowding and congestion, and to get the most from the transport system.

Beneficiary charges could also be considered if there is a substantial uplift in land values and business activity in the vicinity of each project. A betterment levy could be considered on commercial and/or residential property in defined catchment areas if the increase in services and decrease in travel times substantially increases land values.

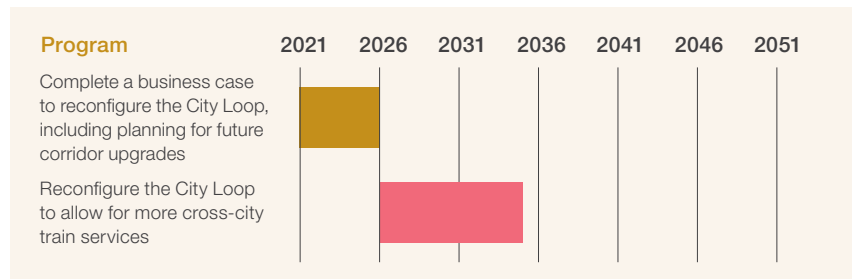
Recommendation 60

## Reconfigure the City Loop for more frequent and reliable services

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$6.1 billion to \$6.9 billion

**Infrastructure operational cost:**  
Not assessed



The cost range includes:

- \ Approximately \$10 million to undertake investigations and develop a detailed business case for the City Loop tunnel reconfiguration and other supporting rail corridor upgrades. The estimate includes government staff costs and consultancies.
- \ \$6.1 billion to \$6.9 billion in capital costs to reconfigure the City Loop, once the timing of the investment is determined through the business case.<sup>98</sup> The cost represents a strategic, high-level estimate for 2.3 kilometres of new tunnelling works to reconfigure the City Loop, and rail corridor upgrades that could be undertaken to maximise the benefit of the reconfiguration. Acquisition of new rolling stock is not included. We have included the estimated cost of extending the Craigieburn line towards Beveridge in this cost range, as well as in the costing for recommendation 74 – ‘Extend rail services in Melbourne’s western and northern growth areas’.

The operational cost to reconfigure the City Loop cannot be meaningfully calculated in isolation of the broader rail network. For further detail on the strategic assessment that supports this recommendation, including a full program of works that would maximise the benefits of the City Loop reconfiguration, see Infrastructure Victoria’s *Major transport projects strategic assessment report*.<sup>99</sup>

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards this project. General government revenue will likely contribute funding to reconfigure the City Loop for cross-city train services. The benefits of the project are shared by multiple rail lines across metropolitan Melbourne and will provide some relief to related road networks, which are congested. Existing user charges, such as public transport fares, currently form part of general government revenue and only cover a small portion of train operating costs. We recommend reforms to public transport fares to reduce crowding and congestion, and to get the most from the transport system.

Recommendation 61

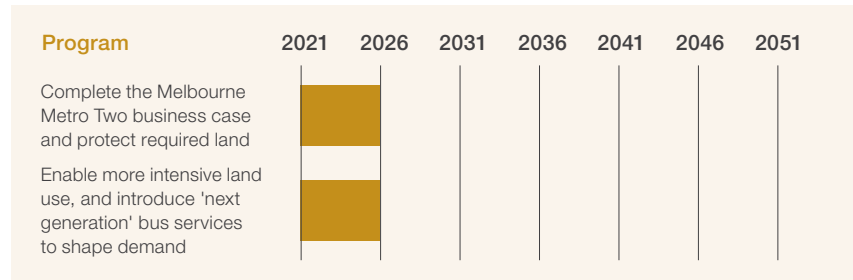
## Prepare for Melbourne Metro Two and direct Geelong rail services

### Estimated Victorian Government cost range

**Implementation and capital cost:**  
\$40 million to \$50 million

**Infrastructure operational cost:**  
Not applicable

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051



The cost range includes:

- \ Around \$20 million to undertake investigations and develop a detailed business case for Melbourne Metro Two and other supporting rail corridor upgrades, estimated by comparison with similar past initiatives. The estimate covers government staff costs and consultancies.
- \ \$20 million to \$30 million to undertake investigations and consultation to apply planning overlays to secure the land required for the project. The estimate covers government staff costs, consultancies and funds for early acquisition or payment of compensation for a component of the land, estimated by comparison with similar past initiatives. While land acquisition would ideally be delayed until the project is confirmed, 10% of the high-level land acquisition cost<sup>100</sup> has been included in the cost range should early acquisition or compensation payments be required. As the works could predominantly involve tunnelling and upgrades on existing rail corridors, significant private land acquisition is not required to deliver the project.

The cost range does not include costs for changing land use settings across the network or the introduction of 'next generation' buses, as this has been incorporated in the costing for recommendation 35 – 'Support more homes in priority established places' and recommendation 58 - 'Connect suburban jobs through 'next generation' buses and road upgrades' respectively.

For further detail on the strategic assessment that supports this recommendation, see Infrastructure Victoria's *Major transport projects strategic assessment report*.<sup>101</sup>

General government revenue is likely to be a major source of funding for preparing for Melbourne Metro Two. In completing the business case for Melbourne Metro Two, the Victorian Government will also need to consider a greater mix of funding mechanisms as part of its infrastructure planning. A value creation and capture plan would support this, and there would be value capture opportunities which would need to be considered early.

In 2016, we undertook high-level modelling on value capture for Melbourne Metro Two. This was to demonstrate possible value capture strategies and approaches. We found significant revenue can be recouped through betterment levies, developer charges, property development rights and leases. These mechanisms can form part of any infrastructure funding strategy that seeks to make more of value capture. Betterment levies are likely to generate a more substantial contribution toward project costs than other value capture mechanisms. Wider catchments for applying a betterment levy simplifies the design and administration of such a scheme but reduces the direct link or 'nexus' between the benefits and funding.<sup>102</sup>

Victoria could explore opportunities to seek Australian Government funding. The Australian Government is providing funding for other metropolitan rail initiatives, such as Western Australia's METRONET.<sup>103</sup>



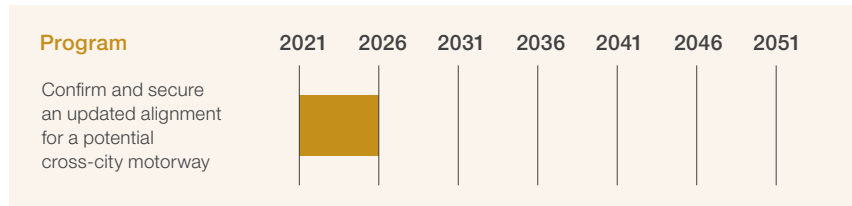
Recommendation 62

## Protect a long-term option for a new cross-city motorway

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$35 million to \$55 million

**Infrastructure operational cost:**  
Not applicable



The cost range includes:

- \ \$2 million to \$5 million to undertake investigations and consultation to determine the alignment for a potential cross city motorway and enable planning overlays to be applied to secure the land required for the project. The estimate covers government staff costs and consultancies.
- \ \$30 million to \$50 million for early acquisition or payment of compensation for a component of the land. While land acquisition would ideally be delayed until the project is confirmed, 10% of the high-level land acquisition cost<sup>104</sup> has been included in the cost range should early acquisition or compensation payments be required. As the works could predominantly involve tunnelling and upgrades on existing road corridors, a significant amount of private land acquisition is unlikely to be required to deliver the project.
- \ No cost allowance has been made for implementing transport network pricing, as this has been incorporated in recommendation 52 and recommendation 53, and active and public transport improvements (covered by multiple other recommendations).

General government revenue is likely to be a source of funding for preserving a future alignment for a new cross-city motorway. The Victorian Government should also consider leasing land prior to any construction, should the project proceed in the future.

Though we are recommending preserving a future alignment for a new motorway linking the Eastern Freeway and CityLink, the Victorian Government will still need to consider future funding options as part of its infrastructure planning. Should the Victorian Government decide to build the road, we recommend considering a mix of funding mechanisms, including value capture. Victoria could explore Australian Government funding. The Australian Government maintains a \$4 billion commitment for the former East West Link project.<sup>105</sup>

Funding should include user charges such as congestion pricing for all new metropolitan freeways (see recommendation 51 – ‘Incorporate congestion pricing for all new metropolitan freeways’). Investing in major road links can have a positive impact on land values in the vicinity of the project from improved transport accessibility and travel time savings. This means landowners benefit from the new road, even if they do not use it. Charging betterment levies to capture a portion of the benefits that accrue to these indirect beneficiaries could occur following investigations to clarify whether those indirect beneficiaries in established areas would experience significant uplift in land value. If betterment levies and user charges are both considered by the Victorian Government, it should ensure that new charges do not unfairly duplicate each other or any existing charges.

General government revenue may still be needed to contribute to funding based on the broader community and economic benefits delivered by the project should it proceed beyond alignment preservation.

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

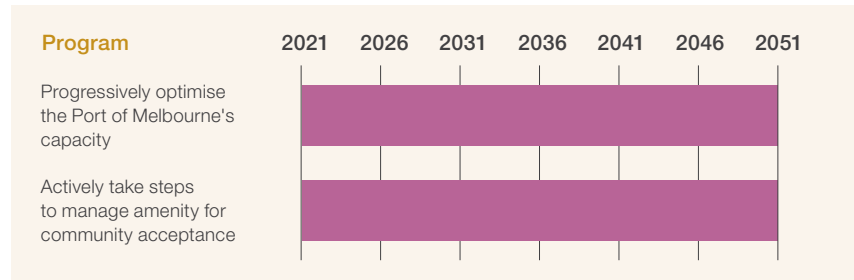
**Recommendation 63**

## Optimise capacity at the Port of Melbourne

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$10 million to \$50 million

**Infrastructure operational cost:**  
Not applicable



Infrastructure Victoria's *Advice on securing Victoria's ports capacity* estimated the cost for expanding the Port of Melbourne to meet a future capacity of up to 8 million 20-foot equivalent units (TEU) by 2055 at \$6.8 billion in capital and operating costs.<sup>106</sup> The scope of this recommendation is targeted to support development and manage amenity implications for community acceptance. This may involve funding infrastructure, but at this time, it is not being recommended.

The scope of government's role included in the implementation cost range includes:

- \ Monitoring Port of Melbourne demand and updating infrastructure plans to support the port's operation
- \ Building and maintaining community acceptance through the initiatives outlined in the recommendation as the port grows and gets busier.

The implementation cost range is based on the estimated resources required by the Victorian Government. As there are no capital costs assumed in the recommendation, infrastructure operational costs are not applicable.

The Port of Melbourne is an example of existing infrastructure with a long-term lease to the private sector.

Port infrastructure primarily benefits businesses, who should significantly contribute to the cost of the capacity optimisation at the Port of Melbourne. User charges are widely accepted and expected for ports, for example road tolls and stevedore rents. This ensures that those who use and benefit from the infrastructure contribute to its cost.

General government revenue could be used in the future to fund infrastructure associated with the Port, based on benefits to the broader economy. An example is a transport link where port-related freight users may only be one group of users but there are significant benefits for the broader transport network. Partial government funding for this type of complementary infrastructure may be justified. Victoria could explore opportunities to seek Australian Government funding. The Australian Government has previously funded port and connecting freight projects, including the Melbourne Port rail shuttle, Port Botany rail line duplication and various freight terminals.<sup>107</sup>

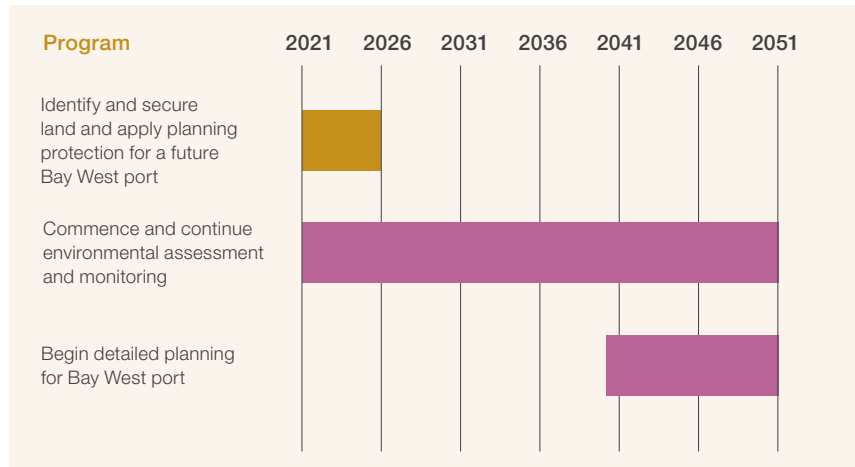
Recommendation 64

## Act now to protect the future Bay West Port option

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$350 million to \$950 million

**Infrastructure operational cost:**  
Not applicable



The cost range includes government staff and technical consultancies to secure land for a future port at Bay West, including further options analysis, environmental assessment, consultation and application of planning overlays. It is based on comparable previous initiatives.

As the recommendation involves planning and environmental monitoring, rather than infrastructure provision, we have not estimated infrastructure operational costs.

Land acquisition costs are included in the capital and implementation cost estimate with the cost spread over the time period 2026 to 2050 as land purchase would not happen until there is greater certainty regarding when the development of the new port is ready to proceed. As a very high-level land acquisition cost estimate, this could be in the order of \$250 million to \$850 million, based upon the potential corridors identified in Infrastructure Victoria's *Advice on securing Victoria's ports capacity*.<sup>108</sup> Two options were considered in this advice: one in which the port and access routes are predominantly on public land; and a second option crossing private land. Furthermore, these costs could be higher if the transport corridor traverses land within the Urban Growth Boundary.

General government revenue is likely to be a major source of funding for identifying and securing land and applying planning protection for transport corridors and buffers for a future Bay West Port. It is also likely to be a major source of funding for environmental assessment and monitoring. This cost could ultimately be recovered from developers and users under the funding options outlined below.

The Victorian Government will need to consider funding options as part of its infrastructure planning for the land acquisition and for the development of the new port in the future. We recommend considering a mix of funding mechanisms, including value capture.

Detailed planning for the port could begin around 2040, and the Victorian Government will need to consider a greater mix of funding mechanisms in advance of this. For instance, complementary land uses could emerge for land abutting a new Bay West Port landside area. Beneficiary charges, such as developer contributions, should be examined to help fund connecting infrastructure. Victoria could also explore opportunities to seek Australian Government funding. The Australian Government has previously funded port and connecting freight projects, including the Melbourne Port rail shuttle, Port Botany rail line duplication and various freight terminals.<sup>109</sup> The Victorian Government should also examine user charges, development rights and long-term leases for the port.

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

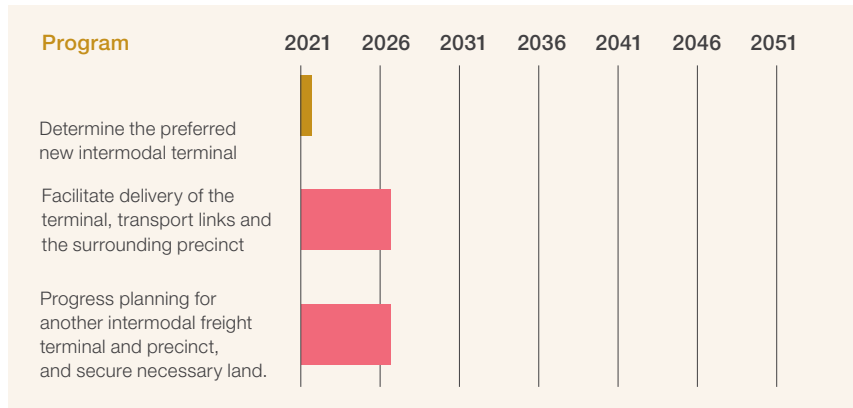
**Recommendation 65**

## Deliver a new intermodal freight terminal for Inland Rail

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$200 million to \$450 million

**Infrastructure operational cost:**  
Negligible



The cost range is based on government processes to secure land for two future freight terminals. The costing includes undertaking further options analysis, environmental assessment, consultation and application of planning overlays for both sites, and land acquisition for just the first freight terminal to be delivered. Activities listed in this recommendation to deliver transport links, such as the outer metropolitan rail corridor, have not been included in this costing. They are included in the costing for recommendation 66 – ‘Construct an outer metropolitan road and rail corridor’.

The implementation cost range is based on a high-level review of the Moorebank Intermodal terminal in New South Wales.<sup>110</sup> As such, the capital cost relating to land acquisition for the first freight terminal is a low confidence cost estimate. While no cost allowance has been made for developing the freight terminal, the development cost could range from \$1 billion to \$2 billion,<sup>111</sup> depending on operational requirements. The Australian Government funded the Moorebank intermodal terminal in Sydney, which is being delivered by Moorebank Intermodal Company – a wholly owned Australian Government entity.<sup>112</sup> A developed terminal could attract a long-term lease which could help pay for the infrastructure and its operations.

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards the initial land acquisition, and as part of its future investment planning for development of both freight terminals. Freight terminals primarily benefit businesses, who should significantly contribute to the cost of the project. User charges in particular should be explored, including leases and access charges.

General government revenue could be used to fund part of the project based on broader public outcomes. This includes achieving broader strategic land use planning objectives, such as driving more efficient land use outcomes, and meeting other social, economic, and environmental objectives.

Opportunities to raise additional funding should be pursued through beneficiary charges on nearby businesses if there is a substantial uplift in land values and business activity. A beneficiary charge would ensure the government captures a portion of the increased value of the land surrounding the terminal following site selection. Beneficiary charges, such as developer contributions or a betterment levy, could be applied and funding raised could be invested in supporting infrastructure for the terminals and broader precinct. The Victorian Government could investigate using existing developer contributions, such as the Growth Areas Infrastructure Contribution and developer contribution plans.

The development of future freight terminals may create redundant capacity at Dynon, which could be sold or leased by the Victorian Government to help reduce some of the costs. The Victorian Government could consider urban renewal opportunities at this site that are compatible with abutting land uses.

If betterment levies, new developer contributions and user charges are considered by the government, it should ensure that new charges do not unfairly duplicate each other or any existing charges.

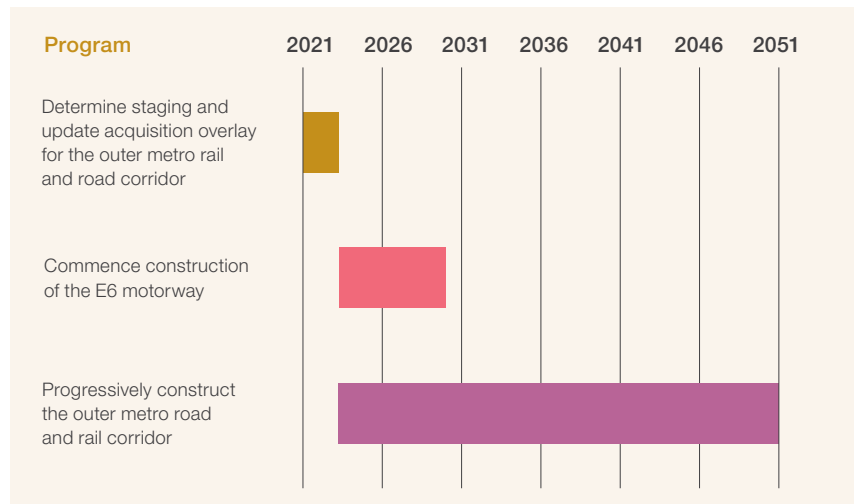
### Recommendation 66

## Construct an outer metropolitan road and rail corridor

### Estimated Victorian Government cost range

**Implementation and capital cost:**  
\$17 billion to \$35 billion

**Infrastructure operational cost:**  
\$100 million to \$200 million a year



The cost range includes:

- \ \$5 million to \$10 million to undertake investigations and consultation to determine the alignment and staging for the outer metropolitan road and rail corridor and update planning overlays to secure the land required for the project.<sup>113</sup> The estimate includes government staff costs consultancies.
- \ \$17 billion to \$35 billion for the cost of road construction delivered over 30 years. This is a high-level strategic costing, and also depends on the final design and construction solution adopted. Further details on the strategic assessment is available in Infrastructure Victoria's *Major transport projects capital cost report*.<sup>114</sup>

The cost range does not include:

- \ Constructing the rail component of the project, as this is assumed to be funded by the Australian Government, consistent with the other elements of the Inland Rail project.<sup>115</sup> Final cost sharing arrangements for projects would need to be confirmed.
- \ Transport connections from the outer metropolitan road to a potential future port at Bay West and potential freight terminals. Costing for these are included in recommendation 64 – 'Act now to protect the future Bay West Port option' and recommendation 65 – 'Deliver a new intermodal freight terminal for Inland Rail' respectively.

The operational cost range includes the cost of operations, maintenance and asset renewal of the infrastructure, averaged over a 30-year period, when the road is fully constructed. Further detail on the strategic assessment that supports this recommendation is provided in Infrastructure Victoria's *Major transport projects strategic assessment report*.<sup>116</sup>

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards this project. Funding for projects like an outer metropolitan road and rail corridor should include user charges as those who use it will be direct beneficiaries of the new asset. This includes charges for motorists, such as congestion pricing for all new metropolitan freeways (recommendation 51 – 'Incorporate congestion pricing for all new metropolitan freeways'), and rail users. Rail freight networks in Victoria are subject to access regimes, with the Australian Rail Track Corporation charging user fees,<sup>117</sup> which helps pay for infrastructure investment.



**Key**  Short term up to 2026  Medium term up to 2036  Long term up to 2051

Beneficiary charges should also be considered if there is a substantial uplift in land values and business activity in the vicinity of the new infrastructure from improved transport accessibility and travel time savings. Mechanisms include betterment levies and developer contributions, which could be levied on nearby properties and new developments. Developer contributions should be considered as part of any rezoning that facilitates land uses complementary to the new transport corridor. Charging betterment levies to capture a portion of the benefits that accrue to these indirect beneficiaries could occur following investigations to clarify whether those indirect beneficiaries in established areas experience a significant uplift in land value.

In 2016, we undertook high-level modelling on value capture for an outer metropolitan ring road without a rail corridor. The modelling was undertaken to demonstrate possible value capture strategies and approaches. We found developer contributions and a betterment levy both have merit and warrant further consideration for funding the project or other similar major road investments. The analysis suggested these mechanisms may offer an opportunity to raise more than would be possible in similar conditions under the Growth Areas Infrastructure Charge.<sup>118</sup>

Contributions should be negotiated with potential major beneficiaries of the new transport corridor. Potential major beneficiaries could include freight and industrial businesses, and other major landowners.

Following construction of the outer metropolitan road and rail corridor, any unused land could be sold or leased for property development if it is considered surplus to government requirements. Opportunities include petrol stations, service centres, or other businesses wishing to locate near a freeway.

General government revenue is also likely to be a funding source for constructing an outer metropolitan road and rail corridor, based on broader community benefits delivered by the project. Victoria should explore a funding contribution from the Australian Government. The Australian Government has previously provided funding to road projects of national significance, including half of the cost of the M80 Western Ring Road upgrade,<sup>119</sup> and is also investing in the Brisbane to Melbourne Inland Rail.<sup>120</sup>

Recommendation 67

## Co-design an Aboriginal community-controlled infrastructure plan

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not applicable



The cost range is based on an estimated level of staff to help facilitate extensive consultation to meet co-design requirements, incorporating governance and technical services such as economic modelling. The cost could be at the higher end of the range as this is the first time an Aboriginal community-controlled infrastructure plan has been developed. As this recommendation costing is based on co-designing a strategy, and not its implementation, it does not include any assumed capital or operational costs.

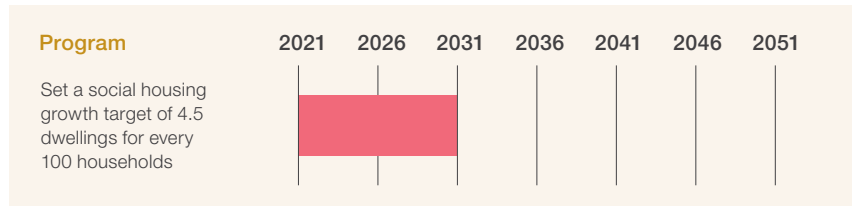
Recommendation 68

## Set targets to grow social housing

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$6.5 billion to \$16 billion

**Infrastructure operational cost:**  
\$200 million to \$500 million each year after completion of all housing



The cost range is largely a capital cost as it requires building new social housing to achieve the target of 4.5 social housing dwellings for every 100 households by 2031. The estimate assumes:

- \ 3900 to 4900 properties will be provided each year, depending on the growth rate of all new dwellings, based on Victoria in Future projections<sup>121</sup>
- \ Cost per dwelling is \$180,000 to \$460,000 including land cost, based on the location and typology of the dwelling.<sup>122</sup>

The estimated cost range is broad as there are many variables affecting the locational requirements of dwellings. While the estimate conservatively includes land cost for every dwelling, land may be made available through the renewal of old public housing proposed in this recommendation. Land may also be made available by local government and not-for-profit organisations. The estimated capital cost does not include funds already allocated by the government for its Big Housing Build program.<sup>123</sup>

Once all dwellings are delivered under this recommendation, we estimate maintenance costs at \$200 million to \$500 million each year, based on a benchmark rate of 3% of capital cost per annum.<sup>124</sup>

Some research shows the traditional 'capital grant' funding model, supplemented by efficient financing, provides the most effective way for governments to deliver social housing. This is compared with other models such as commercial financing operating subsidy models.<sup>125</sup> We have therefore attributed all the capital cost as a cost to the Victorian Government under this recommendation costing.

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards this program. General government revenue will continue to be a major source of funding to grow social housing. Social housing meets a basic need for secure, affordable, and appropriate housing among low income and vulnerable Victorians. The Victorian Government should explore a funding contribution from the Australian Government. Historically, the Australian Government has provided significant funding for social housing, but not in recent budgets.

Property development should also be considered. Opportunities to sell land or provide development rights should be examined to deliver a combination of social and private housing, with the new social housing stock returned to the state. Other opportunities should also be examined, such as leasing parts of premises within or around social housing. For example, leasing ground floor premises with a street frontage for commercial purposes such as a supermarket, café, or laundromat.

Existing social housing sites that are no longer fit for purpose and surplus to government requirements should be sold which can provide a one-off funding boost.

Social housing rental payments are collected, which are a form of user charge. Social housing rents are capped at 25% of household income including wages and payments from Centrelink and the Department of Veterans' Affairs,<sup>126</sup> and are only expected to partially contribute to the cost of social housing.

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

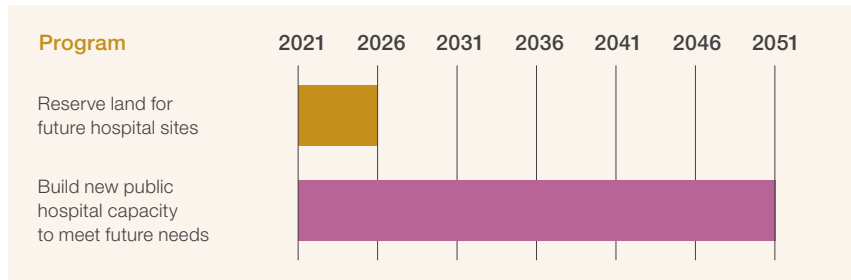
**Recommendation 69**

## Build new hospital capacity

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$10 billion to \$24 billion

**Infrastructure operational cost:**  
\$300 million to \$700 million a year



The cost estimate for this recommendation has a low confidence level as the future demand for hospital services is uncertain on a 30-year horizon, and the infrastructure response will also be varied. Future demand will be impacted by population growth, changes in medical treatment and technology, and changes in the needs of people requiring health care.

High-level hospital development costs have historically been determined using benchmarks, such as a cost per bed. As hospitals are becoming more specialised and hospital services are delivered from a broader range of points of care, this benchmark is becoming less relevant. In the absence of improved benchmarks, and to place a quantum of cost against this recommendation, we have adopted a basis of providing new hospital beds at a rate of 300 beds each year from 2024 onwards at a cost of \$1.3 million to \$3 million per bed. This is based on a consideration of Victorian Government hospital investments over the past five years. This cost rate also assumes supporting infrastructure such as theatres, procedure spaces, engineering and information technology, and other support infrastructure.

Infrastructure operational costs are based on a benchmark rate of 3% of capital cost per annum.<sup>127</sup>

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards these projects. General government revenue will continue to be a major source of funding for new hospital capacity. The benefits from such investment are widely distributed across the community, with such hospitals delivering specialised services to the entire state.

Property development should be considered, such as by commercially leasing parts of the premises within or around a new hospital or expansion of a hospital. Opportunities could range from retail (such as cafés and shops) to providing space for private providers. Property development for hospitals can assist in creating added value through improved amenity, access to services and more choice in services. Property development has been used in previous significant hospital projects, such as the Royal Children’s Hospital project where the new hospital provides expanded childcare facilities and includes a mix of shops and services for staff, patients, families, carers, and visitors.<sup>128</sup>

In 2016, we undertook high-level modelling on value capture for a hypothetical major hospital redevelopment. This was to demonstrate possible value capture strategies and approaches. We examined property development (commercial leases) and a betterment levy which are likely to make only a very small contribution to a project. We found commercial leases can deliver additional benefits, such as attracting private hospital and support services to co-locate at a public health facility.<sup>129</sup>

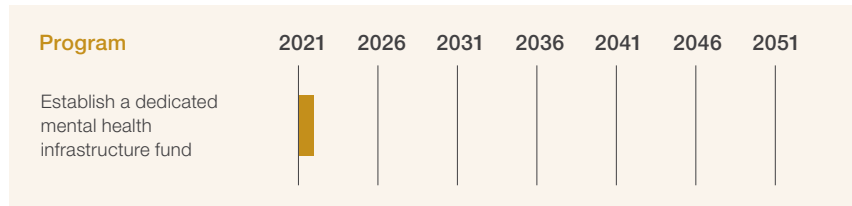
Recommendation 70

## Deliver infrastructure for a more responsive and integrated mental health system

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$500 million to \$1.0 billion

**Infrastructure operational cost:**  
\$15 million to \$30 million a year



The cost range of this recommendation is predominantly a capital cost, and includes estimates for the priority infrastructure recommended by the Royal Commission into Victoria's Mental Health System and for developing a statewide mental health and wellbeing service plan. This estimate may be refined once the plan is completed, with a clearer scope.

In its final report, the Royal Commission identified some priority infrastructure, including the Collaborative Centre for Mental Health and Wellbeing, at least 100 additional mental health beds, more 'hospital in the home' and community rehabilitation services, technology upgrades to support digital services and information sharing, new 'safe spaces' and crisis respite facilities, gender-based separation in facilities and major upgrades to the Thomas Embling Hospital.<sup>130</sup> Based on benchmarked similar facilities<sup>131</sup> but also recognising limited detail on scope and adjusting for budget allocation to the Thomas Embling Hospital,<sup>132</sup> we estimate the cost to deliver the scope identified could be from \$500 million to \$1 billion. The new statewide mental health and wellbeing service plan will help identify where existing infrastructure can be used for greater periods of time, repurposed or retired, which can reduce or offset some of the costs.

Infrastructure operational costs are based on a benchmark rate of 3% of capital cost per annum.<sup>133</sup>

The Victorian Government has legislated a mental health levy to help pay for the expanded services recommended by the Royal Commission. However, these funds appear to be hypothecated to services, and infrastructure funding may need to come from other sources.

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards these projects. General government revenue will continue to be a major source of funding for delivering mental health infrastructure. The benefits from such investment are widely distributed across the community. The Victorian Government is implementing a Mental Health and Wellbeing Levy which will provide additional operational funding for mental health services.<sup>134</sup> Infrastructure funding may need to come from other sources.

Planning for mental health infrastructure could identify renewal opportunities, and retirement of facilities that are no longer fit for purpose. Sites that are surplus to government requirements can be sold providing a one-off funding boost. This has the additional benefit of allowing locations to be available for other uses.

Donations and bequests could also make minor funding contributions to new and upgraded facilities.

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

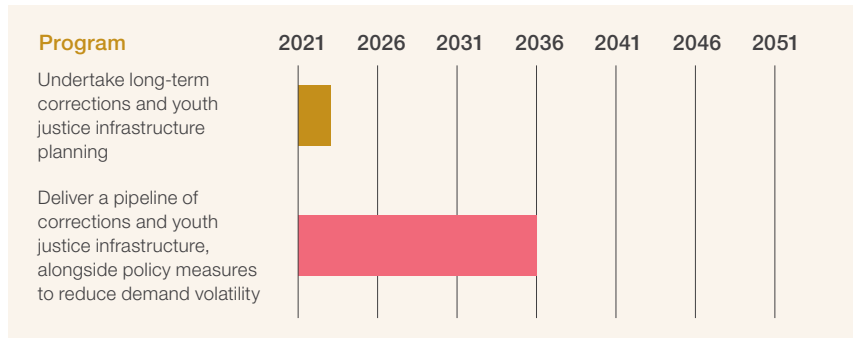
**Recommendation 71**

Plan and consistently deliver corrections and youth justice infrastructure while managing demand with policy settings

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$6 billion to \$7 billion

**Infrastructure operational cost:**  
\$180 million to \$210 million a year



The cost range is largely a capital cost, and assumes funding for corrections and youth justice facilities at a rate of \$500 million to \$600 million each year from 2024 onwards, when already committed infrastructure investment has been delivered. This is based on the average capital cost per annum of new corrections infrastructure listed in the *Victorian infrastructure plan projects pipeline*.<sup>135</sup>

Infrastructure, operational costs are based on a benchmark rate of 3% of capital cost per annum.<sup>136</sup>

We recommend the Victorian Government consider a mix of funding mechanisms to contribute towards this program. General government revenue will continue to be the major source of funding for corrections and youth justice infrastructure. Corrections and youth justice are a core public service with limited opportunities to fund differently. There are opportunities for additional value to be created through Public Private Partnerships which need to be determined on a case-by-case basis. Examples where this approach has been adopted include the Fulham Correctional Centre Contract Extension Project, Hopkins Correctional Centre, Port Philip Prison Contract Extension Project, Ravenhall Prison and Victorian Correctional Facilities.

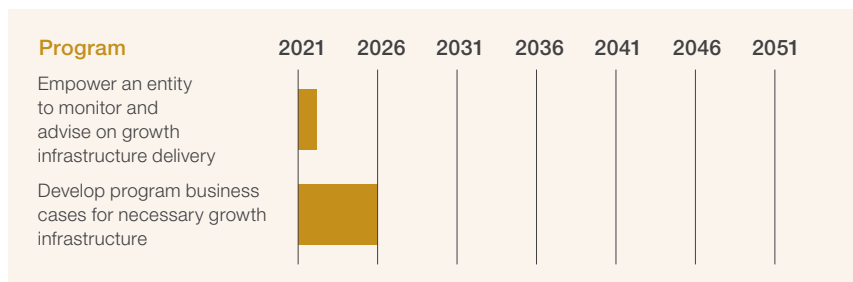
**Recommendation 72**

Prioritise and oversee infrastructure delivery in growing communities

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$30 million to \$40 million

**Infrastructure operational cost:**  
Not applicable



The cost range is based on a level of staffing for a government body to prioritise and oversee infrastructure delivery in growing communities. This costing does not include any capital or infrastructure operational costs as this would be subject to the program business cases that are recommended for development.



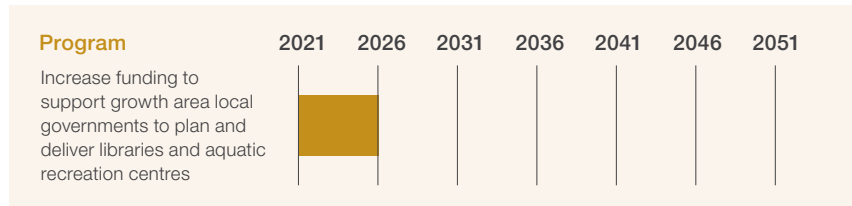
Recommendation 73

## Fund libraries and aquatic centres in growth areas

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$200 million to \$300 million

**Infrastructure operational cost:**  
Not applicable



The cost range assumes:

- \ Each growth area council receives up to:
  - \$200,000 for aquatic centre planning
  - \$100,000 for library planning.
- \ The Victorian Government contributes up to a third of the cost of new facilities, capped at:
  - \$20 million for aquatic centres for each growth area council
  - \$10 million for libraries for each growth area council.
- \ A level of staffing to establish and manage the fund, and provide support for local government planning.

Libraries and aquatic centres have large upfront capital costs. The costing above recognises that new libraries can cost from \$20 million to \$30 million. For example, the Ivanhoe library cost \$34 million,<sup>137</sup> and the Springvale library hub cost \$32 million.<sup>138</sup> The costing also recognises that new aquatic centres can cost from \$50 million to \$70 million. For example, the Wyndham aquatic centre cost \$54 million.<sup>139</sup>

The infrastructure operating costs have not been assessed, and the recommendation assumes no Victorian Government infrastructure operating costs to the Victorian Government as the infrastructure is owned and operated by growth area councils.

Recommendation 74

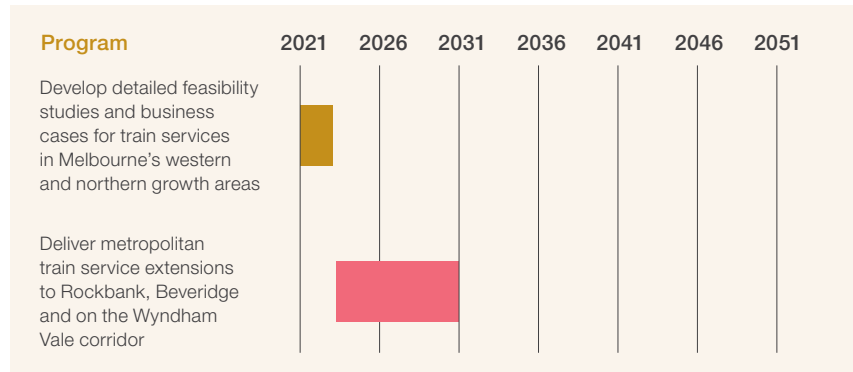
## Extend rail services in Melbourne’s western and northern growth areas

### Estimated Victorian Government cost range

**Implementation and capital cost:**  
\$5.5 billion to \$8.5 billion

**Infrastructure operational cost:**  
Not assessed

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051



The cost range includes:

- ✓ \$10 million to \$15 million implementation cost to undertake feasibility studies, develop three business cases and secure land for new train stabling yards and stations. The estimate covers government staff costs and consultancies, estimated by comparison with similar past initiatives. It also includes an allowance for the early acquisition or payment of compensation for a component of the land required for new facilities. While the land requirement will vary depending on finalisation of the project, for the purpose of this estimate it has been assumed to include one train stabling yard and four stations.
- ✓ \$5.5 billion to \$8.5 billion capital cost to deliver metropolitan train service extensions on the Melton and Wallan corridors from Sunshine to Rockbank, from Craigieburn to Beveridge, and on the Wyndham Vale corridor by 2031, informed by Victorian Government business cases. This is a broad cost range as the projects could be implemented in various ways to maximise value for money, depending on the results of further analysis. Order of magnitude cost estimates were prepared for the Sunshine to Rockbank and Craigieburn to Beveridge extensions<sup>140</sup> and the Wyndham Vale cost range was developed by Infrastructure Victoria, adjusting the costs for the Sunshine to Rockbank extension on a per kilometre basis. Note the cost of the Craigieburn to Beveridge extension, estimated at around \$1 billion, is also included in the costing for recommendation 60 – ‘Reconfigure the City Loop for more frequent and reliable services’.

The operational costs for this recommendation cannot be meaningfully calculated in isolation of the broader rail network. For further detail on the strategic assessment that supports this recommendation, including a full program of works that would maximise the benefits of the City Loop reconfiguration, see Infrastructure Victoria’s *Major transport projects strategic assessment report*.<sup>141</sup>

When planning to progressively expand access to rail services in growth areas, the Victorian Government should consider a mix of funding mechanisms and how value capture could be used. General government revenue is likely to be a major funding source for programs like expanding rail access in outer suburbs. The benefits of the program are shared by users across the metropolitan and, in some cases, the regional rail network and would provide some relief to congested road networks across Melbourne as well. Existing user charges, such as public transport fares, currently form part of general government revenue and only cover a small portion of operating costs. We recommend reforms to public transport fares to reduce crowding and congestion and get the most from the transport system.

The Victorian Government could explore a funding contribution from the Australian Government. The Australian Government supports similar projects such as its National Rail Program.<sup>142</sup>

Beneficiary charges should be examined if there is a substantial uplift in land values and business activity in the vicinity of new train stations. These include developer contributions, which could be levied on new developments occurring near new train stations. The Growth Areas Infrastructure Contribution provides some funding to growth area stations,<sup>143</sup> and could be an additional source of funding for this program. Some funding could also be raised from betterment levies applied to a defined catchment in the vicinity of new train stations to capture a portion of the additional land and business value created by a new project. If betterment levies and developer contributions are both considered by government, it should ensure that new charges do not unfairly duplicate each other or any existing charges.

Property development should also be considered, such as by selling or leasing land, and potentially air rights, surplus to government requirements at new train station sites for commercial, residential, or retail development. Property development can assist in putting underutilised government land and space to higher and better uses, creating added value through improved amenity and access to services. This has been done before at other train stations, such as Melbourne Central Station.

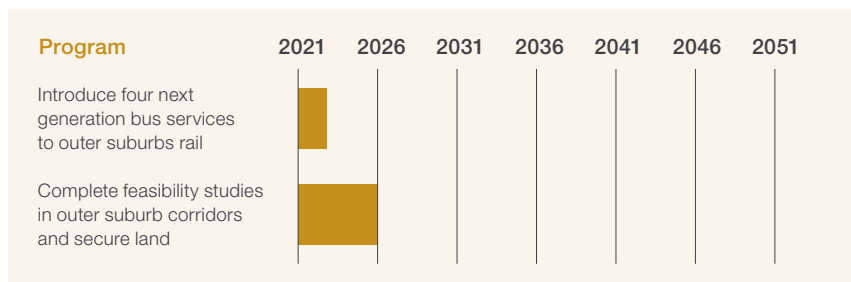
Recommendation 75

Link outer suburbs to rail with 'next generation' buses

Estimated Victorian Government cost range

**Implementation and capital cost:**  
\$40 million to \$120 million

**Infrastructure operational cost:**  
\$40 million to \$80 million a year



The capital and operational cost range has been developed assuming four new 'next generation' bus services are delivered. Costs have been developed drawing on the Baxter Rail business case for the introduction of bus services on the Mornington Peninsula,<sup>144</sup> increasing the cost from the business case estimates to provide a higher frequency service of every 10 minutes throughout the day. Bus fleet costs have also been included based on the Victorian Government's acquisition of 100 buses,<sup>145</sup> with a mid-life replacement assumed to take place 20 to 25 years after introducing the new bus fleet.<sup>146</sup>

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards this project. General government revenue is likely to continue to be a major source of funding for programs like expanding and upgrading Melbourne's outer suburban road network, particularly where it provides a community benefit by increasing mobility and accessibility in many parts of outer metropolitan Melbourne. Existing user charges, such as motorists fixed charges, currently form part of general government revenue. We recommend reforms to these through comprehensive transport network pricing.

Beneficiary charges should be considered if there is a substantial uplift in land values and business activity in the vicinity of the new services. These include developer contributions, which could be levied on new developments occurring in the vicinity of new or upgraded roads. This already occurs for arterial roads in greenfield areas, where developer contributions provide financial contributions or works/land-in-kind and should continue to do so.

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

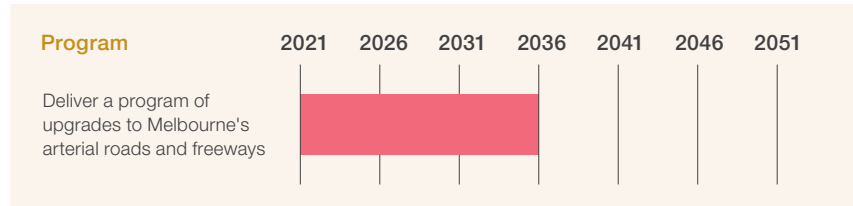
**Recommendation 76**

## Expand and upgrade Melbourne's outer suburban road and bus networks

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$850 million to \$1.5 billion

**Infrastructure operational cost:**  
\$1 million to \$2 million a year (road expansion only)



The cost range includes the cost of undertaking and maintaining 25 major road upgrades, over the next 15 years, based on cost analysis undertaken for Infrastructure Victoria in 2016 and adjusted for inflation.<sup>147</sup>

The cost of improving bus services is not included in the cost range for this recommendation. It has been included in the costing for recommendation 57 – ‘Reshape the metropolitan bus network and introduce ‘next generation’ bus services’.

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards this project. General government revenue is likely to continue to be a major source of funding for programs like expanding and upgrading Melbourne's outer suburban road and bus network, particularly where it provides a community benefit by increasing mobility and accessibility in many parts of outer metropolitan Melbourne. Existing user charges, such as motorists fixed charges, currently form part of general government revenue. We recommend reforms to these through comprehensive transport network pricing.

Beneficiary charges should be considered if there is a substantial uplift in land values and business activity in the vicinity of the new roads. These include developer contributions, which could be levied on new developments occurring in the vicinity of the new or upgraded roads. This already occurs for arterial roads in greenfield areas, where developer contributions provide financial contributions or works/land-in-kind and should continue to do so.

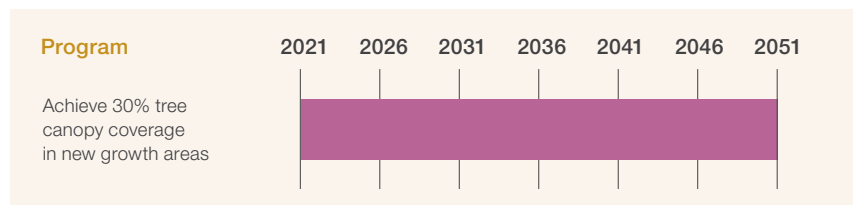
**Recommendation 77**

## Target 30% tree canopy coverage in new growth areas

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$40 million to \$60 million

**Infrastructure operational cost:**  
Not applicable



The cost range is based on a tree planting fund and a level of staffing to develop guidance material, implement the program, monitor and enforce planning controls, and collaborate with utility providers to remove barriers to tree planting. The tree planting fund is based on the \$5 million program to plant 500,000 trees in the western suburbs of Melbourne,<sup>148</sup> and is estimated to cost the Victorian Government \$5 million a year for 10 years, including establishment and replacement capital costs. After the initial 10-year period, it is assumed tree planting would be incorporated into other funding mechanisms in new growth areas. Local governments and private parties may also contribute funding, or voluntary labour.

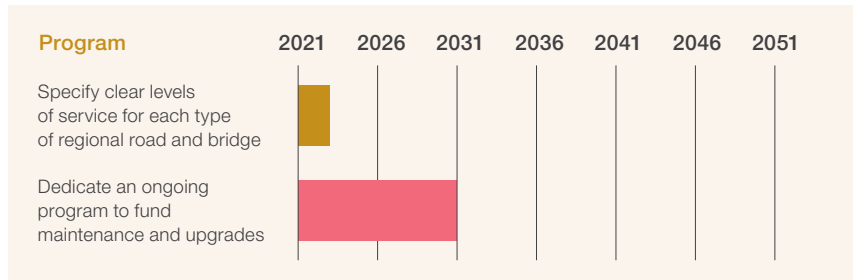
Recommendation 78

### Deliver long-term funding certainty for regional road maintenance and upgrades

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$2.5 billion to \$3.5 billion

**Infrastructure operational cost over 30 years:**  
Not applicable



This costing is based on providing around \$300 million of additional funding each year for regional road maintenance to increase the quantum and certainty of funding for the next 10 years. We assume the Victorian Government will review the adequacy of funding levels within 10 years and adjust as needed. In the first two years, we assume a component of the funds will be used for staff costs and technical consultancies to specify clear levels of service and develop a framework for each type of road and bridge, then in future years manage and monitor program outcomes.

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards this program. General government revenue is likely to continue to be a major source of funding for programs like regional road maintenance and upgrades.

Heavy vehicles are one significant group using regional roads. A national scheme exists for heavy vehicle charges, a type of user charge, which is currently based on recovering the heavy vehicle share of state and territory government spending on roads.<sup>149</sup> National reforms are under consideration which could improve one funding stream for regional road maintenance and upgrades.<sup>150</sup>

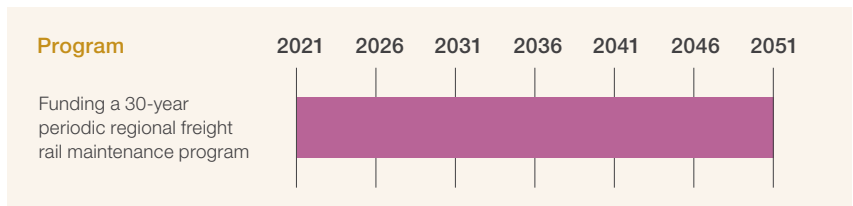
Recommendation 79

### Fund and plan for ongoing regional rail freight network development and maintenance

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$2.1 billion

**Infrastructure operational cost:**  
Not applicable



This recommendation consists of providing ongoing regional rail maintenance capital funding of \$70 million each year for 30 years. The costing is based on the previous Victorian Government investment for major periodic maintenance on the regional rail network.<sup>151</sup> Additional costs have also been estimated for a rail freight network assessment, a long-term network asset management plan that prioritises works, feasibility studies and business cases for the next major rail freight project, and program monitoring and evaluation.

We recommend the Victorian Government consider a mix of funding mechanisms to contribute some funding towards this program. General government revenue is likely to contribute some funding towards ongoing regional rail freight maintenance program where it provides wider benefits. This could include avoided road costs, reduced pollution and broader economic efficiencies. User charges should also be used as those who use regional rail for freight are direct beneficiaries of the investment.

Rail freight and freight terminals primarily benefit businesses, who should significantly contribute to the cost of the maintenance. For instance, as part of Victoria's rail access regime, freight operators pay access fees (user charges) to use the rail infrastructure.



**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

For freight terminals, opportunities to raise additional funding should be pursued through beneficiary charges on nearby businesses if there is a substantial uplift in land values and business activity. A beneficiary charge would ensure the Victorian Government captures a portion of the increased value of the land surrounding the terminal following site selection. Beneficiary charges, such as developer contributions or a betterment levy, could be applied and funding raised could be invested in supporting infrastructure for the terminals and broader precinct.

If betterment levies, new developer contributions and user charges are considered by government, it should ensure that new charges do not unfairly duplicate each other or any existing charges.

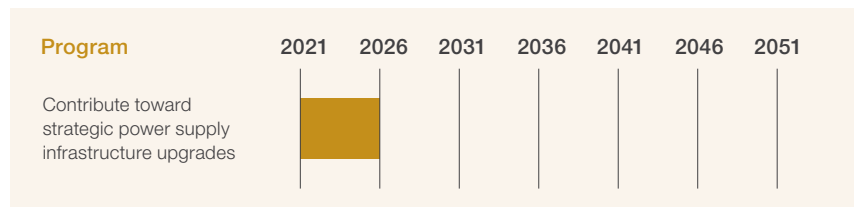
Recommendation 80

### Upgrade power supply for agriculture and regional industry

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$30 million

**Infrastructure operational cost:**  
Not applicable



The cost is based on the existing \$30 million *Agriculture energy investment plan*.<sup>152</sup> We assume the recommendation will be administered by an existing government agency with existing staff resources reallocated towards this activity.

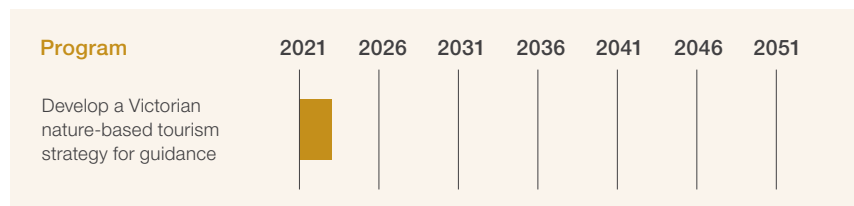
Recommendation 81

### Plan for and facilitate regional nature-based tourism investments

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not applicable



The cost range is for the development of a statewide nature-based tourism strategy and associated legislative changes, and is based on an estimated level of staff and potential technical consultancy services. As this recommendation is to develop a strategy, and not its implementation, it does not include any assumed capital or infrastructure operational costs. This would need to be considered as part of developing the strategy.

The recommendation also supports private enterprises growing Victoria's nature-based tourism sector, reducing pressure for publicly funded tourism infrastructure. This recommendation can generate revenue for the Victorian Government by allowing more site-specific, long-term leases that meet strict criteria.

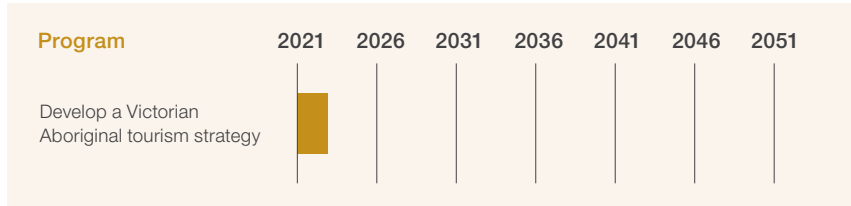
Recommendation 82

### Develop a Victorian Aboriginal tourism strategy with Aboriginal communities

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not applicable



The cost range is based on an estimated level of staff to help facilitate extensive consultation, incorporating governance, and technical services such as economic modelling. As this recommendation costing is based on developing a strategy, and not its implementation, it does not include any assumed capital or infrastructure operational funding. This would need to be considered as part of developing the strategy with Aboriginal communities.

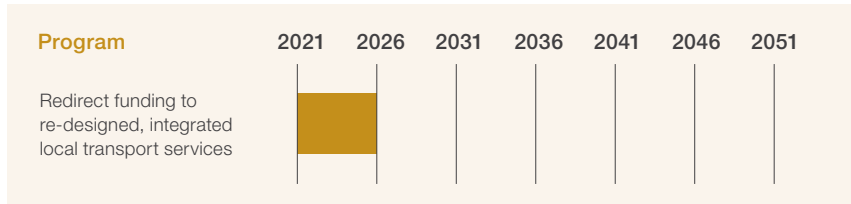
Recommendation 83

### Redesign regional public transport to meet local needs

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$5 million to \$10 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes a level of staffing for consultation, transport planning and regulatory and legal change. It is assumed that local government and community resources (not included within this cost range) will also be required to identify and implement this recommendation, in a similar approach to the Victorian School Bus Program.<sup>153</sup> We assume no capital costs as the proposal focuses on redesigning bus services, which would use existing transport infrastructure. We have not assessed the change in operational cost, as the objective is to better use existing resources through redesigning current services. We note there could be some increase in operational costs in the short-term during transition.

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

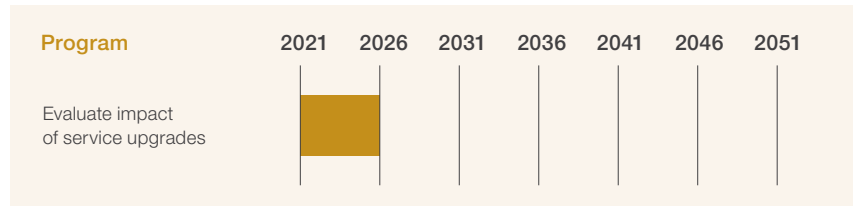
**Recommendation 84**

### Address regional Victoria's digital connectivity gaps

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not applicable



The cost range is for evaluating the impact of service upgrades from the \$626 million Digital Future Now initiative, which is investing in new infrastructure to eradicate mobile black spots and business-grade broadband connectivity for regional communities.<sup>154</sup> The cost is based on previous Victorian Government investment for development of the regional digital plans, which collated information on regional digital infrastructure and services supply and demand, working with the Regional Partnerships.<sup>155</sup>

This recommendation does not have any anticipated capital or infrastructure operational costs for the Victorian Government as it is an evaluation of existing investment due for completion in 2025. Any further infrastructure investment would be pending the outcomes from the recommended evaluation.

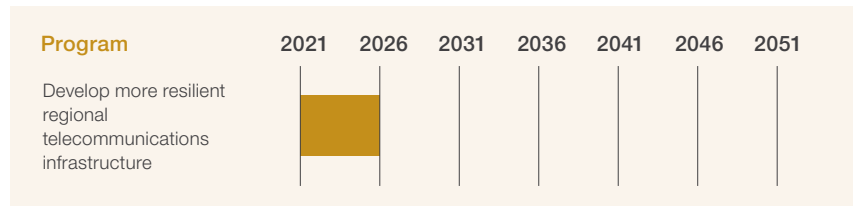
**Recommendation 85**

### Improve regional telecommunications infrastructure resilience

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$50 million to \$100 million

**Infrastructure operational cost:**  
Not assessed



The existing mobile black spot program is led by the Australian Government with financial contributions from state governments, local governments, the community and mobile network operators. In place since 2015, the program is supported by \$380 million of Australian Government funding, with five of the six rounds completed resulting in \$836 million of combined investment.<sup>156</sup> Victoria has received \$237 million of this investment.<sup>157</sup>

In the 2020-21 Victorian Budget, the government committed \$300 million over six years to eradicate black spots in populated areas of regional Victoria and \$250 million to co-fund business grade broadband connections,<sup>158</sup> equating to approximately \$100 million per year. It has been assumed this would be an effective mechanism to fund and deliver more resilient regional telecommunications infrastructure. The cost range quoted assumes that existing funding from the Victorian Government is increased by \$10 million to \$20 million each year for the next five years and the total fund is targeted to investments that improve resilience.

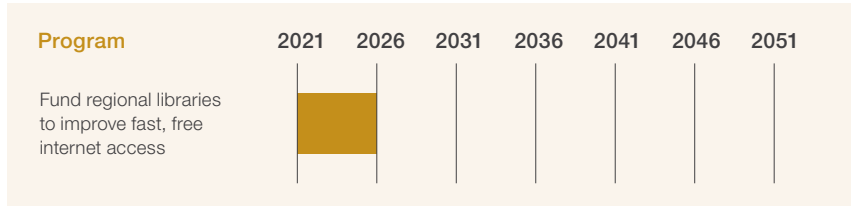
Recommendation 86

### Fund regional libraries to provide better internet access

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$7 million to \$10 million

**Infrastructure operational cost:**  
Not assessed



The cost range includes upgrades for 70 of Victoria’s regional and rural libraries, technical fit-outs for the mobile library fleet and an evaluation to inform funding beyond the first five years. We assumed library upgrades could be up to \$100,000 per library, based on recent upgrades to the Foster Library in Gippsland, where the Victorian Government contributed \$92,000,<sup>159</sup> and smaller sums for 24 mobile libraries.<sup>160</sup> This costing is in addition to the Living Libraries Infrastructure Program.

We assume the funding will be administered by an existing government agency with staff resources, and do not anticipate operational costs to the Victorian Government as the infrastructure is owned by local governments, which will be responsible for ongoing operations.

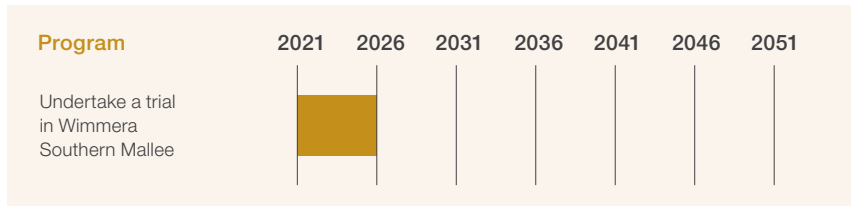
Recommendation 87

### Use rural schools for children’s specialist and allied telehealth services

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
Less than \$1 million

**Infrastructure operational cost:**  
Not assessed



This recommendation proposes a trial to develop and run a range of paediatric and allied telehealth services from selected rural schools, as part of moving to a more integrated service model. The cost range assumes established facilities are used that are already equipped with technology and only a small amount of infrastructure upgrades or equipment will be needed, such as video screens. The cost does not include the health service staff cost of operating the trials, but does include resources to monitor and report on the trial.

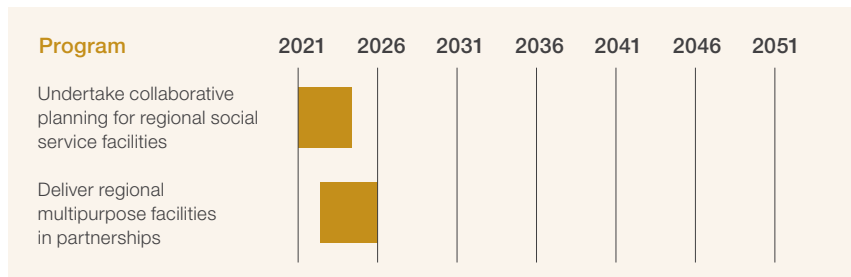
Recommendation 88

### Deliver multipurpose shared social service facilities in the regions

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$1 million to \$5 million

**Infrastructure operational cost:**  
Not applicable



The cost range includes a level of staff with resources for technical consultancies. There are no anticipated capital or operational costs to the Victorian Government as the recommendation calls for shared service planning which creates improved outcomes, and through collaboration with others and leveraging allocated funds.

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

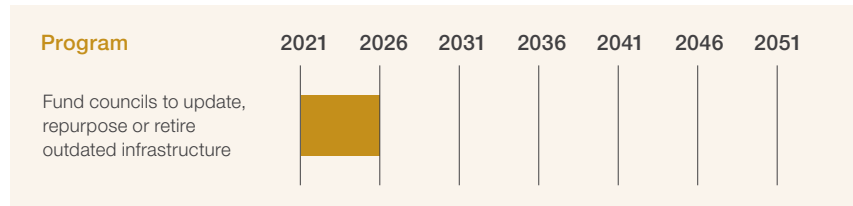
**Recommendation 89**

## Update community infrastructure

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$100 million

**Infrastructure operational cost:**  
Not applicable



This recommendation proposes establishing a new \$100 million fund to provide support for regional councils to update, repurpose and retire community infrastructure. The estimated cost allows for up to 10 grants valued at \$2 million each year, or a larger number of smaller grants with the program running for five years. We assume the proposed fund will be administered by an existing government agency with staff resources. There are no anticipated operational costs to the Victorian Government associated with this recommendation as the infrastructure is owned by local governments who would be responsible for ongoing costs.

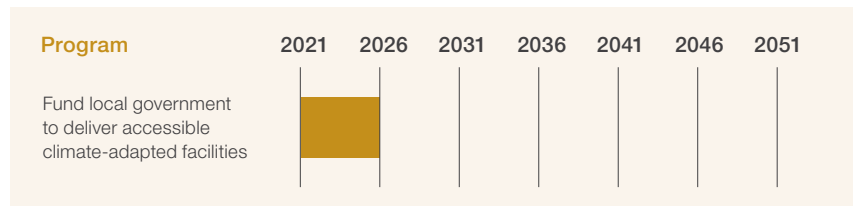
**Recommendation 90**

## Create climate-adapted facilities for rural communities

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$50 million

**Infrastructure operational cost over 30 years:**  
Not applicable



This recommendation proposes the Victorian Government provide around \$50 million over five years to local governments and other eligible community facility owners to help establish a network of accessible climate-adapted community facilities. The cost of retrofitting community facilities could be as small as a few thousand dollars for installing an air conditioner to major refurbishments costing over \$500,000. The cost estimate includes government resources to help local governments to identify locations for shelters, develop criteria and guidance material, administer the fund, and monitor and oversee delivery.

There are no anticipated operational costs to the Victorian Government associated with this recommendation as the infrastructure is owned by local governments and other eligible community facility owners who would be responsible for ongoing costs.

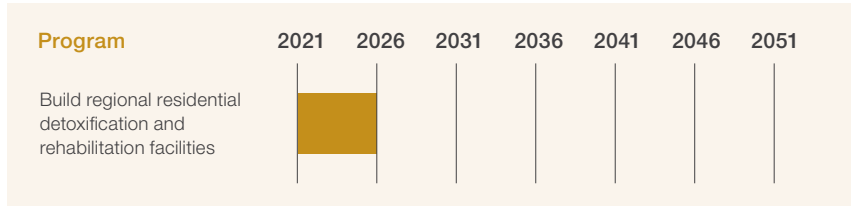
Recommendation 91

### Build regional residential alcohol and drug rehabilitation facilities

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$35 million to \$80 million

**Infrastructure operational cost:**  
\$1 million to \$2.5 million a year



The cost range assumes provision of four new 30-bed facilities at a capital cost of \$300,000 to \$650,000 per bed, based on previous Victorian Government investment in the Grampians, Traralgon, Corio and Wangaratta.<sup>161</sup> The estimated infrastructure operational cost is based on a benchmark rate of 3% of capital cost per annum.<sup>162</sup>

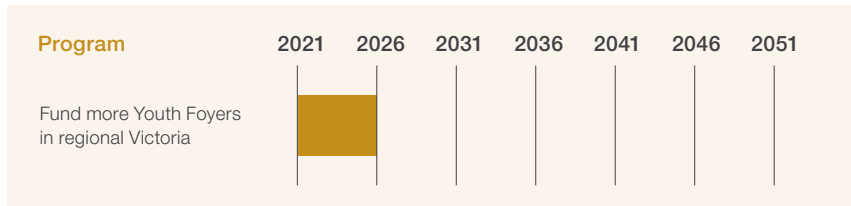
Recommendation 92

### Fund more Youth Foyers in regional Victoria

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$50 million to \$80 million

**Infrastructure operational cost:**  
\$1 million to \$3 million a year



The cost range assumes provision of six new facilities at a capital cost of around \$10 million per facility, based on cost advice provided by the Brotherhood of St Laurence as part of our Infrastructure Priorities for the Regions consultation,<sup>163</sup> and previous budget allocations for Youth Foyers.<sup>164</sup> The estimated infrastructure operational cost is around \$2 million each year, based on a benchmark rate of 3% of capital cost per annum.<sup>165</sup>

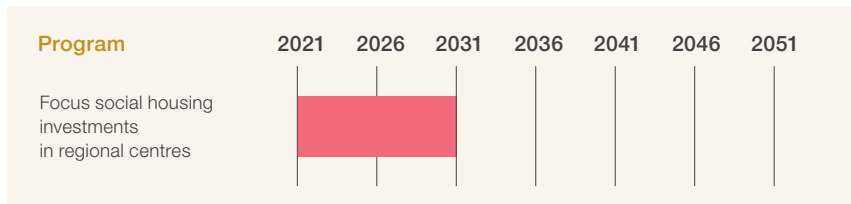
Recommendation 93

### Expand social housing in regional centres, in locations with good access

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
See recommendation 68 – ‘Set targets to grow social housing’

**Infrastructure operational cost:**  
Not assessed



This recommendation refers to a subset of infrastructure provided under recommendation 68 – ‘Set targets to grow social housing’. Refer to recommendation 68 for details on costing and funding.



**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

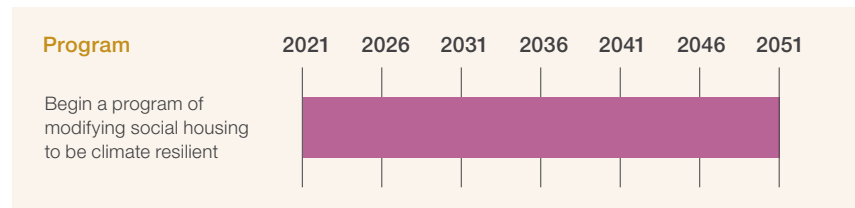
Recommendation 94

## Make social housing suitable for changing local climates

**Estimated Victorian Government cost range**

**Implementation and capital cost:**  
\$500 million to \$800 million

**Infrastructure operational cost:**  
Not assessed



The cost range for this initiative assumes energy efficiency upgrades are applied to around 78,500 social housing dwellings built before Victoria’s adoption of the 6-star energy rating in May 2011. The energy efficiency upgrade is based on the type of dwelling. For example:

- \ A house receives draft sealing, ceiling insulation, inside wall insulation, cavity wall insulation, underfloor insulation, external shading, solar PV and air conditioning
- \ A medium density attached or detached property, and community-owned dwelling receives draft sealing, ceiling insulation, inside wall insulation, external shading, solar PV and air conditioning
- \ A low rise flat receives draft sealing, inside wall insulation, external shading and air conditioning
- \ A high rise flat receives draft sealing and inside wall insulation
- \ No treatment for moveable units, multiple unit facility and other.

The cost of each of the upgrade is based on indicative averages costs from Sustainability Victoria research on detached houses built pre-2005,<sup>166</sup> and online consumer reports.<sup>167</sup> We remove existing Victorian Government commitments, including its Big Housing Build program, as they are already funded, resulting in a cost estimate of over \$20 million each year.

This is a high-level estimate. We recognise that individual units would need to be assessed on a case-by-case basis to determine feasibility, as well as retrofit and appliance installation costs. The overall figure is likely to be lower as:

- \ Some of the older units might be at end of life and should be retired, rather than upgraded
- \ Units built after 2005 would be built at 5-star energy efficiency rating, which would likely mean the thermal performance of these buildings would require less adjustment compared with those built pre-2005.

There is some costing overlap between this recommendation and recommendation 55 – ‘Rapidly renew old public housing’, which seeks to renew 9200 properties by 2031, and the balance of the portfolio by 2051.

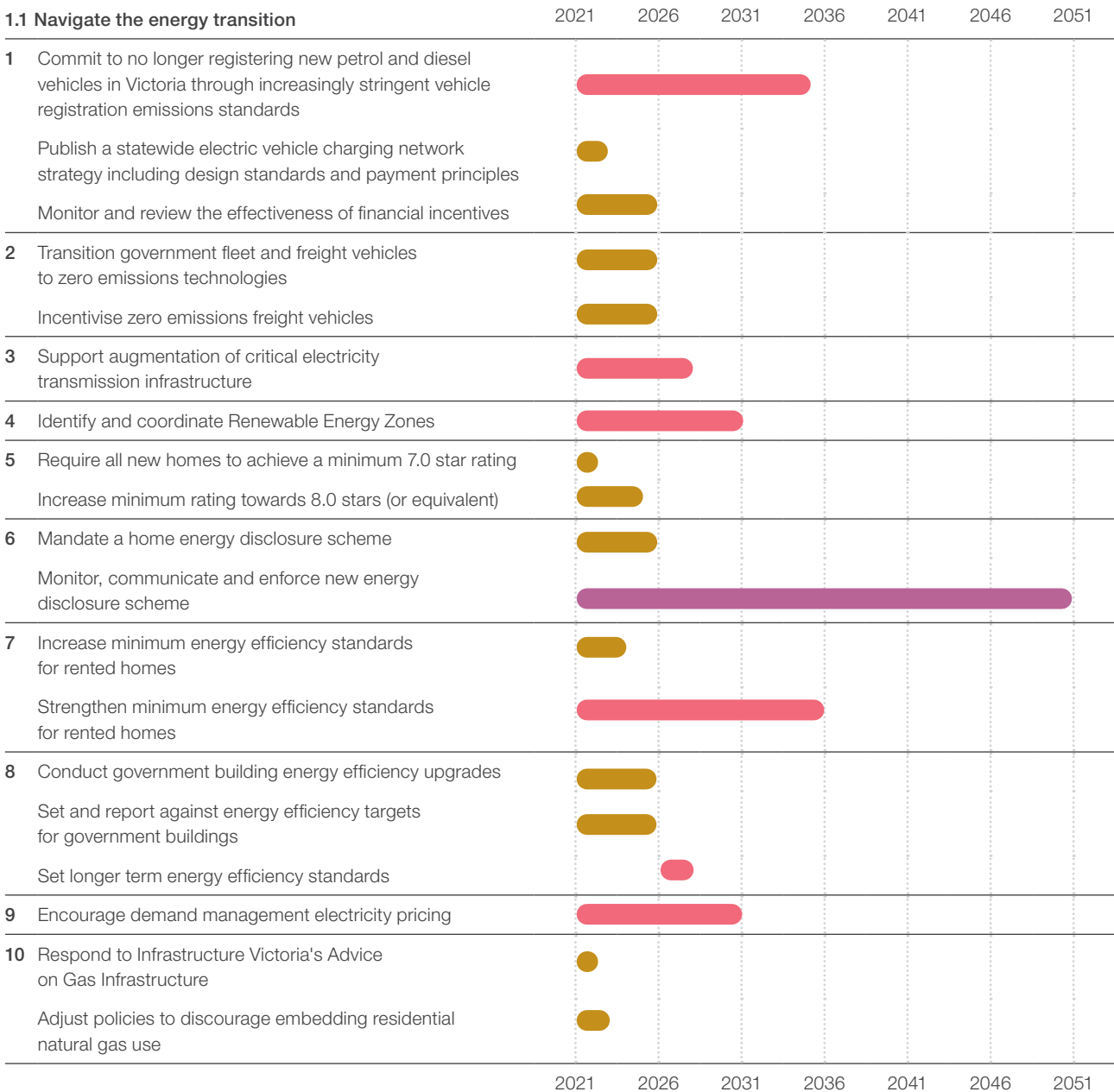
As this recommendation involves upgrading existing dwellings, infrastructure operational costs should be reduced as well as energy bills for those who live in social housing. We have not quantified this cost reduction.

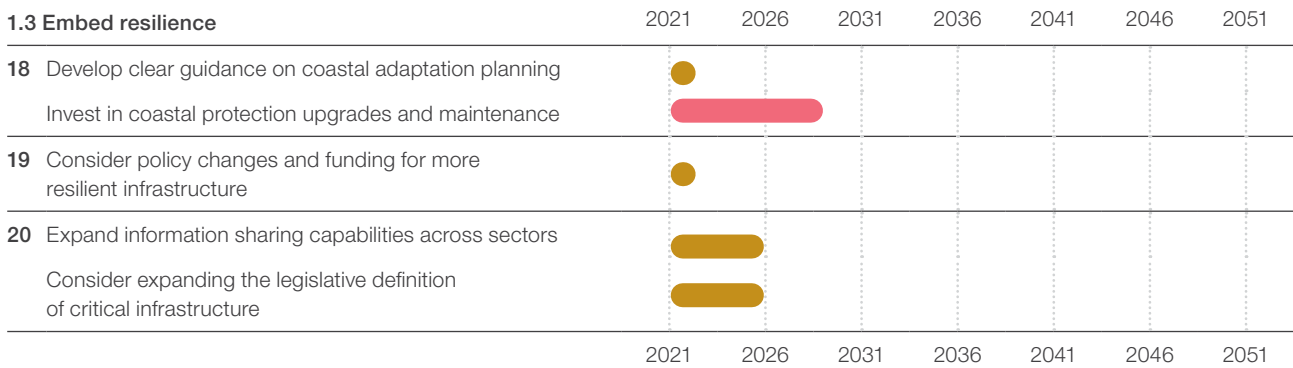
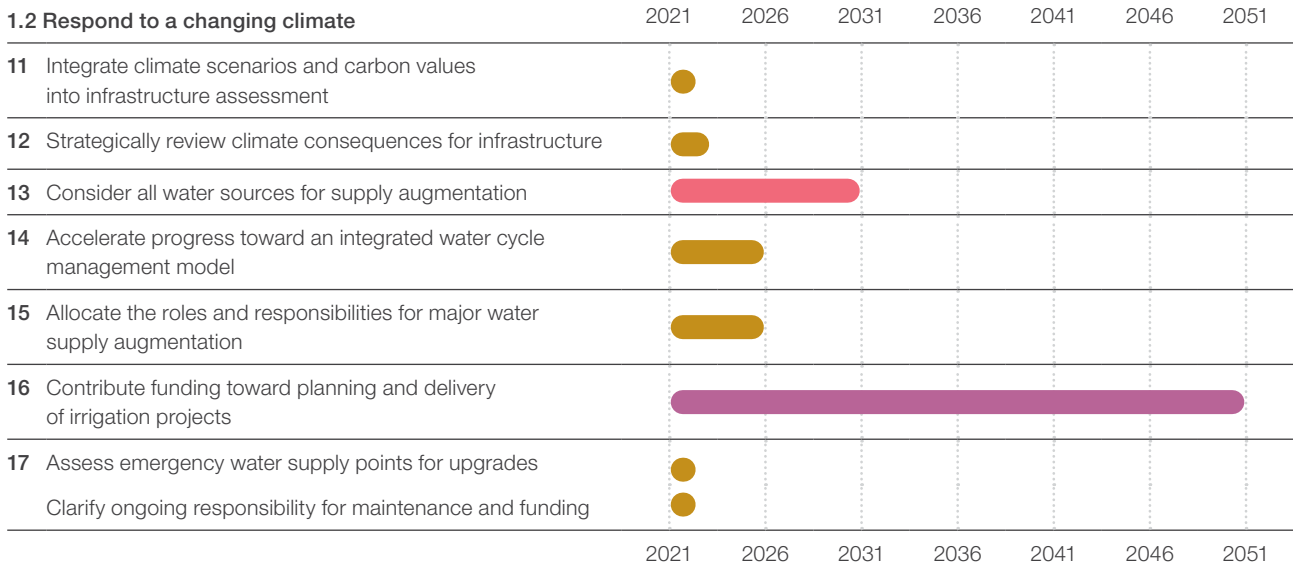
### 3.0 Timing of recommendations

#### 1. Confront long-term challenges

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

##### 1.1 Navigate the energy transition



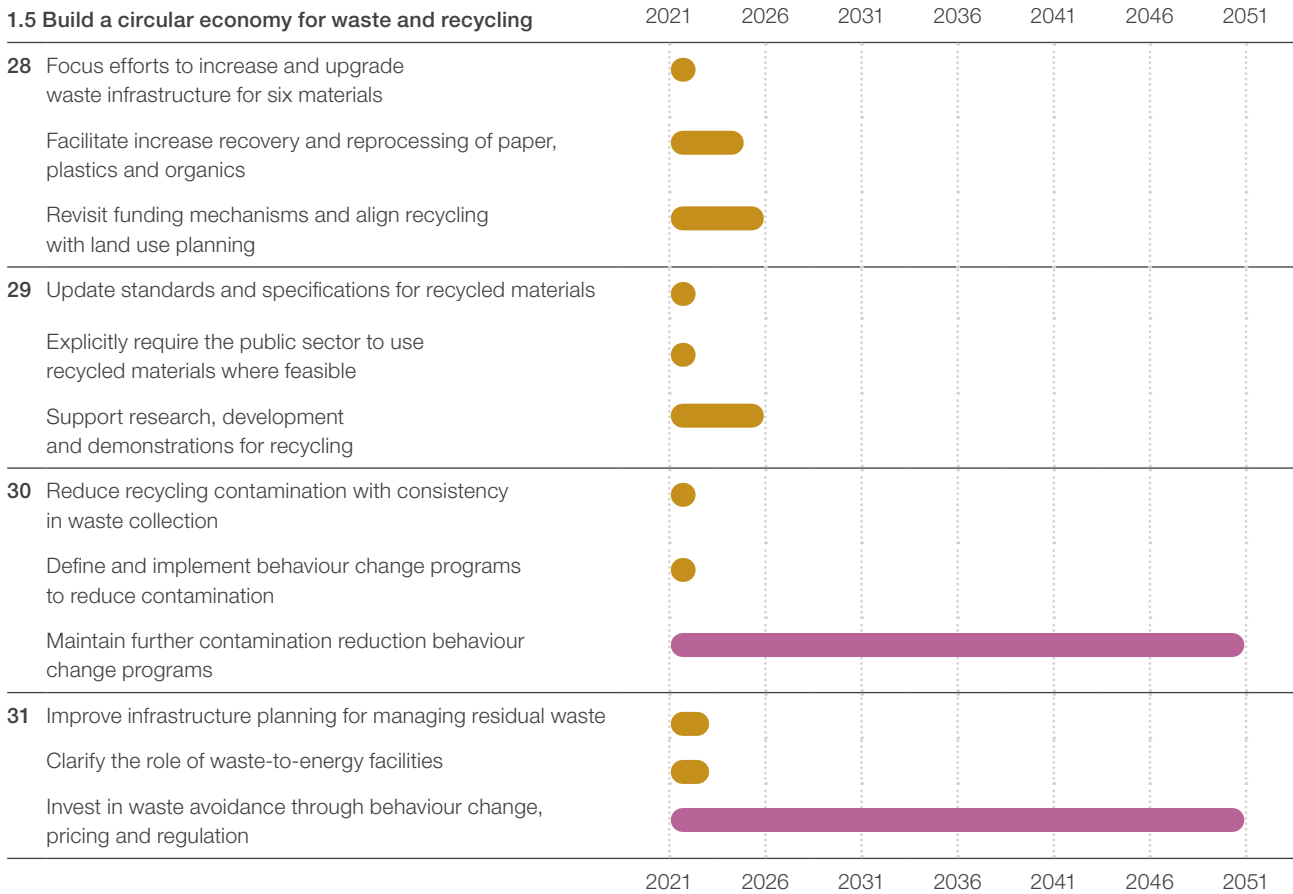


1. Confront long-term challenges cont'd

Key ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

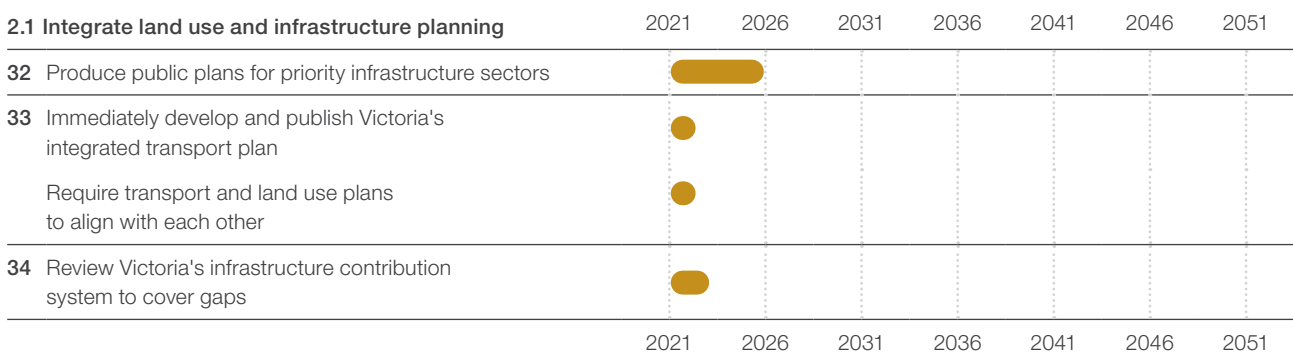
1.4 Embrace technology and innovation





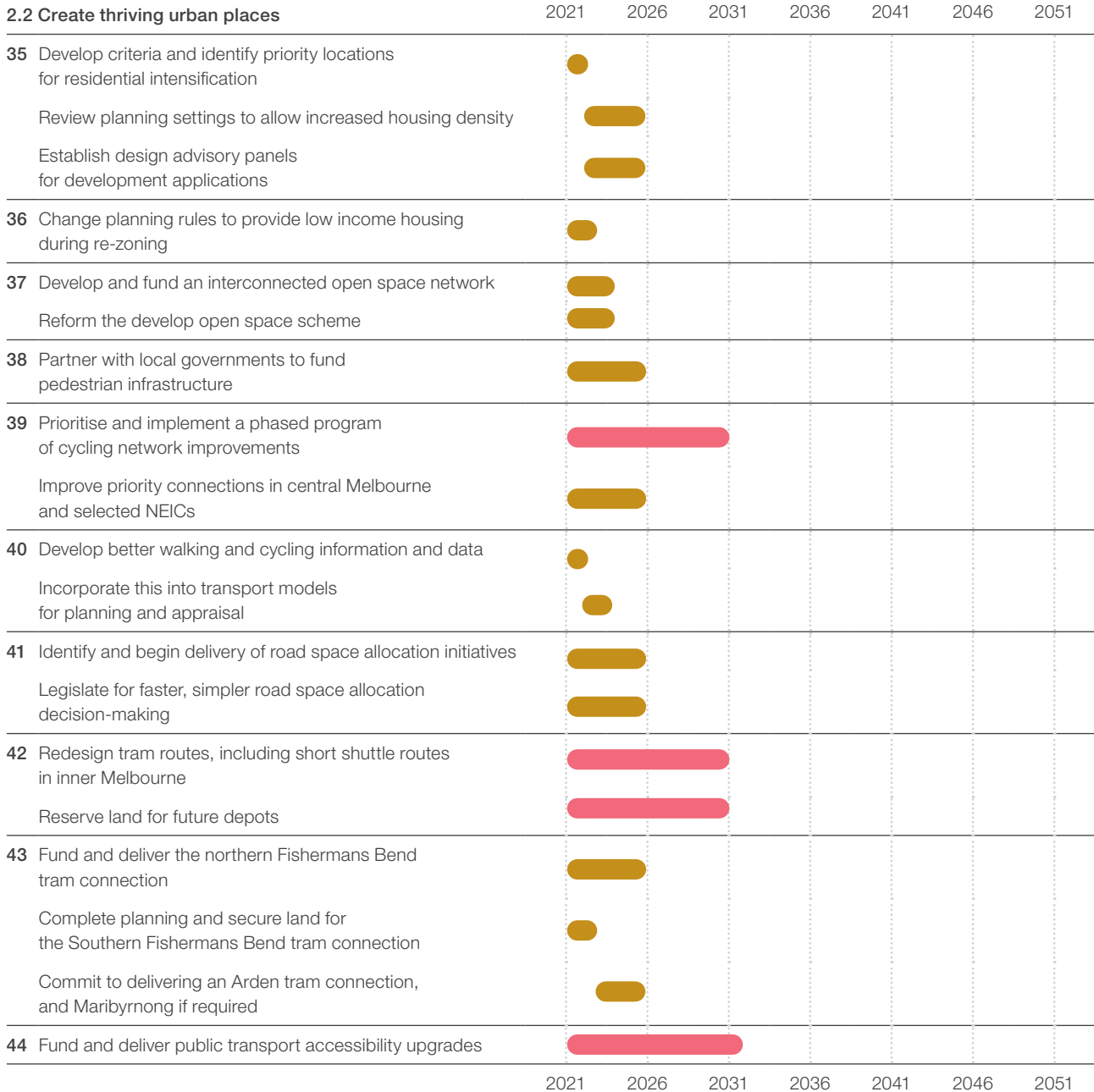
**2. Manage urban change**

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051



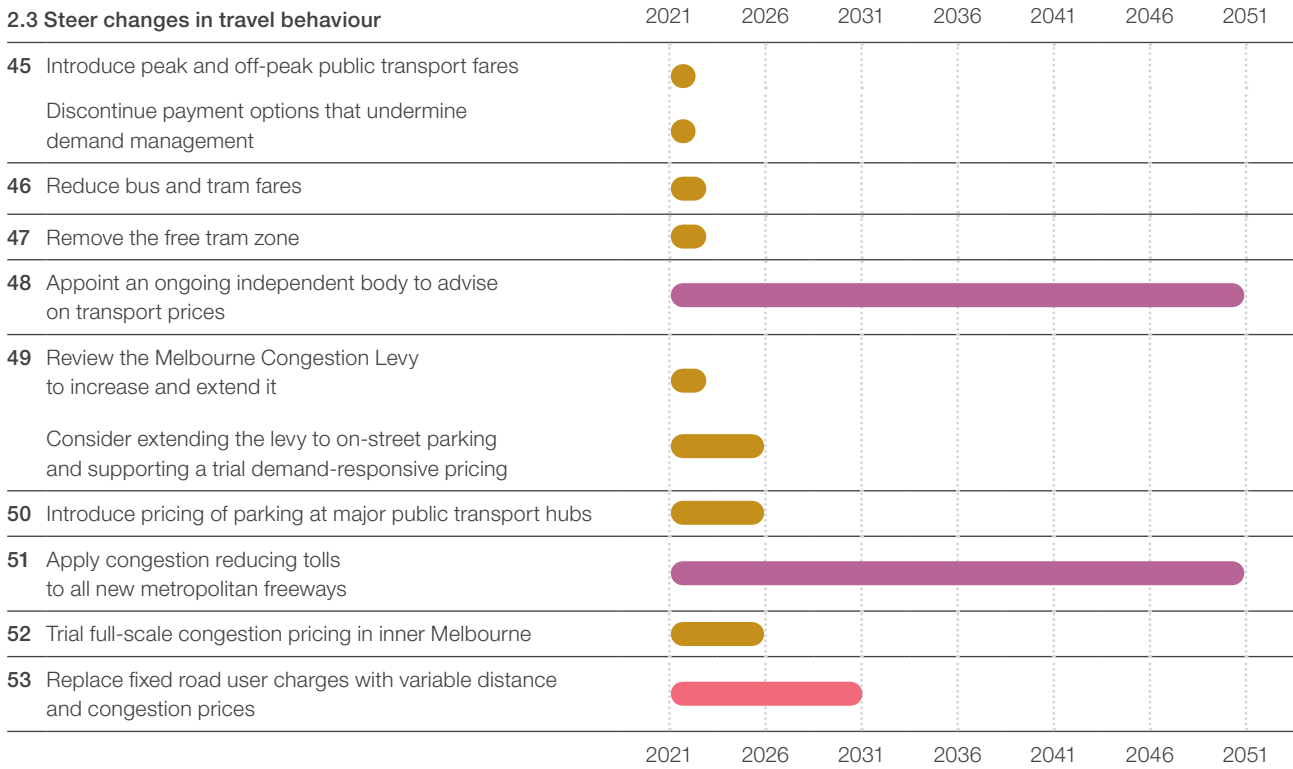
2. Manage urban change cont'd

Key ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

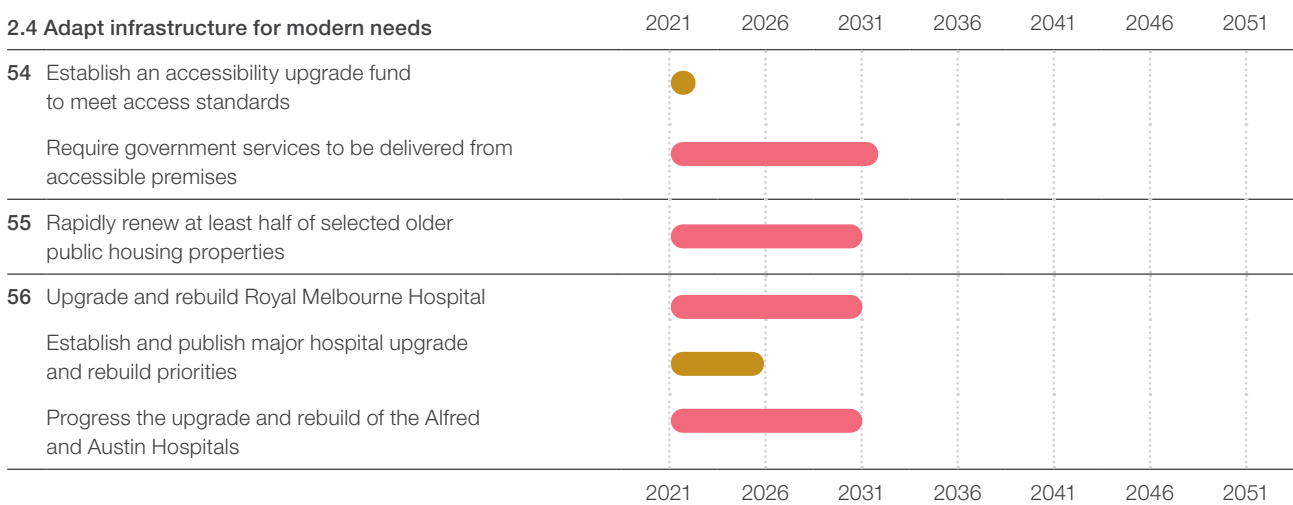




**2.3 Steer changes in travel behaviour**



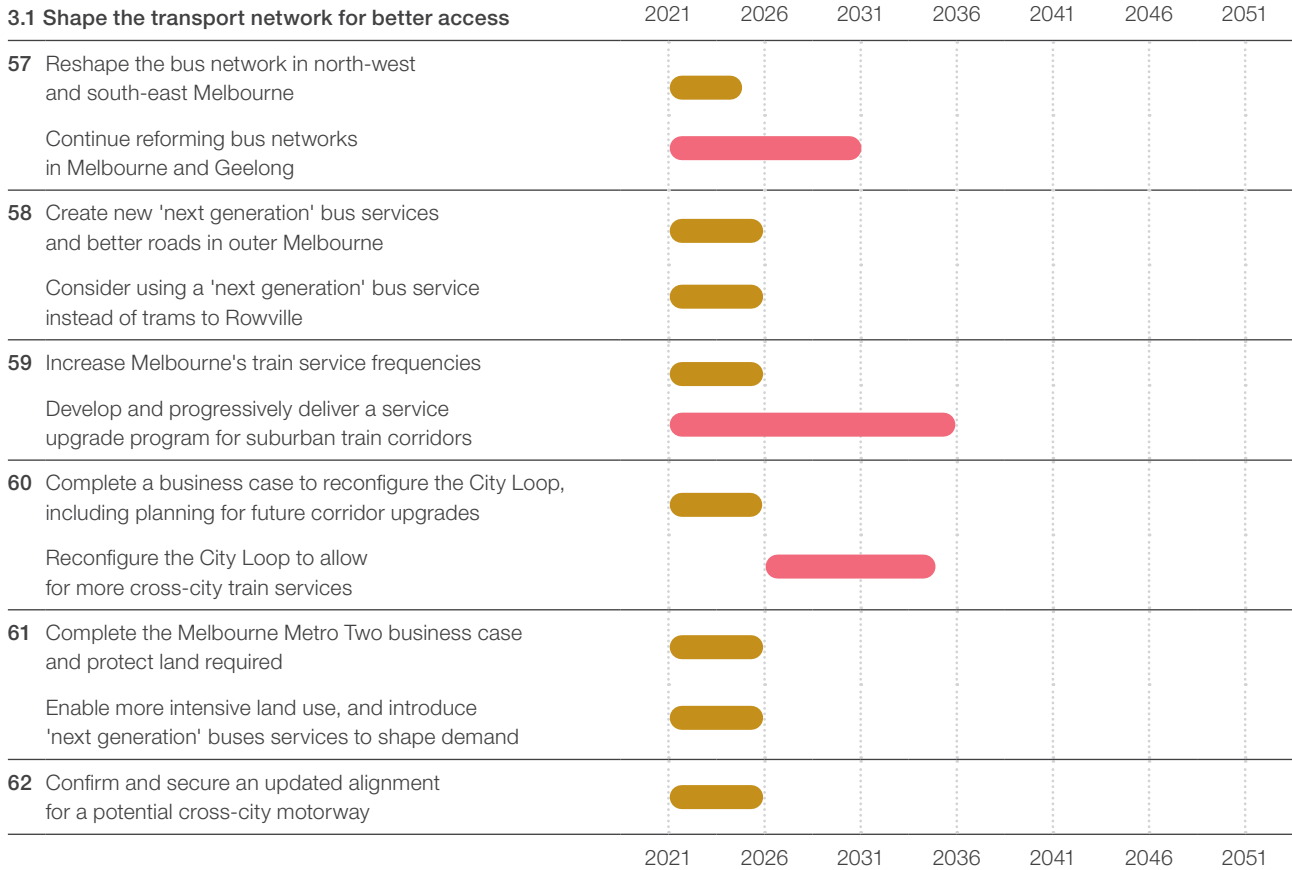
**2.4 Adapt infrastructure for modern needs**

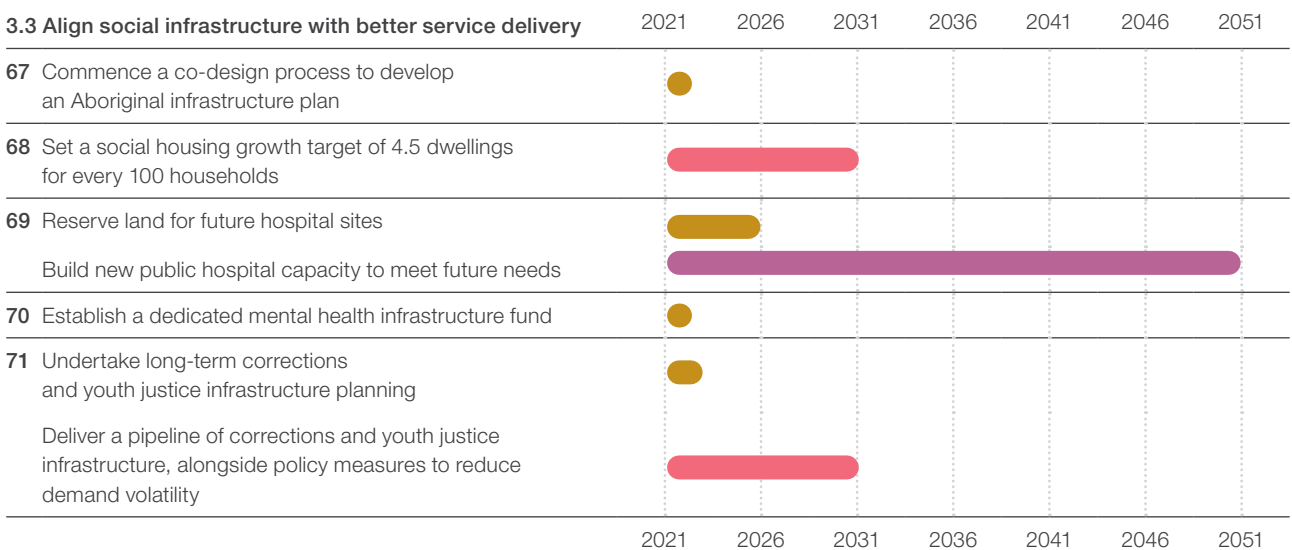
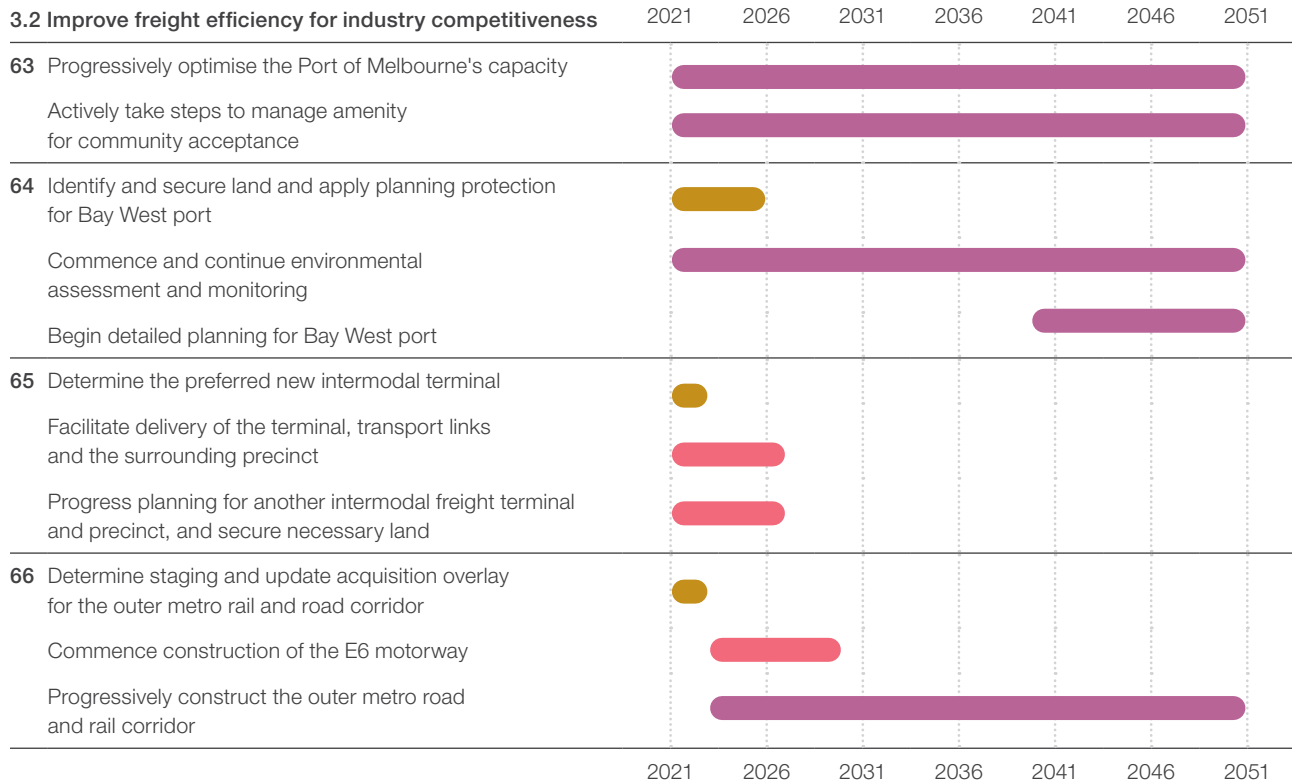


### 3. Harness infrastructure for productivity and growth

**Key**   ■ Short term up to 2026   ■ Medium term up to 2036   ■ Long term up to 2051

#### 3.1 Shape the transport network for better access

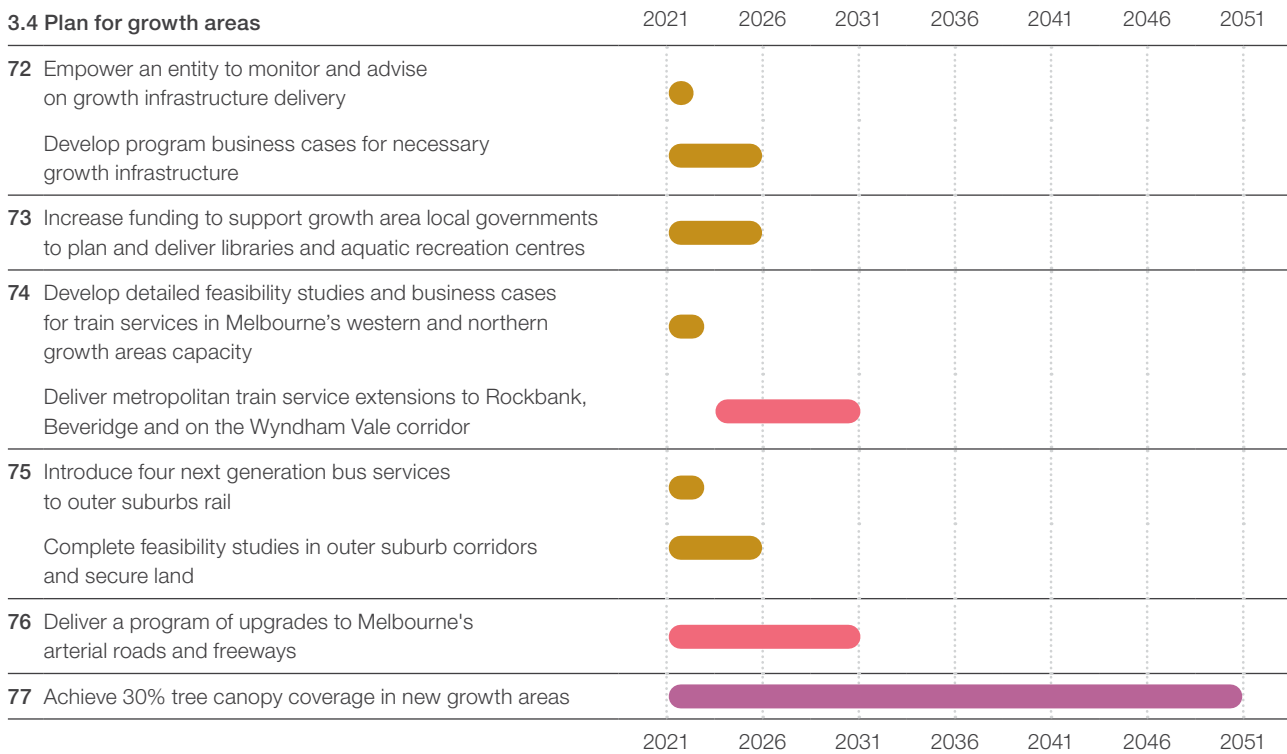




### 3. Harness infrastructure for productivity and growth cont'd

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

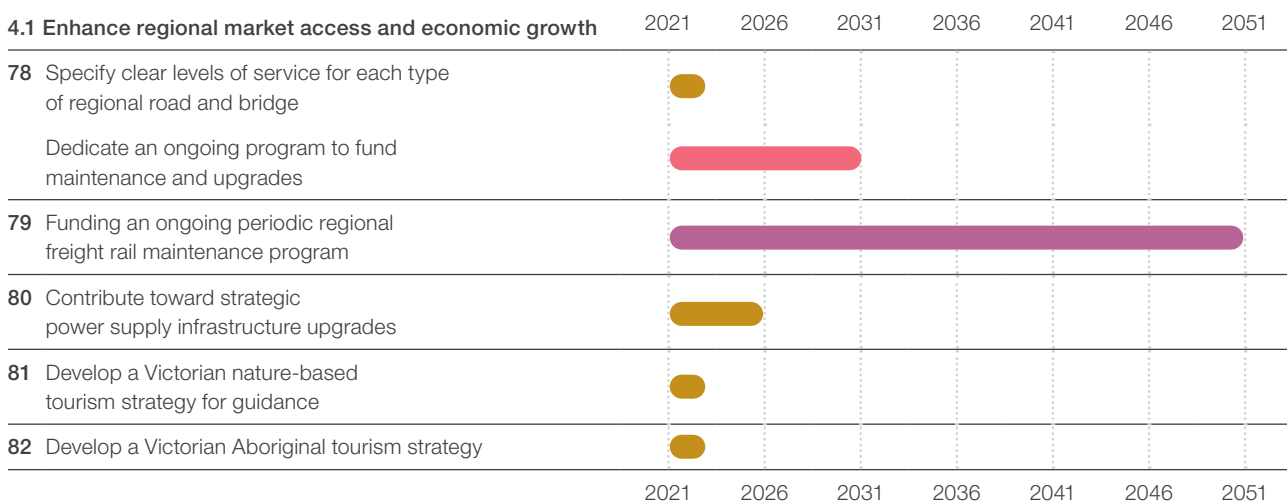
#### 3.4 Plan for growth areas

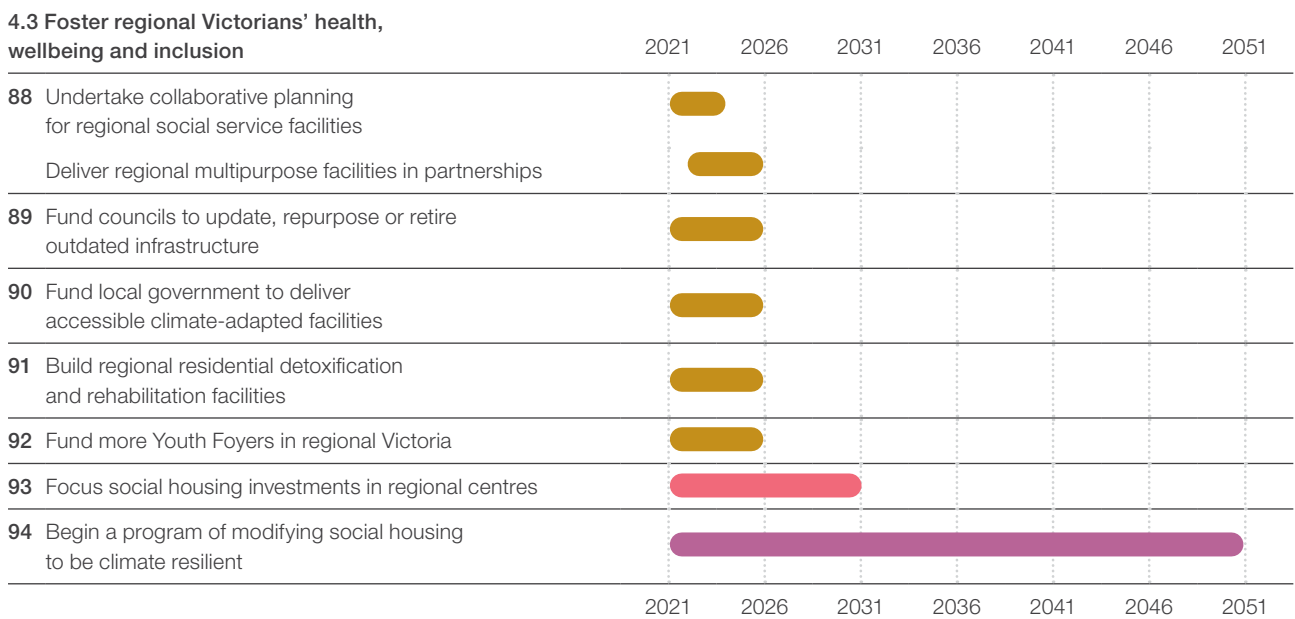
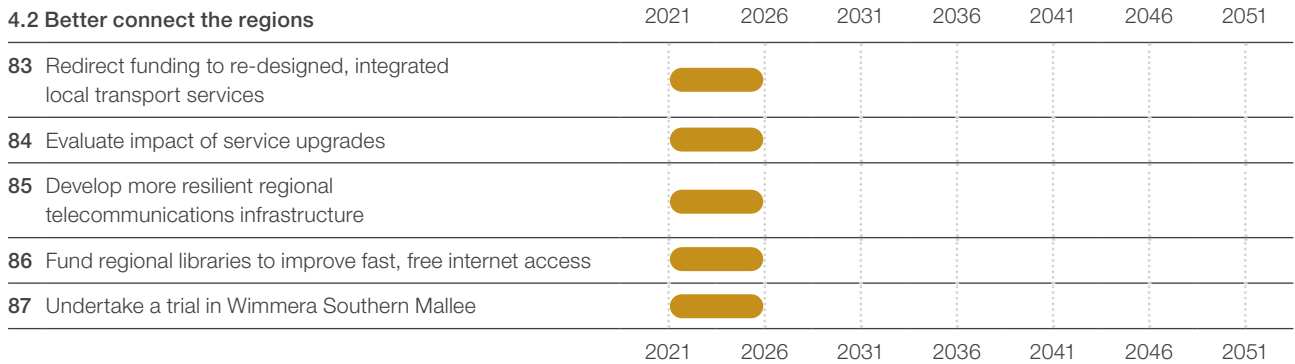


### 4. Develop regional Victoria

**Key** ■ Short term up to 2026 ■ Medium term up to 2036 ■ Long term up to 2051

#### 4.1 Enhance regional market access and economic growth





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## Appendix D

# Methodology

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This appendix documents the approach and method that Infrastructure Victoria adopted to develop this strategy.



The methodology for updating an existing strategy is necessarily different to developing one for the first time. We begin with a fully developed existing strategy, rather than a multitude of potential options. As such, we took an approach of reviewing, revising, developing and supplementing an existing set of recommendations, rather than beginning again from a blank slate. We also carefully considered how to present the revised recommendations as an integrated approach to Victoria's infrastructure.

Three years ago, when work began on this updated strategy, the process logically followed our previous work and experiences. The 2016 strategy was the context for, and the foundation of, this updated infrastructure strategy. In developing this updated strategy, we examined our original recommendations, the Victorian Government's response, the actions taken to implement the recommendations, and other factors which may have changed during the interim. This updated strategy looks quite different to our 2016 strategy, but has deep connections to it, and is underpinned by the same rigour, evaluation and development as the first.

While this work was underway, we began consultations with stakeholders and the community. For the past two years, we have engaged with the public, experts and others on various aspects of the strategy update. We have also undertaken and completed a range of original research and advice to government. Extensive modelling has been commissioned and developed to forecast the growth and development of our state. This has helped us develop a solid evidence base for the recommendations in this strategy update.

We also undertook an extensive research and engagement process in regional Victoria to identify regional infrastructure needs, and this strategy reflects a greater emphasis on regional infrastructure. We continue to focus on integrating land use and infrastructure planning by identifying and developing recommendations to improve upon it.

We released a draft strategy for consultation on 9 December 2020. To maximise opportunities for community and stakeholder input, we developed a three-month engagement program, which included 34 community and

stakeholder events, featuring webinars, online forums and roundtables, and community focus groups. We documented more than 2600 proposals for changes to the draft strategy, including from feedback received in more than 200 submissions. We considered each proposal for change and included the evidence provided to amend the draft strategy where relevant and appropriate. For more information, see Appendix E of Volume 2, and [Victoria's draft infrastructure strategy public engagement findings report](#).

This strategy has been developed during the COVID-19 pandemic. This has necessarily altered our views and challenged the assumptions underlying the 2016 strategy. The modelling conducted for this strategy used official population projections. We also modelled different scenarios alongside this, including considering scenarios with higher or lower population growth, or behavioural changes such as more incidence of working from home. Some of these scenarios helped us consider the pandemic's impacts on future demand for infrastructure.

We also recognise that as the trajectory following the pandemic becomes clearer, we will need to continue adjusting our perspectives.

We also undertook a major innovative modelling program to inform our recommendations on major transport projects. Our major transport project assessment framework considers many elements, reflecting a maturing approach major transport program assessment. We used a multi-criteria analysis, an expanded economic evaluation that considers land use changes, a broader social, environmental and economic assessment, and consideration of distributional impacts.

The recommendations focus on a range of infrastructure sectors in different development settings. They seek to further the discussion of where and how Victoria grows and changes. As in the 2016 strategy, these recommendations have adhered to our principles of prioritising changed behaviour to manage demand, better use existing assets, and delivering new infrastructure.<sup>1</sup>

After this strategy is tabled in the Victorian Parliament, the Victorian Government will respond to the recommendations within 12 months and develop a new five-year

Victorian Infrastructure Plan to implement its response. Beyond Victoria's government and parliament, this document intends to deliver for the people of Victoria, who rely on infrastructure for their lifestyles and livelihoods, and help inform the public service agencies, business, local governments and community organisations, who plan, manage and invest in infrastructure for Victoria's communities.

## 01. Values

**Infrastructure Victoria has six values that underpin all our work, documented in our Corporate Plan 2019-2022. They have guided our approach to developing this strategy.**

### Independence

We exercise our independence with integrity. It provides us freedom to challenge, consider new ideas and create consensus.

### Influence

We aim to influence infrastructure decision-making. We build trust and influence through excellent, evidence-based advice.

### Innovation

We are bold, creative and open to change and new ideas. We look around the world for ways to make Victoria a better place to live.

### Openness

We say what we mean. We are accountable and transparent. We offer up our evidence and thinking for scrutiny.

### Partnership

We value understanding the needs, interests and preferences of the community. We share information and respond to feedback. We collaborate with colleagues and stakeholders.

### People

We succeed through our people. Our culture esteems teamwork and welcomes diversity. Our people are valued, supported and challenged.

## 02. Guiding principles

**This infrastructure strategy is based on seven guiding principles. Infrastructure Victoria developed these principles to guide the work on our initial 30-year strategy, as well as work into the future. The principles are based on many of the requirements stipulated in the *Infrastructure Victoria Act 2015*.<sup>2</sup>**

### Consult and collaborate

Infrastructure Victoria engages with the community and stakeholders in an open and meaningful way. Given the constrained fiscal environment, difficult choices must be made about the future of Victoria's infrastructure. The draft strategy, in particular, provided an opportunity to listen to different viewpoints and build consensus. Infrastructure Victoria collaborates closely with government and private and community sector organisations that have a role in planning, funding and delivering infrastructure. The relationship with Victorian Government departments and agencies, as well as Victoria's 79 local governments, is particularly important as we all work towards the same goal of improving social, economic and environmental outcomes.

### Drive improved outcomes

Infrastructure Victoria aims to achieve improved social, economic and environmental outcomes across the whole state. Infrastructure has the capacity to respond to and influence Victoria's society, economy and the environment, so we consider all three when providing advice. Getting the right balance between social, economic and environmental considerations is not always easy, but the best advice seeks to achieve positive outcomes across all three domains.

### Integrate land use and infrastructure planning

Infrastructure Victoria recognises the importance of aligning land use planning with infrastructure planning. Land use planning informs infrastructure requirements and infrastructure provision enables the achievement of land use objectives. Infrastructure Victoria draws on existing land use plans to inform better infrastructure planning. The 30-year infrastructure strategy is an important input to future land use plans and new land use plans inform it. This integration helps ensure we achieve improved social, economic and environmental outcomes from infrastructure and land use planning.

### Draw on compelling evidence

Infrastructure Victoria draws on detailed, objective evidence to support better, more informed decision-making. This requires careful research, modelling and scenario planning, as well as access to information and expertise from across government, academia, industry and non-profit organisations. The evidence we use is shared with the community. Transparency ensures scrutiny of our assumptions and methodologies and enhances public debate. Infrastructure Victoria recognises that, in some cases, the evidence required for decision-making may not exist or be fit for purpose. In others, even the best available evidence does not mitigate uncertainty entirely. In this context, we seek to preserve options to provide more flexibility in future and identify solutions that meet a range of possible needs.

### Consider other solutions first

Infrastructure Victoria recognises that building new things often isn't the best way to meet infrastructure needs.

Taking steps to manage the demands placed on infrastructure and using the assets we already have more efficiently can be cheaper and better options. Major projects continue to be an important part of the infrastructure planning landscape, but wherever possible, Infrastructure Victoria looks at solutions other than construction first.

### Promote responsible funding and financing

Infrastructure Victoria's advice, if taken, can have major budgetary implications. However, over the long term, revenue growth may struggle to keep pace with growth in spending, particularly on health, and so ongoing sustainable fiscal management will be important. Funding infrastructure responsibly means making hard choices about what to fund and what not to fund. This includes looking at solutions other than new construction and considering life cycle costs. Financing infrastructure responsibly also means making hard decisions about how and when the community pays for infrastructure. This includes looking at when the costs and benefits of infrastructure are incurred, getting value for money and considering all the funding and financing options available.

### Be open to change

Infrastructure Victoria recognises that improving outcomes rests partly on our willingness to embrace change so it can be used to the state's advantage. For instance, the COVID-19 pandemic has introduced potentially beneficial behavioural changes, such as increased telehealth services, that could be supported to continue in future. It could also mean adapting existing infrastructure assets, building flexibility into planning processes and responding to or adopting new technologies. Disruptive technologies have perhaps the greatest potential to change the way Victoria's society, economy and environment function. They are also the greatest unknown from an infrastructure planning perspective. To stay relevant, Victoria's 30-year infrastructure strategy is updated every three to five years. As circumstances change, so does our advice.



### 03. Revising objectives

**When we began development of our strategy update in mid-2018, the first step was to launch a community consultation process to test whether the objectives from 2016 still aligned with the views and opinions of Victorians. Although taking place just 18 months after our 2016 strategy was published, this consultation was a crucial first step towards ensuring the strategy update was based on objectives which reflect the views of the Victorian community.**

The consultation was broken into two parts. The first part was an online survey, which was open from 10 July 2018 to 3 August 2018. The second part of the consultation was to survey participants at workshops in regional Victoria during October and November 2018. The workshops took place as part of our Regional Infrastructure Needs project (further details below).

The same survey was used in each forum to determine whether the community felt the 10 objectives set out in the 2016 strategy were still broadly relevant and applicable.

Following these Infrastructure Victoria initiated and led surveys, EY Sweeney was engaged to survey the community further. Detailed public feedback about strategic objectives was necessary to identify any changes required to inform the draft strategy update released in 2020. In the case of our surveys and the EY Sweeney surveys, most respondents reported a positive view of the existing 10 strategic objectives. In the EY Sweeney poll, which reached just over 1000 Victorian community members, 93% of respondents agreed or strongly agreed that the objectives reflect the strategy's goals.<sup>3</sup> The broad agreement amongst respondents, on the suitability of our objectives, was shared between regional and metropolitan areas.<sup>4</sup> Retaining the 10 strategic objectives was announced in the Growing Victoria's Potential discussion paper (see next section).<sup>5</sup>

Survey respondents also provided feedback on suggestions to help clarify each objective. We have retained the headings of each objective, but we have amended the explanation of each objective to be clearer and more succinct. The objectives are set out in Volume 1 of this strategy.

We have also ensured the broad alignment of our objectives with the United Nations Sustainable Development Goals (SDGs). Approved in late 2015, the 17 SDGs adopt a holistic approach to sustainable development, ensuring nobody is left behind. Each of the 17 goals contain a range of targets which the United Nations is working to deliver by 2030.

## United Nations Sustainable Development Goals



1. End poverty in all its forms everywhere
2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture
3. Ensure healthy lives and promote wellbeing for all at all ages
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5. Achieve gender equality and empower all women and girls
6. Ensure availability and sustainable management of water and sanitation for all
7. Ensure access to affordable, reliable, sustainable and modern energy for all
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
10. Reduce inequality within and among countries
11. Make cities and human settlements inclusive, safe, resilient and sustainable
12. Ensure sustainable consumption and production patterns
13. Take urgent action to combat climate change and its impacts
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
17. Strengthen the means of implementation and revitalize the global partnership for sustainable development

## 04. Considering different options

**In updating our 2016 strategy recommendations, and developing new recommendations, we have considered different types of options. The *Infrastructure Victoria Act 2015* requires us to consider new infrastructure projects, policy or reform options including demand management and regulatory reform, and the balance between investing in new infrastructure and making better use of existing infrastructure.**

This strategy focuses on Victoria's future. There is already a significant amount of work underway across government and the private sector to plan for our future infrastructure needs. We take existing Victorian Government projects, decisions and commitments as our starting point, and make recommendations about future decisions to be made. We also make decisions about how to maximise the benefits of existing commitments.

The strategy objectives cannot be achieved with a single solution. They impact a wide range of people and usually have long-term implications. These complex issues must be considered from multiple perspectives. We have looked to make recommendations that can credibly help achieve the strategy objectives, by managing the demands on infrastructure, getting better use from our existing assets, or strategically expanding and building new assets.

Some of the recommendations are further refinements of recommendations made in the previous strategy, often with greater detail on their implementation. Other recommendations are new, based on further research, advice and modelling, and drawing from examples across Australia and internationally, responding to future trends. The recommendations are built from considering different types of options.

### Changing behaviour, managing demand

Many of the objectives can be advanced by changing behaviours to manage the demands placed on infrastructure. These solutions are appropriate where use of infrastructure is heavy at different times of the day or across particular parts of the network, but much lower at other times or locations; in other words, to rationalise our use of infrastructure to its highest value. Rather than building something new, and providing additional capacity during peak periods and locations, the intention of these types of options is to shift demand on infrastructure, either by spreading it more evenly or reducing it overall.

There are many tools available that can provide incentives or disincentives for how people use infrastructure. These include:

- \ Regulatory changes that enable or prohibit certain choices, such as reducing regulations to open up the use of public spaces, or setting energy-efficiency standards
- \ Pricing to influence decision-making, such as pricing energy to flatten demand at peak times
- \ Providing better information to help people make informed choices, such as real-time information across the entire transport network to help people plan their journey.

### Better use of existing assets

There are many opportunities to use existing infrastructure in better, more efficient ways. As the population grows and changes, the ways people prefer to access or use a service also change. Most of the infrastructure Victoria will have in the future already exists. Being smart about the operation and maintenance of existing infrastructure helps ensure it lasts and is responsive to changing needs.

Better use of infrastructure means changing the way the asset operates to be more efficient and responsive to user demands. These changes can be achieved through:

- \ Better coordination and governance processes so an asset can be used for different purposes, such as shared use agreements that allow for joint use of recreation facilities

- \ Technological innovations to adapt to changing service delivery models, such as delivering health services through digital platforms to improve access to these services
- \ Refurbishment, modifications or whole-of-life maintenance that improve the operation and efficiency of the infrastructure, such as maintenance of school facilities.

### Expanding assets or building new ones

Infrastructure Victoria considers expanding or building assets as the last option. Choosing to build new infrastructure is appropriate when the demand management and better use solutions have been exhausted or found not to be viable on their own. There are two primary responses:

- \ Expansion of existing infrastructure, such as extending the rail network to high growth areas
- \ Building a new asset, where there is no existing infrastructure, or the current assets are unable to meet the projected demand, such as building more social housing stock.

## 05. Discussion paper



The *Growing Victoria's Potential* discussion paper was published in April 2019.<sup>6</sup> The discussion paper sought to develop our strategy update in an open and transparent way.

The discussion paper considered the challenges and opportunities of Victoria's rapid population growth. Managed correctly, Infrastructure Victoria believes this growth could be harnessed to help Melbourne succeed as a world class city in an increasingly competitive global economy. To date, population growth has built pressure on the city's infrastructure network.

Our discussion paper found that Victoria should make the most of our existing infrastructure, instituting policy and services changes to increase capacity. Some new infrastructure is inevitable, and the discussion paper foreshadowed the need to identify high priority infrastructure projects which help meet demand and build resilience into the network.

The discussion paper contained a number of ‘conversation starters’, provided a snapshot of Victoria’s historic growth, outlined the roles of the regions and of Melbourne, and provided an overview of how to ask the right questions about the types of infrastructure needed for a growing state.<sup>7</sup> Planning and density have roles to play.<sup>8</sup>

## Metropolitan infrastructure needs



The *Growing Victoria's Potential* discussion paper was released in tandem with detailed

metropolitan profiles outlining the unique strengths and challenges in different parts of Melbourne. The Metropolitan Infrastructure Needs project sought to develop our understanding of the economic, social and environmental strengths and challenges of metropolitan Melbourne.<sup>9</sup> It divided the metropolitan area into six functional economic regions, measuring the performance of each against a range of indicators, to better identify local trends.

This work was intentionally conducted to inform the 2020 draft update of the 30-year infrastructure strategy.<sup>10</sup> Individual reports were published for the Eastern Metro, Inner Metro, Inner South East, Northern Metro, Southern Metro and Western Metro government regions. In addition to the six regional reports, we developed and published an inter-regional report, which examines the economic, social and environmental attributes, strengths and challenges across regions, and a metropolitan Functional Economic Region report, to understand the different economic locations around Melbourne.<sup>11</sup>

## 06. Regional infrastructure

**Infrastructure Victoria committed to examining infrastructure needs across Victoria's regions more closely, and to developing stronger evidence to make better regional infrastructure investments. We have consulted with regional communities and undertaken research over several years to develop more specific recommendations for regional infrastructure.**

Over the last four years, we built a deeper understanding of regional infrastructure needs, industry composition, and social disadvantage, in our *Regional Infrastructure Needs and Infrastructure Priorities for the Regions* projects. This work produced regional profiles which are available at [infrastructurevictoria.com.au](http://infrastructurevictoria.com.au).

During the consultation period for the draft strategy, we provided opportunities for regional communities and stakeholders to offer feedback on our draft recommendations, including through surveys, submissions, and hosting regional roundtable discussions.

The scope of our work, and the recommendations it has informed, has been shaped by the interaction of these three components. Our research, supported by regional consultation, led us to specifically focus on opportunities to build on the economic strengths of Victoria’s regions and to strengthen regional communities by improving economic, health, education and social inclusion outcomes. This guided the outcomes we were seeking to achieve, which were incorporated into the framework design – targeting our recommendations accordingly.

### Building a better understanding of regional infrastructure



In addition to the metropolitan assessments (see section 5) was a regional infrastructure needs project, which looked at the infrastructure beyond Melbourne.

The project aimed to develop a stronger spatial evidence base to understand regional Victoria’s challenges and opportunities in depth across economic, social and environmental domains.

The main output was a series of nine regional profiles, the result of a year-long process of gathering data and working with stakeholders across Victoria to ensure we had local insights to help us better understand the data. An inter-regional assessment accompanied the profiles, which brought together findings across the regions. While the nine profiles drew out the unique strengths and challenges in different parts of Victoria, the inter-regional assessment identified common attributes and change drivers across the regions which could inform potential future infrastructure responses.

The initial draft profiles were developed following a review of existing data and research from Australian, state and local governments, regional associations, industry and community bodies. These draft profiles were tested and refined through nine half-day workshops held across regional Victoria, one in each Regional Partnership region: Barwon, Central Highlands, Gippsland, Goulburn, Great South Coast, Loddon Campaspe, Mallee, Ovens Murray and Wimmera Southern Mallee. Workshops were attended by more than 200 regional representatives including Regional Partnerships, local councils, regional-based government agencies, regional and community organisations and representatives from business, health and education providers. The profiles were released with the *Growing Victoria's Potential* discussion paper, published at [infrastructurevictoria.com.au](http://infrastructurevictoria.com.au).

The workshops provided a forum to discuss how to leverage each region’s strengths and address their challenges, and what additional infrastructure investments would be required to achieve this. The workshops were invaluable in enabling us to tap into the local knowledge and expertise we needed to inform this work, and findings from our consultation helped to embed local context into each regional profile.

A key finding from the research was that regional infrastructure investments should be targeted towards building on a region's competitive strengths or reducing place-based disadvantage. This understanding provided the foundation for the next stage of our work: developing the prioritisation frameworks.

## Developing the prioritisation frameworks



We developed two complementary frameworks to help determine regionally specific infrastructure opportunities. In line with our findings, one framework identifies

investment priorities that build on a region's economic strengths (the Comparative advantage framework) while the other addresses regional disadvantage (the Addressing regional disadvantage framework).



The frameworks outline a new process, built upon a strong evidence base, to help governments identify, evaluate and prioritise regional development opportunities, followed

by associated infrastructure responses. They are guided by a series of outcomes statements which collectively define what Infrastructure Priorities for the Regions is seeking to achieve. The framework has been published at [infrastructurevictoria.com.au](http://infrastructurevictoria.com.au).

We applied the frameworks to each of the nine regions using a combination of desktop research, data analysis and stakeholder consultation to build a more detailed evidence base to supplement the *Regional infrastructure needs* profiles, and to begin prioritising options. This process enabled us to begin identifying infrastructure solutions to meet regional needs. The evidence base is summarised in the regional industry profiles and disadvantage fact sheets which are available at [infrastructurevictoria.com.au](http://infrastructurevictoria.com.au).

## Finalising draft regional recommendations

The final stage has been to develop our recommendations for the Victorian Government based on the evidence we have collected throughout this work, to feed into the 30-year infrastructure strategy update.

Consistent with the earlier phases of our work, consultation and engagement have been key in developing and finalising our recommendations. We have tested the approach taken in our frameworks and collected additional 'on the ground' data from regional stakeholders, drawing on their direct experience and knowledge of the regions. Two workshops, attended by approximately 100 government, regional and industry stakeholders, were used to test the frameworks and the accompanying evidence base.

The workshops were followed by a formal submissions process where we sought feedback on our evidence base, input on regional infrastructure constraints and on potential solutions. The submissions process was central to this stage of our work, helping to test our progress to date and to frame draft recommendations.



This work culminated in draft recommendations documented in the *Infrastructure Priorities for the Regions* report. Those recommendations aim to collectively respond to the infrastructure-related opportunities and challenges facing Victoria's regions. The report was released with *Victoria's draft 30-year infrastructure strategy* in December 2020 on [infrastructurevictoria.com.au](http://infrastructurevictoria.com.au).

## 07. Draft strategy



**We released a draft strategy for consultation on 9 December 2020. It set out draft recommendations and was an opportunity to receive further input**

**and feedback to further inform and develop our final recommendations for this strategy.**

To maximise opportunities for community and stakeholder input, we designed a comprehensive engagement program to facilitate community feedback that ran until 26 February 2021, using our own website and the Victorian Government's Engage Victoria consultation portal. During the engagement period, we recorded 18,798 visits to the Infrastructure Victoria website and 7048 visits to the Engage Victoria portal; a total of 25,846 web visitors. We also consulted widely on the themes and recommendations through 34 community and stakeholder events during the consultation period, attended by 464 participants. We documented more than 2600 proposals for changes to the draft strategy, including from feedback received in more than 200 submissions. We considered each proposal for change and included the evidence provided to amend the draft strategy where relevant and appropriate.

The feedback means that many recommendations and content has been revised and improved by incorporating community and Aboriginal stakeholder feedback. For example, our engagement with Aboriginal stakeholders resulted in a new section 'Infrastructure and Victoria's First Nations peoples' being introduced to the strategy. For more information on our engagement and consultation program, see appendix E, and [Victoria's infrastructure strategy 2021-2051: Public engagement findings report](#) by Capire Consulting Group.

As part of our draft strategy consultations, Infrastructure Victoria commissioned the state's largest ever online deliberative community panel to examine how the Victorian Government should support people to adopt low or zero emissions vehicles sooner. The panel produced



21 recommendations outlining proposals to help accelerate the uptake of low and zero emissions vehicles. The panel's advice has informed the development of recommendations in this strategy.

## 08. Research

**Since the publication of our 2016 strategy, we have published many research papers and reports at [infrastructurevictoria.com.au](http://infrastructurevictoria.com.au).**

These reports form part of the evidence base underpinning this strategy, and several recommendations draw upon this evidence. They include but are not limited to the following:

### Immediate actions to tackle congestion



In April 2018, we published the *Five year focus: immediate actions to tackle congestion* report, which identified priority short-term actions to help manage congestion on Victoria's

transport network, including by providing better bus services, reallocating road space, and targeting transport investments.

### Transport network pricing

In *Good move: fixing transport congestion*,



Infrastructure Victoria presents research into the effects of differing charges for roads, public transport and parking.<sup>12</sup> Changes to existing policy could change travel times and modes,

relieving road congestion and public transport crowding to help the transport network accommodate surging demand. The research shows that with transport network pricing, average speeds in inner Melbourne during the morning peak increase by about one third and under all scenarios, most people are better off in terms of price and travel conditions. The research set out in the report builds on our earlier work *The road ahead*, which sets out the case for congestion pricing in Victoria.

### Public transport fares



As a companion piece to the *Good move* report, our follow up *Fair move* report documents evidence showing how changing public transport fares could improve social,

economic and environmental outcomes, including helping expand the use of public transport in Victoria, and help manage congestion. It finds that changes to public transport fares could help manage public transport crowding and increase public transport patronage.

### Short-term COVID effects



In January 2021, we released the *Transporting Melbourne's recovery* report, documenting research based on our modelling of the short-term effects of

the COVID-19 pandemic on Melbourne's transport system. The research showed congestion in inner Melbourne could reduce average vehicle speeds compared with pre-COVID levels, as Melburnians chose to travel by car instead of public transport. Our modelling also projected an increase in vehicle traffic above pre-COVID levels. As restrictions lifted, this pattern of transport use was borne out. The report also highlighted recommendations that could be implemented quickly for relatively low cost, and which could contribute to pandemic recovery.

### Energy demand response



In September 2019, we released a technical paper demonstrating household responses to electricity prices. The paper demonstrated that households do change their energy use behaviour in response to energy price changes.

### Reforming water governance



In October 2019 we released the *Reforming water sector governance* report, setting out research to identify improvements to water governance arrangements.

This report built on recommendations made in the 2016 strategy, while preparing for the strategy update.<sup>13</sup> Our research identified potential opportunities for reform, including better use of existing infrastructure and more efficient use of all water resources, more integrated and adaptive planning processes, and the need for community involvement in decision-making.

### Social housing impacts



In May 2018, we released the technical paper *What are the impacts of living in social housing?*, which used the Journey's Home data set to examine the outcomes of social housing.

The report concludes that social housing is effective in preventing homelessness, with people allocated social housing far less likely to experience future homelessness than those in other tenures.

### Infrastructure provision in different development settings



Our 2016 strategy recommended that Victoria increase the proportion of housing in areas well serviced by infrastructure.<sup>14</sup> The research builds an evidence base

on the capacity and cost of infrastructure supporting housing development, considering different settings ranging from established to greenfield growth areas. We found that, excluding transport, infrastructure capital costs in greenfield areas can be two to four times higher than in established areas when existing infrastructure in established areas has the capacity to support growth. Infrastructure costs are influenced by many factors in addition to the development setting. Infrastructure costs can therefore vary significantly for different developments within the same development settings.

## Housing targets



In July 2019, we released commissioned research on housing and density targets and other policy tools, examining the effectiveness of setting housing or density targets as

a mechanism to encourage more housing in well-located places.

## Density done well



To support the strategy update, Infrastructure Victoria engaged the consultancy RPS to design and deliver a program of deliberative engagement, and report on the community's view

of density done well. This brought together residents of Camberwell, Footscray and Heidelberg for three workshops which sought to clarify what the residents consider density done well.<sup>15</sup> The engagement found that Melburnians are willing to embrace greater urban density if the area has good access to public transport, quality urban design and green open space.<sup>16</sup> This has influenced a number of our recommendations to the Victorian Government.

## Growing together



Infrastructure Victoria has undertaken numerous research projects investigating better land use and infrastructure integration, particularly in established urban areas. This research

is summarised in the [\*Growing together: The case for better use and infrastructure planning in established areas\*](#) report released as a technical report with the draft strategy in December 2020.

## 09. Advice

**In addition to undertaking research and the periodic release of a 30-year infrastructure strategy, the Victorian Government can ask Infrastructure Victoria for specific advice on particular topics.**

Requests for advice centre on specific infrastructure issues, and can include assessments of major infrastructure proposals, intergovernmental submissions, or the government's infrastructure plans. The evidence generated for this advice has also informed the strategy. Some of the major published advice reports include:

### Advice on gas infrastructure



Infrastructure Victoria has been asked to provide the Victorian Government with advice relating to Victoria's gas transmission and distribution networks under a range of 2050

energy sector scenarios. Under the Victorian *Climate Change Act 2017* the Victorian Government has committed to a whole-of-economy, net zero emissions target by 2050.

The advice will assess the relative economic, social and environmental impacts of each scenario and identify infrastructure decisions that need to be made, and when, to ensure opportunities for the existing gas infrastructure can be optimised. This will include exploring the extent to which gas infrastructure can be used for hydrogen, carbon capture and storage and/or biomethane.

Infrastructure Victoria published our interim report in July 2021. The final report is due by December 2021.

### Advice on recycling and resource recovery infrastructure in Victoria



In April 2020, we published our [\*advice on recycling and resource recovery infrastructure\*](#), including 13 recommendations for the Victorian Government. The

recommendations included improving infrastructure capability and capacity, reviewing funding mechanisms, supporting behaviour change programs, strengthening end markets for recycled materials, and improving governance of the waste sector. This followed the release of an evidence base, in October 2019, and a package of supporting reports used for the final analysis.

### Advice on automated and zero emissions vehicles infrastructure



The Victorian Government requested [\*advice on the infrastructure needed to support automated and zero emissions vehicles\*](#). In October 2018, we published advice

on the infrastructure that may be required to enable highly automated and zero emissions vehicles in Victoria. Our final report called on the Victorian Government to clear the way for the roll out of driverless and zero emissions vehicles to reap unprecedented benefits for the economy, community and environment. Our advice and 17 key recommendations seek to help Victoria navigate through the inherent challenges and uncertainties that new technology brings, while maximising the benefits and minimising the risks associated with its introduction.

The advice included recommendations about changing road and ICT infrastructure to be ready for increasingly automated vehicles, improving regulations, and more integrated planning, data-sharing, as well as demand management.



## Advice on securing Victoria's ports capacity



Our advice on [Victoria's container port capacity](#) was released in May 2017. This advice recommended expanding the capacity of Victoria's existing port before investing in a

second port, and outlined timing for a new port, recommending Bay West as the preferred site for a second major container port. To support implementation of our advice, Infrastructure Victoria made 19 recommendations to government.

## 10. Engaging stakeholders and the community

**Infrastructure Victoria informs all of its publications – from evidence bases, advice, research and this strategy – with extensive consultation and engagement.**

We believe community consultation and engagement are essential to our work, and that it provides important evidence. In addition, our community consultation and engagement allows us to better understand the impacts of different options, and helps shape our recommendations and advice.

In addition to consultation on the draft strategy recommendations, we completed many different public engagement projects to help develop this strategy. This included public polling on the objectives of the updated strategy, and release of a discussion paper, [Growing Victoria's potential](#), which outlined the strategic issues facing Victoria. Over two years, we also researched the infrastructure priorities of regional Victoria, including conducting workshops, information sessions and a formal submissions process. We undertook targeted deliberative workshops in Melbourne suburbs on 'density done well', and how it can help more people live in great locations. We convened a community panel to identify the conditions under which the public might accept changes to how people pay for roads and public

transport, and undertook polling on the attitudes and perceptions of households towards waste sorting practices, and their willingness to adopt more sustainable behaviours. We also commissioned a deliberative engagement process to better understand the community's views on supporting the uptake of zero emissions vehicles, as part of this consultation program. 211 Victorians took part in this five-week virtual workshop series.

## 11. New modelling

**We wanted to make sure this strategy reflected Victoria's considerable population growth since our 2016 strategy was released. During the intervening years, the Victorian Government has committed significant resources to modernising and expanding the transport network with new and refurbished infrastructure projects. For our recommendations to match future policy and infrastructure needs, our modelling needed to consider the growth patterns of recent years, and potential future scenarios so that we could produce an accurate array of forecasts for the future.**

Our modelling makes use of new and innovative modelling techniques for the first time, allowing us to examine the effects of transport infrastructure on land use. A key drawback of traditional transport modelling is that it assumes transport infrastructure causes no changes in the distribution of population and employment. This means it cannot incorporate the effects of land use change in response to new infrastructure construction.

The Victorian Land Use and Transport Integration (VLUTI) model, whose development has been led by Infrastructure Victoria, in partnership with Victoria University, provides a new tool to examine the land use effects of infrastructure investments. This means we can gain insights into how infrastructure investments might shift the location of population or employment growth. This new modelling technique starts to allow us to develop more accurate estimates of the land use benefits of transport infrastructure investments.

We developed a major transport program assessment framework which considers the extent to which the project achieves the strategy objectives through a multi-criteria analysis, economic evaluation a broader social, environmental and economic evaluation, and consideration of distributional impacts. This allowed us to compare the potential costs and benefits of each transport program.

Infrastructure Victoria has conducted a strategic assessment of six major transport programs to support recommendations in this strategy. These programs encourage better use of existing assets through improved road network operation systems. These programs were selected because they have significant costs and benefits and the potential to address several of the strategy's objectives. These programs accommodate future population growth in areas expected to come under the greatest pressure using the official population projection. They also support the city's structure and improve access to jobs and services between the city, key precincts, and outer and growth areas. The transport programs included:

- \ Improving road network management systems
- \ Reconfiguring the City Loop and northern rail corridor upgrade
- \ Constructing Melbourne Metro Two and direct Geelong rail services
- \ Building a new cross city motorway
- \ Constructing an outer metropolitan ring road and rail corridor
- \ Upgrades to the western rail corridor.

We also consider different future scenarios to test the resilience of transport programs. These included examination of scenarios for:

- \ Higher and lower population growth scenarios
- \ Greater long-term working from home behaviour
- \ Introduction of electric and autonomous vehicles
- \ Introducing transport network pricing
- \ Supporting more homes in established places.

We used the results of these modelled scenarios to identify the challenges and opportunities available on Victoria's transport network, now and over the next 30 years. They also provided information for us to examine the sensitivity of transport program costs and benefits in different future scenarios. The scenarios also allowed us to make clearer judgements of the circumstances transport investment should proceed in, and the complementary measures required to maximise the potential benefits of each program, and reduce their costs.

Our recommendations are based on the outcomes of this range of forecasts. Considering how investment levels will meet population growth in 2036 and 2051 better positions us to determine what projects will be needed, and when work should begin to ensure timely delivery. In our recommendations, we have sought to provide government with a range of initiatives to consider. This modelling has allowed us to provide a detailed outline of what should happen and when, if we are to respond to population growth.

Since 2016, Infrastructure Victoria has also developed other new modelling capabilities to provide the Victorian Government with more sophisticated and integrated tools for strategic transport planning. This includes the Melbourne Activity Based Model (MABM), developed in collaboration with KPMG and Arup, which tests the impacts of transport policy and infrastructure proposals on the behaviour of transport system users. As it differs from traditional models by testing the response of individuals to change, MABM is particularly suited to understanding: the needs and preferences of transport users; how different user cohorts may respond to policy or infrastructure changes; the fairness and equity impacts of new transport policies or investments; and behavioural responses to complex changes to transport likely to occur in the future – for example, due to new technologies such as automated vehicles. We used the MABM to inform our recommendations on automated and electric vehicles, transport network pricing, and public transport fares.

## 12. Transport Advisory Panel

**Where feasible, Infrastructure Victoria contacted subject matter experts for input in specific work areas. The strategy contains specific, discrete transport interventions, major transport programs and system wide reforms. To support the development of our transport sector work program, we established a Transport Advisory Panel (the Panel).**

Members of the Panel were selected based on their transport sector experience and expertise to provide strategic advice and insights on:

- \ How Infrastructure Victoria can approach advice and research in the transport sector to be influential to government and contribute to public debate
- \ Current and emerging transport infrastructure needs and opportunities
- \ Infrastructure Victoria's transport modelling program, including scope, approach, proposed major transport programs, findings and proposed recommendations
- \ Infrastructure Victoria's approach to developing transport sector recommendations, findings and proposed recommendations for the draft strategy released in 2020.

The Panel also provided expert peer review and feedback on transport sector work within Infrastructure Victoria, including review of reports and other publications. They were not asked to prepare written reports or other products for publication.

## 13. Reviewing our 2016 recommendations

**In our 2016 strategy, Infrastructure Victoria made 137 recommendations to the Victorian Government. The following year, the Victorian Government published its response to our recommendations, the Victorian Infrastructure Plan (VIP).<sup>17</sup>**

The VIP accepted 134 of our 137 recommendations in full, in part or in principle,<sup>18</sup> and structured government priorities and future directions into nine key sectors. Project pipeline updates have been published in 2018 and 2019, charting progress towards the implementation of these recommendations.

In preparing this strategy, we documented and evaluated the Victorian Government's action, to date, in meeting the commitments of the 2016 strategy and the VIP. This process helped us to develop a clear picture of the specific actions taken by government during the past four years. The product of this process is available in this volume of the strategy update, in Appendix F.

We revisited our initial assessments and recommendations, the Victorian Government's response, and action taken in the interim. We built on this with further research, including evaluations of major social, environmental and economic changes since 2016, and modelling to inform our understanding of how Victoria's infrastructure needs may evolve into the future. This process has helped to ensure that our recommendations are based on the best and most up to date information and will be useful in each of the potential future scenarios we modelled.

As such, the recommendations in this strategy are not merely a reproduction of the previous recommendations. In some cases, we determined that a previous recommendation had largely been implemented, or that current government processes would continue to deliver the recommendation, meaning we did not repeat it in this strategy.

In other cases, we built upon and developed the recommendation considering new evidence and deeper analysis, allowing us to make a more refined recommendation. In some cases, the process of review and extra research yielded new insights or identified changes since the previous strategy that formed the basis of a new recommendation. Similarly, the extra research and advice we have generated since the 2016 strategy has produced or uncovered new evidence, which we have used to form the basis of new recommendations.

## 14. Considerations for recommendations

The recommendations in this strategy were developed from different sources. This included many from our review of the 2016 recommendations, some were developed from our research projects, and others arose from the advice we have provided to the Victorian Government. However, all recommendations followed a similar development process, and were systematically reviewed by Infrastructure Victoria to account for many considerations, including the following:

### Identified infrastructure need

The recommendation identifies a clear infrastructure need, such as an infrastructure problem it seeks to solve, or an opportunity it seeks to take advantage of.

### Tangible

The recommendation identifies a specific action the Victorian Government can deliver.

### Effective

The recommendation shows how the action will directly address the problem or opportunity it targets.

### Strategic merit

The recommendation creates meaningful and substantial change, appropriate for the context of a 30-year infrastructure strategy for the entire state.

### Evidence-based

The recommendation presents compelling evidence and logic to justify its inclusion.

### Aligns with objectives

The recommendation contributes to achieving one or more strategy objectives.

### Superior to alternative options

The recommendation has considered other options to meet the identified infrastructure need and can demonstrate it is superior to other feasible options.

### Location

The recommendation identifies, if appropriate, the location or priority places it is needed.

### Timing

The recommendation specifies when the action needs to be taken.

### Cost

The recommendation has enough information to make a reasonable judgement of its cost.

### Resilient

The recommendation performs under alternative future scenarios.

### Defensible

The recommendation considers and responds to potential counterarguments opposing it.

### Verifiable

If accepted, Infrastructure Victoria can determine whether the recommendation has been implemented, ideally from public documents.

## 15. Relevant policies in Victoria

**The Infrastructure Victoria Act 2015 requires us to ‘have regard to any current land use, transport or other relevant social, economic or environmental policy in Victoria’ when developing this strategy.**

We examined and considered many different Victorian government policies when developing this strategy. Major policies we considered are listed below. This list is not exhaustive and does not include every policy we considered.

- \ 10-year community services industry plan
- \ 2020 Integrated System Plan for the national electricity market
- \ A circular economy for Victoria: Creating more value and less waste
- \ Absolutely Everybody: State Disability Plan 2017-2020
- \ Accessible Public Transport in Victoria: Action Plan 2013-2017
- \ Asset Management Accountability Framework
- \ *Climate Change Act 2017*
- \ Connecting Regional Victoria: Victoria's Regional Network Development Plan
- \ Court Services Victoria Strategic Asset Plan 2016-2032
- \ Delivering the Goods: Victoria Freight Plan 2018-2050
- \ Fixing the digital divide: connecting communities in regional Victoria
- \ Health 2040
- \ Homes for Victorians 2017
- \ Marine and Coastal Strategy 2020
- \ Metropolitan Partnerships – Five year plans for jobs, services and infrastructure
- \ Plan Melbourne 2017-2050
- \ Recycling Victoria – A new economy
- \ Regional Partnerships – outcomes roadmaps
- \ Regional Partnerships – regional digital plans
- \ Statewide design, service and infrastructure plan for Victoria's health system 2017-2037
- \ *Transport Integration Act 2010*
- \ Victoria Police Blue Paper
- \ Victoria's Social Procurement Framework
- \ Victoria's Value Capture and Procurement Framework
- \ Victorian Aboriginal Affairs Framework 2018-2023
- \ Victorian Cycling Strategy 2018-2028
- \ Victorian Infrastructure Plan 2017-22
- \ Victorian Visitor Economy Strategy
- \ Water for Victoria.



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## Appendix E

# Building on the draft strategy with engagement and new evidence

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This appendix documents some significant revisions and further development of the draft strategy to finalise *Victoria's infrastructure strategy 2021–2051*. We conducted extensive engagement on the draft strategy. We also generated new evidence, including by conducting extensive modelling. We used the consultation feedback and extra evidence to revise the draft, often refining the recommendations and documenting more evidence.





**Consistent with our commitment to transparency and making available an evidence base that is open and accessible, we have included substantial extra information in this appendix, and released many background documents and technical reports at the same time as tabling this strategy. These include:**

- \ *Victoria's draft infrastructure strategy: public engagement findings report*
- \ *Driving down emissions: accelerating Victoria's zero emissions vehicle uptake*
- \ *Major transport program strategic assessment report*
- \ *Victorian Land Use and Transport Integration (VLUTI) Model Architecture technical report*
- \ *Major transport program capital cost report*
- \ *Arup strategic modelling outcomes report*
- \ *AECOM Economic outcomes report – major transport infrastructure*
- \ *AECOM transport cost estimate to support cost benefit analysis*

## Consultation on the draft strategy

Infrastructure Victoria released a draft strategy for consultation on 9 December 2020. The draft strategy was subject to rigorous collaboration and consultation with community and industry stakeholders, through an extensive engagement program that ran until 26 February 2021. We designed, with Capire Consulting Group, a comprehensive engagement program to facilitate community feedback, using our website and the Victorian Government's Engage Victoria consultation portal. During the engagement period, we recorded 18,798 visits to the Infrastructure Victoria website and 7048 visits to the Engage Victoria portal; a total of 25,846 web visitors. Over 365 Victorians shared their feedback via surveys through Engage Victoria.

We also consulted widely on the themes and recommendations through 34 community and stakeholder events during the consultation period, attended by 464 participants. This consultation comprised:

- \ 192 participants at nine regional roundtables
- \ 129 participants at 11 industry or sectoral dialogues
- \ 78 participants at five workshops
- \ 28 participants at two local government forums
- \ 24 participants in six focus groups.

For more information, see [Victoria's infrastructure strategy 2021-2051: Public engagement findings report](#) by Capire Consulting Group.

We also commissioned a deliberative engagement process to better understand the community's views on supporting the uptake of zero emissions vehicles, as part of this consultation program. The community panel, participated in by 211 Victorians took part in a five-week virtual workshop series to answer the question: 'How should the Victorian Government support more people to adopt low or zero emissions vehicles sooner?'

Victorians were encouraged to make a submission on the draft strategy, complete a survey, answer discussion questions, attend a focus group or otherwise contribute through the Engage Victoria website. We documented more than 2600 proposals for changes to the draft, including from feedback received in more than 200 submissions. We considered each proposal for change and included the evidence provided to amend the draft strategy where relevant and appropriate.

## Overview of feedback

People generally gave very positive responses on the draft strategy. It was described as 'a significant step towards planning for Victoria's future in uncertain times',<sup>1</sup> 'a very strong document that paints a positive direction for Victoria',<sup>2</sup> and 'a thoughtful and comprehensive plan, with a welcome focus on addressing the infrastructure needs of vulnerable Victorians'.<sup>3</sup>

Notably, we also received strong engagement and feedback from Aboriginal community organisations. They called for a clearer articulation of the necessity of Closing the Gap and achieving self-determination for Aboriginal people,<sup>4</sup> for the strategy to 'acknowledge the role of connection to family, country, community and culture for Aboriginal communities',<sup>5</sup> and that the 'visibility of Aboriginal culture throughout strategy is important to health and wellbeing of Aboriginal people'.

In response, this strategy includes a further introductory section that clearly articulates the historical connections between infrastructure and First Nations peoples, the many processes underway to advance self-determination and to close the gap in Aboriginal outcomes, the importance of consulting with Aboriginal people, and the potential future impacts upon infrastructure decision-making.

Some submitters observed delivery implications for several strategy recommendations. For instance, that skill development is required to maximise employment opportunities from infrastructure projects,<sup>6</sup> or to deliver more energy efficient housing.<sup>7</sup> Others noted social procurement opportunities to provide employment for young people.<sup>8</sup>

In response, we have included a concluding section in the strategy, setting out the considerations for design and delivery of the strategy's recommendations.

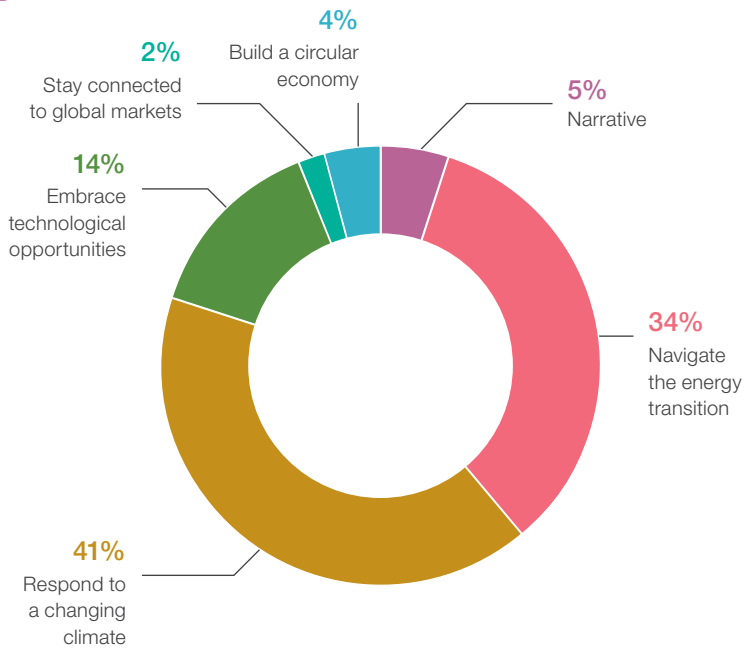
Some stakeholders noted that beyond immediate stimulus of the COVID-19 pandemic recovery program, capital expenditure may tighten as governments seek to re-balance their budgets. As such, an emphasis on policies and reforms that manage demand and make better use of infrastructure is an appropriate consideration for a 30-year strategy. Consequently, this strategy includes a new introductory section emphasising opportunities and benefits of managing demand and making better use of existing infrastructure.

The remainder of this appendix discusses engagement and new evidence relevant to each section of the draft strategy, and significant changes introduced to reflect it.

## 1. Confront long-term challenges

**Figure 2: Number of mentions for 'Confront long-term challenges' theme (n=954 mentions)**

Figure 2 shows the distribution of comments on this strategy's first theme: 'Confront long-term challenges'. Three-quarters of comments related to the topics of climate change and energy.



### 1.1 Navigate the energy transition

#### Zero emissions vehicles

After release of the draft strategy, the Victorian Government made major zero emissions vehicle policy changes, including the release of the *Victoria's zero emissions vehicle roadmap*<sup>9</sup> and its *Transport sector emissions reduction pledge*.<sup>10</sup> These announcements made major new commitments, including targeting 50% of new light vehicle sales to be zero emissions by 2030.

The new announcement made commitments that aligned with much of the feedback we received on this strategy and our 2018 *Advice on automated and zero emissions vehicles infrastructure*. This issue was the focus of our deliberative engagement program, where 211 Victorians participated in a five-week process, producing 21 recommendations to increase zero and low emissions vehicle uptake.<sup>11</sup>

In other draft strategy feedback, people said electric vehicle charging station locations were a priority to encourage the uptake of zero emissions vehicles,<sup>12</sup> along with options to provide charging points at parking stations and buildings.<sup>13</sup> Participants identified the challenge of relying heavily on the private sector to lead investment, and suggested expanding the support available to industry to transition corporate vehicles.<sup>14</sup> They suggested reducing upfront electric vehicle costs and a wider range of models,<sup>15</sup> using emission standards to reduce CO<sub>2</sub> emissions, along with policies that aimed to improve consumer awareness.<sup>16</sup>

In response, Infrastructure Victoria has further developed our recommendations for driving the uptake of zero emissions vehicles in this strategy. We have developed two specific recommendations, accounting for the Victorian Government's new policies, and the extensive information generated by the community panel and feedback on the draft strategy. We have also published *Driving down emissions: accelerating Victoria's zero emissions vehicle uptake* with our further analysis of policy options to increase the adoption of zero emissions vehicles.

#### Alternative fuels

Some stakeholders considered the draft strategy should include more information on the potential for hydrogen technologies. For instance, some suggested more detail on hydrogen and battery storage,<sup>17</sup> developing a hydrogen strategy, considering export potential of hydrogen industries, and the role of potential hydrogen fuel cells,<sup>18</sup> or biofuels. In response, we have expanded our discussion of hydrogen and biofuels in this strategy.

#### Renewable energy zones

After release of the draft strategy, the Victorian Government announced the establishment of VicGrid to coordinate new investments in electricity grid development. The final role of VicGrid is subject to further consultation, but it is expected to help coordinate Victoria's renewable energy zones.

Consultation participants accepted the need to invest in renewable energy and agreed it would boost Victoria's climate change resilience. Regional participants described challenges securing local regional power supply, such as limiting

solar grid connections in regional areas. Some linked the lack of regional energy security to slowing regional economic growth.

Many stakeholders observed the close connection between land use planning and the development of renewable energy zones,<sup>19</sup> and some argued zone development should be overseen by the Victorian Government and not the Australian Energy Market Operator.<sup>20</sup> Others submitted the powers of VicGrid should not affect the operation of the National Electricity Market.<sup>21</sup> We have revised our recommendation on renewable energy zones to account for the establishment of VicGrid and stakeholder views.

### Energy efficiency

Consultation participants also discussed the energy efficiency of existing and future housing stock. They generally supported the mandatory disclosure scheme and considered that greater compliance enforcement is needed. They believed that energy efficiency recommendations are a priority for the rental housing sector. This is particularly important for affordable rental housing options to ensure a minimum health and safety standard, such as heating and cooling, indoor air quality and mould prevention. Participants observed the power imbalance between tenants and landlords and were concerned that a market disclosure scheme alone may not achieve large improvements in the energy efficiency of rental stock. Many advocated strengthening of minimum energy efficiency standards in rental homes as a more productive intervention.

They also considered further exploration of the barriers to making home energy efficiency improvements. Some observed an opportunity for new jobs to be created in the transition to assessing, designing and building more energy efficient homes.

Some stakeholders cautioned against moving beyond a 7-star energy rating, concerned at the cost implications for new homes.<sup>22</sup> However, others called for higher, faster or broader standards to be imposed.<sup>23</sup> Other suggestions included: needing an energy rating score as part of due diligence to sell or buy a home; retrofitting existing homes, large

government buildings, schools; and expanding the recommendation to make Victorian buildings more energy efficient to include local or non-government buildings.

Some observed the barriers to upgrading schools,<sup>24</sup> and others noted potential heritage barriers.<sup>25</sup> Some pointed out that NABERS only applies to office buildings, and other measures may need to be developed for alternative building types. Some stakeholders suggested a phased approach,<sup>26</sup> while others counselled for careful consideration of the costs and benefits of individual projects to maximise outcomes.<sup>27</sup>

We took these views into account in finalising our energy efficiency recommendations. For instance, we included a new recommendation to keep updating minimum energy efficiency standards for rental homes in future, and clarified that while the government should seek to improve energy efficiency in government offices and other facilities, such as schools, hospitals and social housing.

### Gas transition

After the release of the draft strategy, the Victorian Government requested specific advice from Infrastructure Victoria on the future of gas infrastructure.<sup>28</sup> This advice is due in December 2021 after the release of this strategy, along with the Victorian Government's gas transition roadmap.

Stakeholders expressed different views on the role of gas in transitioning to net zero emissions. Consultation participants discussed the potential that Victoria might run out of gas supply and recognised that while alternatives are available such as electrification and hydrogen, it may be difficult to shift consumers. They considered a firm decision on Victoria's direction for gas use, or moving away from gas, would assist transparency of the intended policy direction.

Some postulated that gas was a cheaper transition fuel than rapid electrification,<sup>29</sup> while others worried that failing to connect homes to gas would lock them out of future hydrogen technologies.<sup>30</sup> Alternatively, some considered our recommendation too timid, and suggested we go further and ban new home gas connections,<sup>31</sup> or gave examples of the feasibility of gas-free developments.<sup>32</sup>

We have revised our recommendation to acknowledge our forthcoming advice, stakeholder views and the current uncertainty in the role of gas in the energy sector's transition to net zero emissions.

## 1.2 Response to a changing climate

### Climate change and infrastructure

Consultation participants agreed the need to review for infrastructure for climate appropriateness and adaptations. They thought buildings will need to accommodate new weather patterns and that using data in decision-making will become increasingly important. They also discussed the need to factor in the cost of inaction and the relative costs, consider climate change projections into modelling, and consider referring to the Task Force on Climate-Related Financial Disclosures.<sup>33</sup> Others encouraged consideration of a broader range of climate-related valuation exercises could be undertaken, such as protecting drinking water catchments, and investment in systems and tools. Some local governments raised flood risks as a particular climate impact. We have updated some of the references and explanation of these recommendations to reflect this feedback.

### Water supply

Water security was an issue of concern across Victoria. Some rural regions were more strongly affected by water security than others. Participants mentioned opportunities to improve water security such as creating an integrated water approach between water providers for large developments, re-using wastewater for different purposes, and managing water demand.<sup>34</sup>

Consultation participants thought governments could make recycled water for drinking more acceptable by:

- \ A pilot process to demonstrate it is safe, clean, and potable
- \ Blending recycled and non-recycled water, slowly increasing the percentage of recycled water
- \ Ensuring recycled water is cost-effective and competitive for households to adopt

- ✓ Awareness and education to reduce negative perceptions through a bottom-up and co-designed approach
- ✓ Undertaking research to assist with policy change
- ✓ Understanding recycled water's role in the circular economy and the value of the scarce resource.<sup>35</sup>

Alternative ways to collect water were highlighted, and some thought these should be considered alongside using recycled water for drinking.<sup>36</sup> Traditional Owners' rights need to be respected and properly engaged when assessing alternatives.<sup>37</sup> Stakeholders generally supported clearer governance arrangements in the water sector.<sup>38</sup> The suggestions made by stakeholders regarding how all water sources can be considered and practically used, along with clearer governance arrangements, have been integrated into our final water recommendations.

### Coastal protection

Consultation participants felt the decisions to protect or retreat from the coastline may be different for specific locations. Variables such as being a beach or a cliff coastline would affect decisions but typically should occur when local conditions reach a trigger point. They acknowledged the challenge of balancing the cost of installing temporary solutions compared with purchasing back land from private landholders.

Many stakeholders felt the option of retreat could have greater emphasis. Some noted retreat may be more efficient in some circumstances,<sup>39</sup> and others called for managed retreat strategies,<sup>40</sup> or a moratorium on construction in areas likely to be subject to inundation.<sup>41</sup> These considerations have been more strongly reflected in this strategy.

### 1.3 Embrace technological opportunities

In conducting modelling for this strategy,<sup>42</sup> we examined the benefits of using technology for better road management systems, combined with a series of road upgrades that maximised the benefits of these system. This modelling and associated economic assessment showed that road management system upgrades have very significant benefits compared with their costs.

More generally, consultation participants thought the design of infrastructure should meet current as well as future community needs. For example, elderly people may benefit from the introduction of automated vehicles with improved safety and greater independence. Some people were concerned about negative impacts, such as privacy concerns, safety issues, and some questioned the feasibility of some technologies altogether. On other potential technology use, stakeholders encourage greater use of digital health and remote cardiac rehabilitation, and considering use of mobile wearables. Melbourne Health and the Australian Medical Association both noted information sharing capabilities are critical to enhancing digital healthcare. We have updated the recommendations with insights from our modelling, and incorporated extra information on beneficial application of technology from stakeholders.

### 1.4 Stay connected to global markets

Since release of the draft strategy, the Australian Government has committed funding to an interstate freight terminal to connect with the Inland Rail project. Infrastructure Victoria has undertaken further modelling of the proposed outer metropolitan road and rail corridor to inform the recommendation in this strategy.

Regional stakeholders identified high-quality transport and regional freight networks as important. Freight industry stakeholders were generally supportive of the direction of these recommendations but noted the lack of transport movement data makes it difficult to track freight being carried between locations, resulting in difficulties to plan. Some suggested greater consideration of rail linkages between freight terminals and the port.<sup>43</sup> Others requested greater attention to other ports, such as the Ports of Hastings,<sup>44</sup> Geelong and Portland.<sup>45</sup> Some stakeholders noted the potential environmental effects of some recommendations.<sup>46</sup>

Some stakeholders queried whether both potential freight terminals at Truganina and Beveridge are required.<sup>47</sup> Rail Futures and Melton City Council believed the western terminal should be prioritised, with the northern terminal 'just in case'.<sup>48</sup> Others believed the northern terminal should be prioritised, aligning with plans for an Epping Innovation and Export Food Hub.<sup>49</sup>

We have revised our recommendations after consideration of new modelling and the engagement feedback received. The Victorian Government should undertake further work to determine which freight terminal should be prioritised. We also relocated this section under the theme of 'Harness infrastructure for productivity and growth', seeing its strong connections with development of the road and rail systems, and its objectives of improving productivity and economic growth.

### 1.5 Build a circular economy

Regional stakeholders and consultation participants supported regional recycling to assist regional economic development,<sup>50</sup> provide employment and improve sustainability, including by recycling plastics, cardboards and textiles. Some regions have adequate space for development, but the dispersed population and long travel distances presents logistical challenges.

Regional stakeholders and consultation participants told us that more certain infrastructure funding and procurement requirements for recycled products would help build the industry. Consultation participants suggested a coordinated strategy would increase economies of scale and maximise resources collected and recycled. Some advocated stronger mechanisms to promote use of recycled materials, such as stronger minimum content requirements or subsidies,<sup>51</sup> while others noted the connection with water planning. A number advocated greater use of waste-to-energy,<sup>52</sup> while others considered composting or bioenergy better models than burning waste.<sup>53</sup>

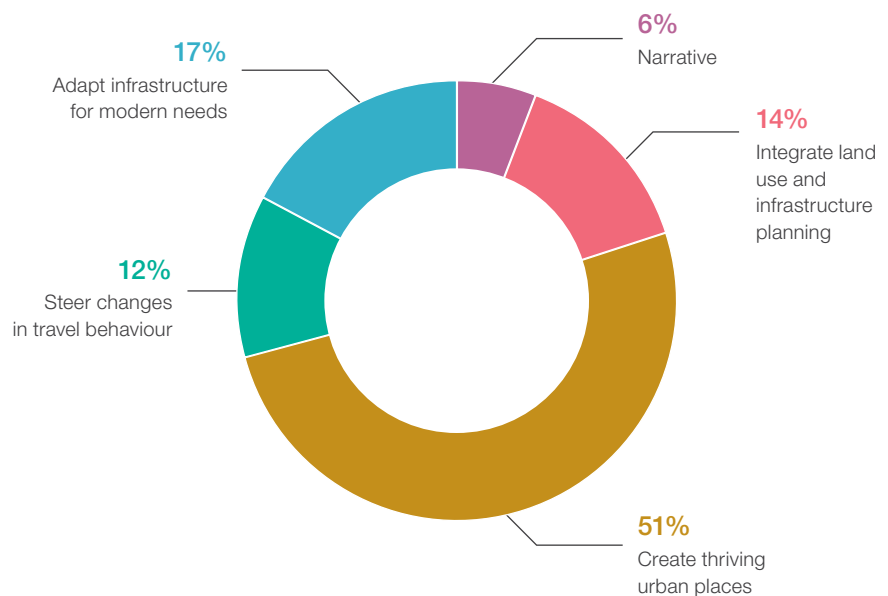
Some stakeholders highlighted the benefits of a broader consideration of circular economy principles.<sup>54</sup> As well as providing the right infrastructure, consultation participants considered a big part of the challenge is to establish an efficient network and to change the behaviours of people towards a circular economy. Some stakeholders suggested greater emphasis on waste reduction and reuse, in addition to recycling.<sup>55</sup>

Infrastructure Victoria has revised this section considering consultation feedback, such as by observing the linkage between water systems and waste-to-energy production, and further discussing the role of waste-to-energy and reducing the production of waste in the first place.

## 2. Manage urban change

**Figure 3: Number of mentions for ‘Manage urban change’ theme**  
(n=748 mentions)

Figure 3 shows the distribution of comments on this strategy’s second theme: ‘Manage urban change’. Over half of comments related to creating thriving urban places.



### 2.1 Integrate land use and infrastructure planning

Consultation participants considered that priority plans make infrastructure timing transparent. This helps encourage private investment, provide visibility to identify cross-sectoral opportunities, provide a rationale for long-term future infrastructure development, and ensure common requirements and standards.

People also considered the challenges of the community perceiving plans to lock-in governments into future decisions, and the demand for regular updates to remain current. Out-of-date plans can cause inconsistencies between planning schemes and precinct structure planning guidelines, therefore making implementation of plans more challenging. They considered plans need to be kept relevant so they can continue to be referred to over time.

Many local governments considered long-term plans would allow local government to better coordinate with the Victorian Government, and encourage earlier engagement.<sup>56</sup> It is particularly useful to regional, rural, and remote councils to assist with local decision-making and coordination with Victorian Government infrastructure activities.

Stakeholders noted publishing the transport plan would improve land and transport infrastructure integration. Many noted aspects a transport plan might cover, such as community consultation,<sup>57</sup> future road network use,<sup>58</sup> future bus services,<sup>59</sup> active transport,<sup>60</sup> carparking,<sup>61</sup> motorcycling,<sup>62</sup> and service standards.<sup>63</sup>

Submissions similarly generally supported reviewing infrastructure contributions, although they had diverging concerns. Some wanted to limit contributions,<sup>64</sup> exempt universities,<sup>65</sup> not disrupt existing schemes,<sup>66</sup> tighten linkage with projects, or queried application outside Melbourne.<sup>67</sup> Others wanted expansion for more strategic use, standardisation,<sup>68</sup> including community and recreational facilities,<sup>69</sup> cultural infrastructure,<sup>70</sup> social housing,<sup>71</sup> accelerated road expansion,<sup>72</sup> open space,<sup>73</sup> and more transparency.

Infrastructure Victoria has revised this section, clarifying the statewide coverage of infrastructure plans, including regional areas, and further discussed the potential content of Victoria’s transport plan, and the considerations for infrastructure contributions.

### 2.2 Create thriving urban places

#### Urban development

Consultation participants considered new housing developments should take account of climate resilient designs and avoid urban sprawl. Participants discussed considering the true economic cost of building housing on the fringe of metropolitan areas, such as the loss of environment, high-quality land and the costs to expand new infrastructure. Several submitters drew a connection with the ‘20-minute neighbourhood,’ concept embedded in *Plan Melbourne*,<sup>74</sup> and saw benefits in improving high-density precinct planning.<sup>75</sup> Some proposed streamlined planning approvals,<sup>76</sup> or code assessment. Consultation participants thought urban design and housing design have a role to minimise socioeconomic health inequalities. Some thought the use of design panels should be advisory only.<sup>77</sup> They thought places suited to future housing developments should have spaces for socialising free of charge, access to public transport, employment opportunities and open spaces.



Many were concerned that local infrastructure is insufficient for densification,<sup>78</sup> while others noted affordability concerns,<sup>79</sup> noise,<sup>80</sup> public transport adequacy,<sup>81</sup> or questioned consumer preferences for denser housing in light of the COVID-19 pandemic.<sup>82</sup> Local government was keen to preserve local planning powers and work in collaboration with the Victorian Government,<sup>83</sup> and some opposed any further development outside already zoned precincts.<sup>84</sup>

In response, we clarified the advisory role of design review panels, and considered a variety of planning mechanisms could achieve change.

### Inclusionary zoning

After the release of the draft strategy, the Victorian Government announced the imposition of a windfall tax on re-zoning of property to capture part of the land value uplift. That announcement interacts with our suggestion to use a value capture mechanism for low income housing. However, we considered that using value-capture to generate low income housing need not be ruled out by the new tax. As the tax only applies after re-zoning, any affordable housing requirements would reduce the value uplift, and so would not be subject to the tax.

### Open space

Consultation participants identified that the design of open spaces can positively influence liveability of places. They considered open spaces should look to connect neighbourhoods and services within a safe cycle or walking distance and to create outdoor places for sport, recreation, and play.

Stakeholders diverged on whether open space connectivity should be included in legislation, with some strongly supportive,<sup>85</sup> and others opposed.<sup>86</sup> Many suggested considering different land types to improve open space, like cycling and pedestrian paths,<sup>87</sup> VicTrack corridors, land owned by utilities, or used for stormwater and flood management,<sup>88</sup> creek corridors,<sup>89</sup> and road reserves.<sup>90</sup> Some regional cities considered this was applicable to their areas.<sup>91</sup> We have updated our recommendation to reflect the need to prioritise open space connectivity and the various practical ways in which existing land can be used to achieve this.

### Active transport

Stakeholders were generally supportive of our recommendations for the Victorian Government to support investment in active transport infrastructure. Most discussion revolved around the identified priorities and considered that the Victorian Government should fund active transport more broadly. Some suggested a further prioritisation method, such as by creating a Pedestrian Strategy,<sup>92</sup> Principal Pedestrian Networks,<sup>93</sup> or fulfilling the Strategic Cycling Network.<sup>94</sup> Some local governments were concerned at the cost impost on their budgets, noting their funding limitation prevented greater investment. We updated our active transport recommendations to further clarify the role of the Victorian Government in delivering active transport infrastructure and how this can be prioritised, including longer term investments over time.

### Road space and accessibility

A common theme from consultation was to give sustainable transport modes a greater priority on the roads, allowing more space for pedestrians, cyclists, public transport, and ride share vehicles rather than private vehicles. Stakeholders were generally supportive of better using road space, but often called for a specific usage such as bus and tram lanes,<sup>95</sup> strategic cycling corridors, or car sharing.<sup>96</sup> Others emphasised community consultation,<sup>97</sup> staging,<sup>98</sup> or using smart technology.<sup>99</sup> These suggestions and the need for clearer prioritisation have been incorporated into the final recommendations.

## 2.3 Steer changes in travel behaviour

### Off-peak fare discounts

Many stakeholders interpreted 'peak and off-peak' fares to mean an increase in peak prices and reacted negatively to this suggestion. Many qualified their support by only endorsing off-peak fare decreases.<sup>100</sup> Some expressed concern about the equity impacts of changing transport pricing,<sup>101</sup> the removal of myki passes,<sup>102</sup> or thought extra concessions would be a preferable approach. Some considered further assessment of the current trial should be awaited before proceeding.<sup>103</sup>

In response, we have revised this recommendation emphasising the transition to permanent off-peak discounts, noting the existing off-peak fares trial, and incorporating our short-term COVID-19 modelling insights, which support flexible work including staggered start and finish times.

### Lower bus and tram fares

Some stakeholders interpreted lower bus and tram fares to mean dismantling integrated ticketing, and objected strongly to this proposal.<sup>104</sup> Others considered the major reason for low patronage on some services was poor quality, and so lower prices would have no effect.<sup>105</sup> People also objected on the basis of their interpretation that the main goal was to shuffle patronage between modes.<sup>106</sup> This feedback highlighted the need to clarify that modal pricing entails cheaper fares for some modes without dismantling integrated ticketing and the importance of pursuing service improvements along with pricing changes.

We have revised this recommendation to emphasise lower bus and tram fares, better use of existing transport services, lower cost local trips and cost-effective expansion.

### Free tram zone

Consultation participants gave mixed perspectives on Infrastructure Victoria's recommendation to remove the free tram zone. Some participants do not currently use trams while others would miss the service, observing the novelty of riding a tram is an iconic Melbourne city experience. Some stakeholders supported removal of the free tram zone.<sup>107</sup> However, others gave different reasons for retaining it, including tourism,<sup>108</sup> pandemic recovery,<sup>109</sup> that central Melbourne cycling was a dangerous alternative,<sup>110</sup> or it prevents congestion.<sup>111</sup> Having considered this feedback, we decided to maintain our recommendation to remove the free tram zone.

### Electric vehicle registration discounts

Since the release of the draft strategy, the Victorian Parliament has legislated a distance-based road user charge for low and zero emissions vehicles, the Victorian Government has released *Victoria's zero emissions vehicles roadmap* and a package of measures to support the uptake of electric vehicles. Infrastructure Victoria has also undertaken extensive consultation on accelerating the uptake of zero emissions vehicles.

Our draft recommendation suggested introducing registration discounts to accompany the Victorian Government's policy of distance-charging for electric vehicles. Most people commented on the Victorian Government's policy announcement itself, objecting to the imposition of the charge. Most believed it may inhibit uptake of electric vehicles,<sup>112</sup> while some specifically noted the impacts on uptake in regional areas.<sup>113</sup> Some advocated waiting until the electric vehicle market was more mature.<sup>114</sup>

Given the passage of legislation and new policy of offering financial incentives for zero emissions vehicle purchase along with other support, this draft recommendation has been superseded by our recommendations on improving zero emissions vehicle uptake, and no longer appears in this part of the strategy.

### Car parking reforms

Some stakeholders generally supported the proposed parking reforms, noting the benefits to other transport modes.<sup>115</sup> Others objected to potential increases in parking prices.<sup>116</sup> Generally, the opposition was due to concerns that price increases would inhibit activity in local retailing precincts.

Consultation participants thought paying a small fee to park at train stations may be fair but this needs to be carefully done to ensure train use is not discouraged and parking is not displaced to local streets.<sup>117</sup> Other options to reduce train station parking include good intermodal facilities and interchange alongside low-stress active transport connections and access points.

We have reviewed these recommendations considering feedback and consolidated them in this strategy.

### Tolling new freeways

Some stakeholders supported this recommendation, including to extend it to existing freeways.<sup>118</sup> But others claimed it was inequitable, affecting some areas over others,<sup>119</sup> or disadvantaging vulnerable residents.<sup>120</sup> Others were concerned at diversion of traffic onto local roads,<sup>121</sup> or simply opposed construction any new freeways.<sup>122</sup> We have refined this recommendation to address some of the concerns raised.

### Congestion pricing

Consultation participants observed road use payments may lead to making trips more efficient, increased carsharing, public transport and bike use. Some stakeholders supported this recommendation in principle,<sup>123</sup> but sometimes with caveats, for instance, about impacts on business and freight costs,<sup>124</sup> regional areas,<sup>125</sup> availability of alternative transport options,<sup>126</sup> disadvantaging certain cohorts,<sup>127</sup> or consistency with national changes.<sup>128</sup> Some called for revenue to be reinvested in local communities.<sup>129</sup> Others emphasised non-pricing options for behaviour change.<sup>130</sup> We have taken this feedback into account in refining our final recommendations to phase out fixed road user charges and introduce user pays charging.

## 2.4 Adapt infrastructure for modern needs

### Asset management

Stakeholders were generally supportive of improving asset management and upgrading facilities. On social housing, commentary generally pointed to additional aspects of upgrades, such as for energy efficiency,<sup>131</sup> accessibility,<sup>132</sup> or ensuring local communities were not disrupted.<sup>133</sup> Similarly, on hospital renewal, many called for expanded action, for instance in regional areas,<sup>134</sup> or for other health infrastructure.<sup>135</sup> Stakeholders also called for greater clarity around asset condition statewide.<sup>136</sup>

We have reviewed and revised the recommendations considering this feedback, including more clearly linking the strategy's social housing recommendations together, and recommending the Victorian government clearly plan its future health infrastructure renewal program.

### Resilience to emergencies

Since the release of the draft strategy, the various inquiries into the consequences of the 2019-20 bushfires and the COVID-19 pandemic have delivered their reports. Few identified a strong focus on infrastructure. Instead, they emphasised community preparedness and governance structures. Governments have already largely agreed to implement the findings of these reviews. Stakeholders have not identified any tangible recommendations for incorporation in this strategy. As such, we have retired the draft recommendation incorporating lessons of emergency reviews in this final strategy.

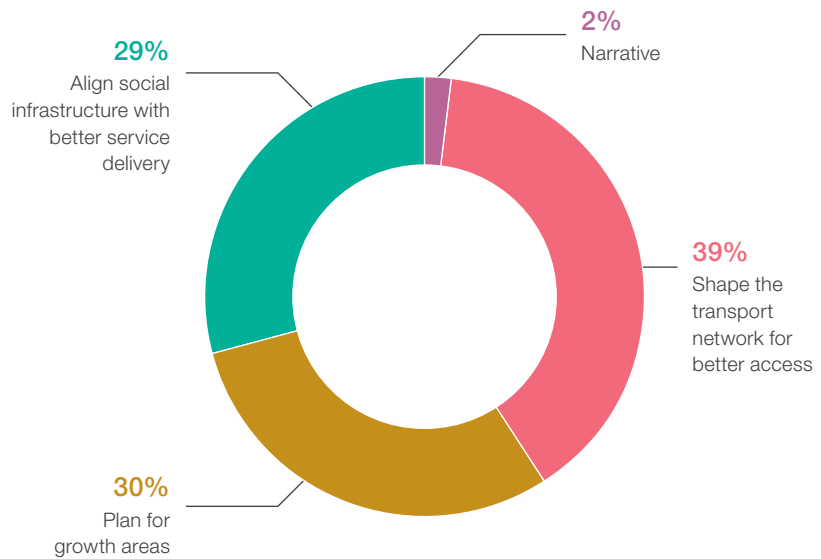
Stakeholders were generally supportive of efforts to improve resilience and recovery of infrastructure, pointing to particular elements like better building standards, or the sources of available funding.<sup>137</sup> Stakeholders encouraged greater information during and after emergencies, including using digital connectivity. This is reflected in the final strategy.

Many stakeholders noted the resilience aspects of infrastructure in their submission. In response, we created a new section to give more prominence to resilience issues, and relocated existing recommendations on coastal protections and emergency recovery to this section.

### 3. Harness infrastructure for productivity and growth

**Figure 4: Number of mentions for 'Harness infrastructure for productivity and growth' theme (N=530)**

Figure 4 shows the distribution of comments on this strategy's third theme: 'Harness infrastructure for productivity and growth'. Comments were relatively evenly spread over the three draft sections.



#### 3.1 Shaping the transport network

##### Bus reform

Stakeholders generally reinforced the view that bus services require improvement,<sup>138</sup> often citing particular areas like the western suburbs,<sup>139</sup> La Trobe National Employment and Innovation Cluster (NEIC),<sup>140</sup> East Werribee NEIC,<sup>141</sup> regional Victoria,<sup>142</sup> or the Mornington Peninsula.<sup>143</sup> Some stakeholders mentioned superior service models for high frequency bus routes, like bus rapid transit and trackless trams.<sup>144</sup> Others noted the constraints placed by the current coverage standard.<sup>145</sup>

We have maintained the draft recommendation, using the terminology of 'Next Generation bus services', emphasising their greater use of separated lanes, high frequencies, and superior vehicles, noting these could be the equivalent of 'Bus Rapid Transit' or 'Trackless Trams', and added more detail on the corridors where this treatment could be suitable.

##### Major projects

We undertook a strategic assessment of six major transport programs, selected because they have significant costs and benefits and the potential to address several of the strategy's objectives. These programs can also accommodate population growth, support the city's structure, improve access to jobs and services, and have the potential to address other key challenges for Victoria's future.

The modelling explores the range of potential costs and benefits of each project, including how it will perform under alternative potential future scenarios. This assessment utilises a range of evidence including new modelling using the Victorian Land Use and Transport Integrated (VLUTI) model.

Our modelling and a strategic assessment has been undertaken for the following six major transport projects: Road management systems, City Loop reconfiguration and northern rail corridor upgrade; Melbourne Metro Two and direct Geelong rail services; Cross-city motorway; Outer metropolitan ring road and rail corridor; and Western rail upgrade.

The major transport program assessments draw on a range of evidence including key findings from the VLUTI major transport modelling, the draft strategy modelling, earlier Melbourne Activity and Agent Based Model (MABM) modelling, Infrastructure Victoria research and analysis, and consultation and feedback on the draft strategy. The assessments also draw on our modelling program of the impacts of the COVID-19 pandemic (through the increased working from home scenario sensitivity tests) to ensure the strategy leverages these findings.

Alongside stakeholder and public feedback, these findings have informed the development of recommendations about major projects in this strategy. More detail on the assessments of these major projects is provided in the *Major transport program strategic assessment report*.

## 3.2 Growth areas

### Infrastructure coordination

Stakeholders generally noted concerns that growth areas have high needs and demand for new infrastructure which is not being met. This included transport services,<sup>146</sup> arts and culture, health infrastructure,<sup>147</sup> active transport,<sup>148</sup> Aboriginal community facilities,<sup>149</sup> and green infrastructure. Regional areas noted there are growth areas in regional cities too.<sup>150</sup> The idea of a coordinating body for infrastructure in areas with population growth was generally well received, although some stakeholders expressed caveats on the actual design and powers.<sup>151</sup> Many added that extra funding will ultimately be needed to meet growth area infrastructure needs. These considerations are reflected in this strategy.

### Growth area transport

New modelling and assessments were generated that included major extensions to growth area transport services. Stakeholders were generally supportive of extra transport services in growth areas, adding options like Armstrong Creek and Torquay,<sup>152</sup> acceleration of the Wollert project,<sup>153</sup> or extending Melton line duplication through to Ballarat.<sup>154</sup> Similarly, there was general support for arterial road expansion, including extra suggestions for priorities and earlier delivery. We updated the recommendations based on new modelling evidence and stakeholder feedback.

### Growth area social infrastructure

Many stakeholders noted the challenges with delivering different types of social infrastructure in growth areas. In particular, growth area councils told us they could not afford to directly fund large-scale infrastructure.<sup>155</sup> While the recommendation proposes extra oversight of this delivery, we have responded to this feedback by exploring options for identifying specific infrastructure types that might be problematic. As a result, this strategy includes a new recommendation for the Victorian Government to contribute to funding extra libraries and aquatic centres in growth areas, as this large-scale infrastructure is clearly underprovided and local government struggles to fund it alone.

### Tree canopy

On tree canopy targets, submissions were generally supportive, with multiple calls for these to apply to all urban areas,<sup>156</sup> and discussion of the challenges faced from requirements of utilities providers, fire safety and road safety requirements,<sup>157</sup> or treeing existing grasslands.<sup>158</sup> Other noted the socioeconomic disparity in access to open space.<sup>159</sup> Consultation participants observed an opportunity to align with the *Living Melbourne canopy strategy* endorsed by all councils in greater Melbourne and other leading government agencies including Parks Victoria. Our final recommendation reflects the suggestions made about implementing the 30% tree canopy cover recommendation and barriers that need to be overcome.

## 3.3 Social infrastructure

### Aboriginal community infrastructure

Aboriginal organisations demonstrated a strong interest in the development of this strategy. Many welcomed our proposed recommendation on Aboriginal infrastructure, including the strategy's application to the many social and cultural infrastructure needs of Aboriginal communities such as residential aged care,<sup>160</sup> child and family, family violence and alcohol and other drug rehabilitation services, as well as health care.<sup>161</sup> Many Aboriginal organisations called for engagement on the development of this infrastructure to be inclusive and genuine, linked with Treaty and Closing the Gap objectives,<sup>162</sup> and to Victorian Budget deliberations.<sup>163</sup>

Consultation participants said the strategy should align with existing key Victorian Government health and education plans relating to Aboriginal infrastructure needs that have been developed or are in the process of development. They considered that funding, roll-out certainty, and timing of strategy implementation are important. Some considered it beneficial to focus on smaller aspects of the infrastructure plan first, then expand into others. Participants suggested part of the infrastructure strategy should aim to enhance and celebrate Aboriginal culture and also invest in early intervention for better health, housing and justice outcomes. Aboriginal stakeholders asked for a more diverse representation of geographies to be represented in co-designing the strategy. This included engaging beyond Greater

Melbourne to include Aboriginal communities in regional areas. Elements of these scope and implementation suggestions have been incorporated into the recommendation.

### Social housing

On social housing, there was general support for the recommendation that called for research providing substantial support for this initiative.<sup>164</sup> Many suggested the social housing target should be set higher,<sup>165</sup> as merely reaching the national average is inadequate to meet demand.<sup>166</sup> Instead, stakeholders believed social housing should be fast-tracked,<sup>167</sup> reach the OECD average of 6%,<sup>168</sup> with 6000 new dwellings each year,<sup>169</sup> or have particular targets in growth areas.<sup>170</sup> Stakeholders consider new social housing should include diversity of housing types,<sup>171</sup> and meet high standards for energy efficiency<sup>172</sup> and accessibility. Others considered it should meet the needs of Aboriginal people,<sup>173</sup> transitional housing for people exiting prison, family violence survivors and rough sleepers.<sup>174</sup> Local governments also considered that social housing needed to be accompanied by sufficient support services,<sup>175</sup> and subject to community consultation.<sup>176</sup> We have retained our proposed target in the final strategy, observing that this reflects a substantial Victorian Government investment over a decade, which is far higher than the historical trend.

### Health and justice infrastructure

Since the release of the draft strategy, the Royal Commission into Victoria's Mental Health System delivered its final report.

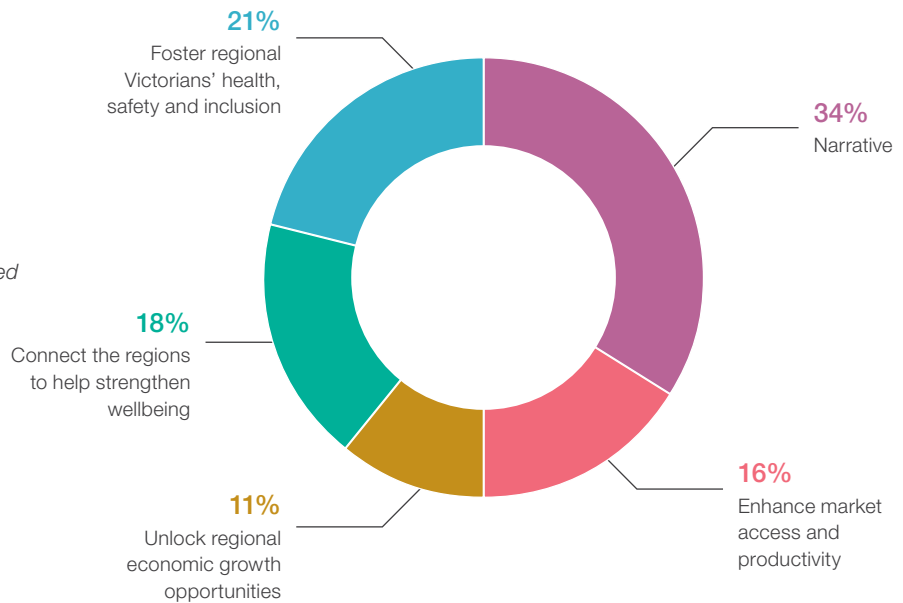
On health infrastructure, stakeholders particularly noted local needs, such as in new growth areas.<sup>177</sup> They also commented on the need to consider the infrastructure needs of other health care services,<sup>178</sup> and regional Victoria,<sup>179</sup> including Aboriginal health services.<sup>180</sup> Stakeholders made similar comments about mental health infrastructure, including various models of better service delivery and design, and including needs for alcohol and drug services.<sup>181</sup> In terms of justice infrastructure, stakeholders noted the need for alternatives to imprisonment or remand.<sup>182</sup>

We have considered the findings of the Royal Commission and stakeholder feedback in revising our recommendations.

## 4. Develop regional Victoria

**Figure 5: Number of mentions for 'Develop regional Victoria' theme (N=1815)**

Figure 5 shows the distribution of comments on the this strategy's fourth theme: 'Develop regional Victoria'. Comments were relatively evenly spread over the draft sections, with many directed at shaping the general discussion of regional Victoria.



### 4.1 Enhance market access and productivity

Many stakeholders pointed out the deep economic connections between the two draft strategy sections on economic development in Victoria's regions. In this strategy, we have amalgamated them to express a pathway for regional development.

#### Regional roads

On regional roads, stakeholders broadly endorsed the need for investment in regional roads, noting their importance for industry, such as agriculture,<sup>183</sup> and for community connectedness.<sup>184</sup> Some identified particular projects, such as the Bacchus Marsh and Barwon Heads duplications and Bellarine Link,<sup>185</sup> or the Western Highway.<sup>186</sup> We have incorporated some of these prioritisation principles and examples into the recommendation.

#### Regional freight rail

Since the release of the draft strategy, agreements with the Australian Government resulted in conclusion of a revised scope for the Murray Basin Rail Project. Stakeholders expressed their

disappointment at this outcome and its reduced scope.<sup>187</sup> They considered many of the now scoped-out components as being essential for the future development of rail freight. Stakeholders were keen to understand the future pathway for freight rail development in the future, including for rail gauge standardisation.

As the scope of the Murray Basin Rail Project has been decided, this recommendation no longer appears separately in this strategy. Instead, we have expanded the draft recommendation on freight rail maintenance to include future planning for network development with an emphasis on the key improvements that stakeholders identified are needed.

#### Digital connectivity

Consultation participants saw any improvements to internet access positively for metropolitan and regional Victoria. Some claimed the recent shift of more people moving to regional Victoria from metropolitan areas places more pressure on the existing bandwidth. They thought improving internet connections are important so more people can work from home in regional locations.

They also thought improved connectivity may help to deliver outcomes for transport, health, and education sectors by minimising the need to travel long distances to access services.<sup>188</sup>

Consultation participants considered the core issue for regional and remote areas heard was having a lack of digital connectivity between towns creating blackspots and keeping regional and remote areas up to date with the fast-paced technological advances. They saw affordable internet access to individuals, industry, small businesses, digital services, education, and health providers were important to enhance regional growth. Many stakeholders observed that improving regional connectivity has social and resilience benefits, in addition to economic impacts.<sup>189</sup>

To better articulate the need for digital improvements in Victoria's regions, we have incorporated priorities from stakeholder feedback and moved the recommendation in this strategy alongside improving digital resilience.



## 4.2 Unlock growth opportunities

### Energy infrastructure

Stakeholders were generally supportive of the need to develop regional economies. There was agreement on the need for strategic regional power upgrades. Some considered that this should be extended to support distributed energy resources,<sup>190</sup> reliability and resilience,<sup>191</sup> and expanding renewable energy development potential.<sup>192</sup> These opportunities have been incorporated into the recommendation.

### Nature-based tourism

Similarly, people saw potential in regional tourism for economic development, but wanted to ensure it minimised environmental impacts, and included water-based tourism opportunities.<sup>193</sup> Especially for tourism infrastructure built in national parks, it was considered strict criteria should be applied.<sup>194</sup> Some objected to this recommendation outright, arguing that national parks are not suitable locations for private investment.<sup>195</sup> The final version of the recommendation considered this feedback and calls for more nature based tourism infrastructure to be considered within the scope of the current legislative arrangements.

### Aboriginal tourism

Aboriginal tourism infrastructure should consider caring for country, the Treaty process,<sup>196</sup> cultural needs of Aboriginal Communities,<sup>197</sup> and incorporating Aboriginal experience into mainstream tourism operations.<sup>198</sup> Suggestions included matching regional workforce to post-COVID-19 changing industries and other sectors such as land management, native food agriculture and regenerative agriculture. We revised the recommendation for more inclusive representation of Aboriginal communities in planning future infrastructure.

## 4.3 Connect the regions to strengthen wellbeing

### Regional public transport

Consultation participants considered that buses in regional areas are heavily relied on by the people who use them. Better timetables with regular services between small regional townships and places that people need to go may enable more use. Some stakeholders observed the need for more bus routes in regional Victoria,<sup>199</sup> especially focusing on regional movement rather than travelling to Melbourne.<sup>200</sup> Some called for more investment in passenger rail,<sup>201</sup> or new regional train stations.<sup>202</sup> Others emphasised better use of school buses,<sup>203</sup> demand-responsive transport,<sup>204</sup> and community transport.<sup>205</sup> The final version of our recommendation reflects the emphasis that stakeholders have placed upon good, reliable public transport connections within regional areas.

### Digital access and resilience

Consultation participants considered emergency and critical infrastructure improvements should ensure people have access to data communications during emergencies. Some considered the 10-year timeframe of the draft recommendation too long. Others noted the congestion problems on the network during emergencies,<sup>206</sup> and the relationship with power supply during outages was identified.<sup>207</sup> As a result, this recommendation now has a shorter delivery time and reflects additional ways in which communications infrastructure and services can be made more resilient in emergencies.

People were generally supportive of the role of libraries in supporting digital connectivity, though some raised the possibility that this role could be played by other organisations such as schools,<sup>208</sup> and Aboriginal organisations.<sup>209</sup> Similarly, stakeholders considered using schools for supporting telehealth as a useful contribution, but noted it required stable internet, appropriate personnel,<sup>210</sup> and fit for purpose places.<sup>211</sup>

Consultation participants considered telehealth was an important part of the health solution but not in isolation. Participants highlighted it cannot replace face-to-face support entirely, but is an opportunity to provide better services to areas currently without health service access. They thought using rural schools for children's specialist and allied telehealth services should link into existing services already offered to children. These nuances have been considered in refining this recommendation.

## 4.4 Foster regional health, safety and inclusion

### Community facilities

Stakeholders were generally supportive of multi-purpose facilities. They emphasised considering the inclusion of health and community services, childcare, Fire Safety, SES and police, sport and recreation, aquatic facilities, and libraries. Others pointed out the governance challenges with these facilities.<sup>212</sup> Consultation participants broadly supported allowing sharing of resources and creating a comprehensive approach to service delivery.

Consultation participants broadly supported repurposing community facilities, particularly where there is no longer a community use for the facility and where the existing community use is being replaced with a more relevant community use. They thought consulting with communities about how facilities should be repurposed may improve outcomes. Stakeholders wanted to ensure there were resources for climate resilience<sup>213</sup> and maintenance and repairs.<sup>214</sup> Some councils observed the challenges of community attachment and social capital invested in infrastructure,<sup>215</sup> and working with communities to understand retiring facilities.<sup>216</sup> There was general support for cool, smoke-free spaces, although we received feedback about the implementation challenges, the relationship with evacuation centres, and the safety liability.<sup>217</sup> These suggestions have been integrated into the final version of the recommendation.

### Youth Foyers

Consultation participants reported an increase of people experiencing homelessness. Youth Foyers or repurposed community facilities could be part of the solution to support the increasing number of homeless people. For example, Youth Foyers accompanied with medical care and counselling services. Participants sought approximate timing for when Youth Foyers would be built to be included in the updated strategy, indicating an immediate need for foyers. Youth Foyers in Wodonga and Bendigo were indicated as requiring an immediate need. Stakeholders supported the evidence-based approach to Youth Foyers,<sup>218</sup> and submitted that extra locations could include Morwell,<sup>219</sup> Mildura,<sup>220</sup> Wangaratta,<sup>221</sup> and Frankston.<sup>222</sup>

We revised this recommendation, considering that other locations were potentially suitable beyond the three locations in the draft strategy.

### Alcohol and drug treatment facilities

For alcohol and drug (AoD) facilities, people encouraged the recommendation, noting there was a minimum size for optimum efficiency,<sup>223</sup> challenges in securing workforce,<sup>224</sup> and specialist needs for the Aboriginal community.<sup>225</sup> The implementation considerations have been reflected in the recommendation.

### Regional social housing

On regional social housing, submitters noted the need for a diversity of dwellings and residents, and the specific needs of people with disability,<sup>226</sup> and Aboriginal communities.<sup>227</sup> Some noted particular needs in certain places, like in Geelong,<sup>228</sup> and Bacchus Marsh.<sup>229</sup> Stakeholders noted small units can be difficult to navigate through planning processes.<sup>230</sup> Others called for minimum energy efficiency standards for social housing,<sup>231</sup> especially insulation and glazing.<sup>232</sup>

We have revised the recommendations considering stakeholder feedback, including being more flexible with dwelling types in recognition of the local built form.



## Incorporating evidence and feedback

We thank everyone who engaged with the draft strategy. The breadth of information and the size and diversity of participants have provided a large amount of insightful and considered feedback and evidence. We have reflected and incorporated much of this feedback into this final strategy. Our new modelling and assessment of major transport projects have also been incorporated, strengthening the evidence base underpinning this strategy.



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## Appendix F

# Review of 2016 recommendations

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**This section documents Victorian Government action on implementing its response to our 2016 recommendations in *Victoria's 30-Year Infrastructure Strategy*. For each recommendation we made in 2016, we document the full recommendation, the Victorian Government response in *Victoria's Infrastructure Plan 2017*, significant government action taken since, and the translation of that recommendation, where appropriate, to this updated strategy.**

Progress has been made in implementing most of our 2016 recommendations. Of the 137 recommendations, our review finds that:

- \ 29 have been substantially completed
- \ 98 are in progress
- \ 10 have not commenced.

References after each title are to recommendation numbers in the 2016 strategy (for example, 10.5.2) and the codes used to identify the options (for example, HCT2) developed to inform that strategy – set out in detail in the Options Book: A Supporting Document for *Victoria's 30 Year Infrastructure Strategy*.<sup>1</sup>





## 2016 recommendations (in alphabetical order)

Pg	Recommendation	Pg	Recommendation
127	10-car metropolitan trains (10.5.2, HCT2)	143	Driverless freight vehicles (13.2.2, DFV)
127	Active lifestyle facilities (4.2.2, ALP)	144	Driverless vehicles (6.2.2, 10.7.3, ACT)
127	Acute/sub-acute health facilities (3.2.2, HIM)	144	Eastern Freeway-CityLink-Western Ring Road (11.5.8, 13.5.4, EWW, EWE)
128	Affordable housing fast-track approvals (7.3.1, SHS1)	145	Education delivery through technology (2.2.2, 9.2.1, 12.1.4, SRS)
129	Affordable housing plan (7.4.1, SCP)	145	Electricity network capability (18.2.2, ENI)
129	Affordable housing planning mechanisms (7.3.2, SAH, AHR)	146	Employment centre arterial roads (11.5.1, ARN)
130	Affordable housing provision (7.4.3, SHE, ARH)	146	Employment centre mass transit (11.5.4, MTN)
130	Aged care facility approvals (3.4.1, UPA)	147	Energy efficiency of existing buildings (18.1.2, EDM1)
131	Brown coal transition (18.2.1, BCL, BCA)	147	Energy efficiency of new buildings (18.1.3, EED)
131	City Loop reconfiguration (10.10.1, CLR)	148	Energy pricing (18.1.1, EDM2)
132	Clyde rail extension (1.3.7, 10.8.4, CRE)	148	Environmental water delivery (16.3.3, 17.2.2, EWD)
132	Coastal protection infrastructure (19.1.4, CPI)	149	Fishermans Bend tram link (1.2.1, 10.8.1, CCT)
133	Communications infrastructure (12.1.3, 19.1.2, ETP)	149	Forensic mental health facilities (3.3.1, 8.3.3, NEF)
133	Community cultural facilities (5.1.2, CCF)	150	Freight precincts (13.3.2, FPL)
134	Community space refurb/rationalisation (1.5.5, 2.3.2, 5.4.2, CSR)	150	Future prisons (8.3.1, NMP, NWP)
134	Community space shared use agreements (1.4.2, 2.3.1, 5.2.2, CSS1)	151	Geelong/Werribee/Wyndham rail (1.3.4, 10.8.2, 12.3.1, WVV, GWR, GRE)
135	Community sport/recreation facilities (4.3.2, SRF)	151	Government service/infrastructure planning (1.5.1, 2.4.1, 11.1.2, SIP)
135	Community use of TAFE assets (9.4.2, TAF)	152	Green infrastructure (1.4.6, 4.2.3, 16.3.1, UFF)
136	Courts in high growth areas (8.1.2, JDG)	152	Growth area local buses (1.3.2, 11.5.2, LBS)
136	Courts in Melbourne's CBD (8.3.4, JLP)	153	Habitat corridors (16.3.2, HCL)
137	Courts maintenance (8.3.2, CMD)	153	Health-care delivery through technology (2.2.3, 3.1.2, 12.1.6, THE)
137	Crisis accommodation and supportive housing (7.4.2, CHP, TSA)	154	Health-care ICT systems (3.1.1, 12.1.5, EEA)
137	Critical infrastructure contingency planning (19.2.1, CSB)	155	Health-care partnerships (3.2.1, HAP)
138	Critical infrastructure control systems (19.1.1, ECS)	155	High capacity signalling (10.4.7, RSF)
138	Cycling corridors/walking improvements (4.1.3, 10.3.2, BWP2, BWP3, BHT)	155	High productivity freight vehicles (13.4.3, HPF)
139	Cycling end-of-trip facilities (4.1.1, ALR)	156	Housing rental assistance (7.1.1, HRA)
140	Cycling/walking data (4.1.2, 10.3.1, BWP1)	156	Inland Rail (13.5.1, MBF)
140	Cycling/walking in established areas (4.2.1, AEA)	157	Innovative transport services (1.3.1, 10.7.1, 12.2.2, MAS)
141	Development in established areas (1.1.1, 10.1.1, UDC)	157	Integrated community health hubs (3.2.3, 12.1.7, ICP)
141	Development in/around employment centres (1.1.2, 10.1.2, 11.1.1, STO)	158	Irrigation water delivery (14.1.3, WDE)
142	Dispute resolution technology (8.2.2, 12.1.2, JSD)	159	Justice case management ICT system (8.2.3, CSC)
142	Doncaster bus system (10.6.4, DBI)	159	Justice/health/human services integrated planning (8.1.1, JCS)
143	Driver assistance applications (10.7.2, 13.2.3, ADA)		

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160	Landfill protection (15.2.1, FLS)
160	Level crossing removals (11.3.3, MLC)
161	Long distance rail services (12.2.9, RTL)
162	Major cultural/sporting infrastructure (4.3.1, 5.1.1, CSM)
162	Major hospitals (3.2.4, THR)
163	Major water supply augmentation (14.3.1, RWW, WSA1)
163	Melbourne Airport bus (10.9.1, 11.4.1, MAB)
164	Melbourne Airport rail link (10.9.2, 11.4.2, MAH)
164	Melbourne Metro - future stages (10.10.2, MMS)
165	Melton rail electrification (1.3.6, 10.8.3, MRE1)
165	Mental health/AOD facilities (3.3.2, MHA)
166	Metropolitan bus network (10.4.5, 11.3.4, MBN)
166	Metropolitan rail stations (10.4.6, MRI)
167	Metropolitan rail upgrades (10.4.4, MRC)
167	Metropolitan rolling stock (10.5.1, HCT3, HCT4)
168	North East Link (11.5.6, 13.5.2, NEL)
168	On-demand transport services (2.1.3, 6.2.1, 12.2.6, PTA)
169	Organic waste (15.1.2, OWM)
170	Outer metropolitan arterial roads (1.3.5, 11.5.5, OMA)
170	Outer Metropolitan Ring Road (11.5.7, 13.5.3, OMR)
171	Parks governance (16.2.1, NPP3)
171	Parks partnerships (16.2.2, NPP2)
172	Parks pricing/funding/expenditure (16.1.1, NPP1)
172	Police communications channels (2.2.1, 8.2.1, 12.1.1, MPW)
173	Police complexes (8.1.3, PSS)
173	Port rail shuttle (13.3.1, PPM)
174	Public housing asset management (7.2.1, SHA, SHS3)
174	Public libraries (1.4.5, 5.4.3, 9.4.3, LLH)
175	Public space utilisation (1.4.1, 5.2.1, CSU)
175	Public transport accessibility (6.1.3, PTV)
176	Public transport real-time information (10.4.1, TNI)
177	Public transport resilience (19.1.3, PTN)
177	Recycled materials in construction (15.1.1, RMU)
178	Recycled water (non-potable use) (14.2.1, RTH)
178	Regional city local buses (12.2.7, RBU)
178	Regional coaches (2.1.2, 12.2.8, RCU)
179	Regional highways (2.1.1, 12.2.5, 13.4.1, RHU)

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179	Regional rail eastern corridor (12.3.3, 13.5.5, RRE1)
180	Regional rail gauge standardisation (13.4.2, RRG)
180	Regional rail upgrades (12.2.4, RRC)
181	Regional road maintenance (2.1.4, 12.2.10, 13.4.4, RRU)
182	Regional rolling stock (12.2.3, RRS)
182	Relocatable community infrastructure (1.4.3, 5.4.1, 19.2.3, RCI)
183	Riparian fencing (17.1.2, RFI)
183	Road asset management (10.6.1, 11.3.1, 12.2.1, RMF)
184	Road space allocation (10.6.3, 11.3.5, RSA)
184	School investment pipeline (9.3.1, SIF)
185	School maintenance (9.3.2, SRM1)
185	School network planning (9.1.1, SOO)
186	Schools as community facilities (1.4.7, 2.3.3, 5.3.1, 9.3.3, SCF)
186	Small scale solar (18.2.3, SSE)
187	SmartBus network (1.3.3, 11.5.3, SNE)
187	Stormwater harvesting (14.2.2, 17.2.1, SRH)
188	Stormwater quality (17.1.1, SRQ)
188	Tertiary education/VET in schools (9.4.1, STE)
188	Torquay transport links (12.3.2, TRE)
189	Traffic management systems (10.6.2, 13.2.1, ATM)
189	Train timetabling (10.4.2, PTT)
190	Transport contingency planning (19.2.2, CRR1)
190	Transport control centres (19.2.4, ITC, CRR2)
191	Transport interchanges (6.1.2, 10.4.3, 11.3.2, MII)
191	Transport modelling (10.2.1, 11.2.1, 13.1.1, ABM)
192	Transport network pricing (10.2.2, 11.2.2, 13.1.2, TNP)
192	Universal design (6.1.1, CIM)
193	Wallan rail electrification (1.3.8, 10.8.5, WRE1)
193	Waste management sites (15.2.2, FWL)
194	Waste pricing (15.1.3, HWD)
195	Water governance (14.1.1, WI02)
195	Water trading (14.1.2, WME)
196	Webb Dock rail access (13.3.4, WDF)
196	Western Interstate Freight Terminal (13.3.3, WIF)
197	Wollert transport links (1.3.9, 10.8.6, WRE2)

## 10-car metropolitan trains (10.5.2, HCT2)

**Introduce 10-car high capacity metro trains to operate on lines that run via the Melbourne Metro tunnel within 10-15 years to support further patronage growth to the west and south-east, complementing electrification of the Melton line (see Recommendation 1.3.6/10.8.3) and potentially enabling a later extension to Melbourne Airport (see Recommendation 10.9.2/11.4.2).**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. As this recommendation is over 10-15 years, implementation will be considered as part of future budgets.

The Victorian Government agreed to commission high capacity trains to run via the Melbourne Metro tunnel.<sup>2</sup> It ordered 65 high capacity trains, with the first operating on the Pakenham line in December 2020. The trains include an extra carriage allowing more space for 20% more passengers, initially running on the Cranbourne and Pakenham lines, and eventually operating through to Sunbury once the Melbourne Metro tunnel opens.<sup>3</sup>

### Assessment: in progress

Infrastructure Victoria notes the intent of the recommendation is being met through the purchase of high capacity trains close to current train lengths and continues to recommend ongoing investment in transport solutions that increase rail network capacity. This is reflected in recommendation 59 - 'Increase off-peak service frequencies and suburban rail corridor capacity', which notes the importance of rolling stock options, such as longer, high capacity trains.

## Active lifestyle facilities (4.2.2, ALP)

**Identify priority locations for, and roll out a program of, small-scale improvements to state government facilities to promote physical activity over 0-10 years, including bicycle and equipment lockers in train stations.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. As this recommendation is over 0-10 years, short-term initial progress will need to be supplemented by further funding to address the full scope of this recommendation.

In 2017, the Victorian Government allocated funding to improving Melbourne's busiest train stations, including by funding lockers and bicycle cages to better manage passenger movement and improve amenities at Richmond, Flinders Street and Southern Cross stations.<sup>4</sup>

In 2018, the Victorian Government released the *Victorian Cycling Strategy 2018-2028* to guide planning and investment to promote cycling as a mode of travel. The strategy emphasises the need to better integrate cycling and public transport, as well as for strategic, coordinated investments by government and its partners into end-of-trip facilities at stations, workplaces, residential developments and other public transport interchanges.<sup>5</sup>

Every major new transport project is now required to include new or upgraded infrastructure to support active transport. The Level Crossing Removal Project has been particularly important in delivering more (secure and unsecure) bicycle storage at train stations as well as improved cycling corridors.<sup>6</sup> Additionally, the 'Parkiteer' network, the result of a partnership between Metro Trains and the Bicycle Network, has grown to operate more than 100 bicycle parking cages across Victoria.<sup>7</sup>

In October 2020, the Victorian Government announced \$13 million in additional funding for 100 kilometres of pop up bike lanes across Melbourne as part of the COVID-19 pandemic recovery. So far, 9 kilometres of pop up bike lane infrastructure between Fairfield and Clifton Hill has been completed.

While these improvements are welcome, there has been no systematic prioritisation and delivery of bicycle parking at public transport stations and stops, and few upgrades to support cycling to or from bus and tram stops.

### Assessment: in progress

Infrastructure Victoria continues to recommend the improvement of active transport infrastructure, as reflected in recommendation 38 - 'Partner with local governments to fund pedestrian infrastructure' and recommendation 39 - 'Transform cycling in Melbourne, Ballarat, Bendigo and Geelong'.

## Acute/sub-acute health facilities (3.2.2, HIM)

**Target investment in public acute and sub-acute health facilities to areas experiencing high growth in the outer northern, western and south-eastern metropolitan zones of Melbourne and central Victoria over 5-15 years. This will help address existing and forecast service gaps in these areas.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation with a number of funded projects already announced. As this recommendation is over 5-15 years, its full scope will need to be considered with future budgets.

Since 2016, the Victorian Government has invested in, and delivered, acute and sub-acute health facilities to meet demand from rapidly growing areas in Melbourne. The largest of these projects have been in inner and middle suburbs; most notably the Joan Kirner Women's and Children's Hospital that opened in 2019 (originally funded in 2015),<sup>8</sup> a new Victorian Heart Hospital due to

open in 2022,<sup>9</sup> and a new \$1.5 billion Footscray Hospital planned to open in 2025.<sup>10</sup> Significant funding has also been allocated to expand facilities at the Frankston Hospital, the Northern Hospital in Epping, the Monash Medical Centre<sup>11</sup> and Sunshine Hospital.<sup>12</sup> Planning has also begun for additional capacity in Melbourne's west, with the Victorian Government allocating funding in 2020 for the first stage of a new hospital near Melton and initial planning for the future expansion of the Werribee Mercy Hospital.<sup>13</sup>

Regional health networks have also received funding for significant capital works projects. In 2018, \$461.6 million in funding was announced for redevelopment and expansion of Ballarat Base Hospital. In the same year, a \$115 million expansion for Wonthaggi Hospital was confirmed.<sup>14</sup> In 2020, the Victorian Government allocated \$384.2 million to start the Warrnambool Base Hospital redevelopment and \$217 million to expand Latrobe Regional Hospital, \$5.2 million for planning the expansion of Maryborough Hospital, and \$3.6 million towards planning and design for a new Women's and Children's Hospital.<sup>15</sup> A further \$95 million was allocated in 2021 to upgrade Maryborough Hospital, and early works are expected to start in 2022.<sup>16</sup>

Other commitments include: \$85 million to complete the expansion of acute facilities at the Werribee Mercy Hospital; \$59.5 million for a new rehabilitation centre at Bendigo Hospital; \$31.4 million to expand the Royal Children's Hospital; \$7 million for planning the third stage of the Latrobe Regional Hospital Redevelopment; \$6 million for planning the redevelopment of the Frankston Hospital; \$5.9 million to plan dedicated children's emergency department at the Northern, Frankston, Casey, Maroondah and Geelong University hospitals; \$4.6 million for planning the Angliss Hospital expansion at Ferntree Gully; and \$2.4 million for planning the redevelopment of Wangaratta Hospital.<sup>17</sup>

In response to the COVID-19 pandemic, the Victorian Government has committed significant additional funds to increase the capacity of public hospitals. This included an additional \$1.9 billion in 2020 to increase bed capacity statewide by more than 700, including through recommissioning buildings that were no longer used for health care. Works were identified at the former Peter MacCallum Cancer Institute, the former Geelong Private Hospital, Bendigo Hospital, Shepparton Hospital, the Alfred Hospital, Austin Hospital, Monash Medical Centre Clayton and Casey Hospital.<sup>18</sup> The Victorian Government also allocated an extra \$2.7 billion at the end of 2020 to support the transition of hospital services to 'COVID normal', including to deliver elective surgeries deferred during the pandemic.<sup>19</sup> However, these investments were made in response to a short-term need rather than in response to projections of long-term demand.

#### Assessment: in progress

Infrastructure Victoria continues to recommend the expansion of hospital capacity to accommodate projected service demand, particularly from Melbourne's rapidly growing and relatively under-serviced outer suburbs and new growth areas. This is reflected in recommendation 69 - 'Build new hospital capacity'.

## Affordable housing fast-track approvals (7.3.1, SHS1)

**Provide an alternative statutory approvals process for affordable housing developments by amending the planning system within 0-5 years. This will facilitate growth in the supply of affordable housing by ensuring projects are not subject to lengthy approvals processes, while still incorporating local community issues in the decision-making process.**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports this recommendation and will address in the five-year *Plan Melbourne* Implementation in the next two years.

The Victorian Government has made several commitments to providing an alternative approvals process for affordable housing. This has primarily been committed to and implemented through the \$2.6 billion *Homes for Victorians* plan, which aims to increase and renew public housing and address homelessness, under which \$185 million was allocated to the Public Housing Renewal Program,<sup>20</sup> and reforms to accompany the government's Big Housing Build program.<sup>21</sup>

Initiative 2 of the *Homes for Victorians* plan recognises the importance of increasing the supply of housing through faster planning, and the need to 'Speed up planning processes to facilitate housing supply' (Initiative 2.5). To progress this initiative, the Victorian Government committed to expediting social housing projects through the Fast Track Government Land Service and a four-year extension of the 'Streamlining for Growth' program, which aims to provide support and capacity building for councils in processing planning applications.<sup>22</sup>

A 2017 inquiry by the Parliament of Victoria into the Public Housing Renewal Program recommended the Minister for Planning consider 'the views of relevant local councils when making planning decisions regarding the Public Housing Renewal Program'.<sup>23</sup>

During the COVID-19 pandemic, the Victorian Government established a dedicated taskforce to help oversee fast-tracking of planning approvals.<sup>24</sup> Fast-track approvals have included social housing developments, such as a social housing development at Wilma Avenue in Dandenong.<sup>25</sup>

As part of the reforms to back the government's Big Housing Build program announced in November 2020, two amendments to the Victorian Planning Provisions (VC187 and VC190) were approved in December 2020 to fast track all affordable housing projects funded under the Big Housing Build program and those being delivered by or on behalf of the Director of Housing.<sup>26</sup>

#### Assessment: substantially complete

Infrastructure Victoria notes the intent of this recommendation has been met.

## Affordable housing plan (7.4.1, SCP)

Develop a statewide plan for the provision of affordable housing within 0-5 years so that a more comprehensive, coordinated approach is taken, bringing efficiency and certainty to the significant expenditure required. The plan should be led by an overarching affordable housing strategy that would outline the full range of interventions to be implemented to address the unmet requirement, in addition to the provision of affordable housing assets. The detail of the plan should provide targets for a pipeline of different affordable housing assets in locations across the state over 30 years and nominate government land provision and funding streams.

**Victorian Infrastructure Plan 2017:** Partly supported.

Government supports the need to increase investment in public housing asset management over the next 0-5 years. This will occur through the existing asset management program, the recently announced estate redevelopment program and the transfer of management responsibilities to the community housing sector.

The Victorian Government took a step towards a statewide plan for the provision of affordable housing in releasing the *Homes for Victorians* Plan in 2017. Under this plan, \$2.6 billion was committed to increase and renew public housing and address homelessness. Most of the initiatives in the *Homes for Victorians* plan were set within a two to four-year timeframe (with the notable exception of the \$1 billion Social Housing Growth Fund) and do not provide a medium to long-term strategy.<sup>27</sup>

Announced in November 2020, the Victorian Government's Big Housing Build program includes a commitment to develop a 10-year strategy for social and affordable housing with the not-for-profit sector and industry, supported by a rolling four-year supply and delivery plan.<sup>28</sup>

### Assessment: in progress

Infrastructure Victoria awaits completion of the Victorian Government 10-year strategy for social and affordable housing and continues to recommend a strategic approach to the development of affordable housing, and this is reflected in recommendation 68 - 'Set targets to grow social housing'.

## Affordable housing planning mechanisms (7.3.2, SAH, AHR)

Review planning provisions and implement inclusionary zoning and/or provide incentives to deliver affordable rental housing in areas that are appropriate for high and medium density housing and close to public transport and services within 0-5 years. Inclusionary zoning should be considered primarily for government land and in areas where government

is undertaking actions that will provide uplift to private land values (such as improved public transport access or land rezoning). Other incentivised planning provisions, such as floor area ratio bonuses, are appropriate for development on privately owned land. This work should be done in consultation with local government, the private sector and community housing organisations.

**Victorian Infrastructure Plan 2017:** Partly supported.

Government agrees with the intent of this recommendation; however it notes there are various ways for our planning system to support the delivery of affordable housing. Through *Homes for Victorians* there are a number of initiatives that will explore options to address this recommendation scheduled for implementation within two years.

The Victorian Government has made several commitments to reviewing planning provisions and implementing inclusionary zoning. These have primarily been made through the *Homes for Victorians* plan,<sup>29</sup> which aimed to increase and renew public housing and address homelessness.

Initiative 2.4 of the *Homes for Victorians* plan, 'Inclusionary housing to increase the supply of social and affordable housing', includes commitments to both: running an inclusionary pilot over three years to deliver up to 100 social housing dwellings on vacant government land in established suburbs; and adopting inclusionary housing in major developments over four years.<sup>30</sup> The Victorian Government also committed to fast-tracking the rezoning process through the Fast Track Government Land Service.<sup>31</sup>

The Department of Environment, Land, Water and Planning has developed a voluntary inclusionary zoning framework to facilitate the delivery of inclusionary zoning between local government and the private sector, known as affordable housing agreements.<sup>32</sup> While significant progress has been made in introducing a voluntary scheme and defining affordable housing in the Victoria Planning Provisions,<sup>33</sup> research by the Australian Housing and Urban Research Institute shows that outcomes for voluntary schemes relating to affordable supply outcomes are limited and unclear.<sup>34</sup>

In September 2019, the Minister for Planning established a Ministerial Advisory Committee to provide independent advice on possible models and options to facilitate the supply of affordable housing through the Victorian planning system. At the time of writing, the Committee's report had not been publicly released.<sup>35</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend planning mechanisms that better facilitate affordable housing in areas with good transport access and amenity, including through inclusionary zoning. This is reflected in recommendation 36 - 'Use value-capture mechanisms to deliver very low income housing'.



## Affordable housing provision (7.4.3, SHE, ARH)

**Significantly increase the provision of social housing and support investment by the private sector in the provision of affordable private rental housing over 0-30 years, with a strong response in the early part of this period to deal with significant unmet demand. The current shortfall in affordable housing for low-income households requires government to think differently and recognise dedicated affordable housing as key infrastructure. Increasing the supply of social housing is relatively straightforward: more state government investment leads to more housing. Increasing the supply of affordable private rental housing is more complex because it requires subsidisation or planning mechanisms to be introduced by the Victorian Government (as noted under Recommendation 7.3.2) or mechanisms to be adopted by the Commonwealth Government to attract private sector investment, given that state governments do not control the relevant financial levers.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government agrees with the intent of the recommendation and *Homes for Victorians* significantly boosts investment in social housing. Further consideration is required into the role of the private sector in the provision of affordable private rental, which can be considered through future monitoring and review to align with the 0-30 year timeframe of this recommendation.

The Victorian Government has made several significant commitments to providing social and affordable private rental housing since 2016. In its \$2.6 billion *Homes for Victorians* plan, released in 2017, the Victorian Government committed to:

- \ Running an inclusionary pilot over three years to deliver up to 100 social housing dwellings on vacant government land in established suburbs
- \ Adopting inclusionary housing in major developments over four years<sup>36</sup>
- \ A \$1 billion, new Social Housing Growth Fund' to support approximately 2200 additional households with social and affordable housing over five years through rental subsidies and the construction of dwellings on non-government land<sup>37</sup>
- \ A \$1 billion loan guarantee program to help housing associations reduce their financing costs
- \ A \$100 million revolving loan facility providing low cost long-term loans to housing associations
- \ Investigating a loan system for community housing organisations.<sup>38</sup>

In November 2020, the Victorian Government announced its \$5.3 billion Big Housing Build program.<sup>39</sup> This includes more than 9300 new social housing dwellings, \$300 million to upgrade existing public housing and 2900 new affordable and market homes for first home buyers and renters over the next four years. The accompanying reforms included creating Homes Victoria,<sup>40</sup> a new agency transforming the current governance model for social and affordable housing delivery; developing a 10-year social and affordable housing strategy with rolling four-year supply and delivery plans; developing a compact with local government; and fast-tracking planning processes for social and affordable housing developments.<sup>41</sup>

### Assessment: in progress

Infrastructure Victoria notes the considerable commitments made for the next four years and continues to recommend a focused effort in providing more social housing. This is reflected in recommendation 68 - 'Set targets to grow social housing'.

## Aged care facility approvals (3.4.1, UPA)

**Enable more aged care facilities to be provided in established areas by reviewing and removing planning and regulatory barriers for private and community sector aged care developments within 0-5 years. This will allow more people to age in their current neighbourhoods.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation and will address in the five-year *Plan Melbourne* implementation over the next two years.

The Victorian Government has taken demonstrable steps towards the removal of planning and regulatory barriers for aged care facilities. In 2016, the Managing Residential Development Advisory Committee recommended a range of measures to allow the development of residential aged care facilities within existing residential areas, such as building height exemptions.<sup>42</sup>

The 2017 *Plan Melbourne* Metropolitan Planning Strategy contained a range of measures to improve housing choice, including aged care facilities.<sup>43</sup> The Implementation Plan for *Plan Melbourne* required the development and implementation of a streamlined approvals process for specific housing types, such as aged care, which address local housing gaps.<sup>44</sup>

In 2019, following a review of aged care accommodation policy<sup>45</sup> by the Department of Environment, Land, Water and Planning, the Minister for Planning adopted draft Amendment VC152 to the Victoria Planning Provisions.<sup>46</sup> This amendment introduced a range

of changes, intended to facilitate well-designed residential aged care facilities without unreasonably impacting the amenity of adjoining buildings.<sup>47</sup> The most significant change was a new clause, 53.17, which updated planning requirements to allow residential aged care facilities to be of greater height (up to 16 metres tall), with taller buildings allowed in some areas, and which permitted structures to occupy a greater share of aged care sites. Other changes included amendments to vehicular and pedestrian access to recognise the particular needs of aged care residents, and adjustments to rules around overshadowing, building setbacks (from the street, side and rear), boundary walls, access to daylight for windows, noise impacts, and communal open space.<sup>48</sup>

#### Assessment: substantially complete

Infrastructure Victoria notes the intent of the recommendation has been met.

## Brown coal transition (18.2.1, BCL, BCA)

**Develop policy mechanisms within 0-5 years for innovation or exit of brown coal energy generation to provide clearer signals and certainty to industry and the community and contribute to reduction targets for greenhouse gas emissions. This would consider impacts on energy prices, infrastructure associated with energy security (such as changes to the grid) and transition assistance. Policy mechanisms that could be investigated include: environmental standards on coal generation licences; reverse auction process for coal generation, noting that adopting this mechanism is likely to require Victoria to play an advocacy role to national agencies as its implementation requires participation of other jurisdictions.**

**Victorian Infrastructure Plan 2017:** Subject to future consideration. The government is committed to supporting the transition of Latrobe Valley workers following the announcement of Hazelwood's closure. The Latrobe Valley Authority has been established to lead the government response and manage the transition and future economic development in this area.

The *Climate Change Act 2017* sets a target of net zero greenhouse gas emissions by 2050. It legislates a target for Victoria to achieve net zero greenhouse gas emissions by 2050. It also features rolling five-year targets, pledges to reduce emissions, and climate change adaptation plans, while obliging all government policies, plans and decisions to consider climate change.<sup>49</sup> In 2017, the Premier released a statement on the future of coal use in Victoria, sending a signal to industry about future development.<sup>50</sup> In addition, the Australian Energy Market Operator (AEMO) has undertaken extensive planning for the National Energy Market through the Integrated System Plan.<sup>51</sup> This includes recommendations for transmission investments to support the energy transition.

As part of improved planning, AEMO publishes electricity generators expected closure years which enhances transparency for energy security and emissions reduction planning. All of Victoria's brown coal generators are expected to close before 2050,<sup>52</sup> and the Victorian Government is working with EnergyAustralia to manage the transition for Yallourn power plant and its workers.<sup>53</sup> In May 2021, the Victorian Government released *Victoria's Climate Change Strategy*, interim reduction targets and sector pledges,<sup>54</sup> including commitments to source 50% of Victoria's electricity from renewable resources by 2030.<sup>55</sup>

#### Assessment: in progress

Infrastructure Victoria recommends continuing efforts in the energy transition for electricity, reflected in recommendation 3 - 'Augment electricity transmission for renewable energy and resilience', recommendation 4 - 'Identify and coordinate Renewable Energy Zones' and recommendation 12 - 'Strategically review climate consequences for infrastructure'.

## City Loop reconfiguration (10.10.1, CLR)

**Reconfigure the City Loop within the early part of 15-30 years to deliver a major capacity uplift to the Craigieburn and Upfield corridors and enable electrification to Wallan (see Recommendation 1.3.8/10.8.5). Further planning for the City Loop reconfiguration should focus on developing network plans that optimise the way people move around the network, given the project will significantly increase the level of passenger interchange. It should also minimise disruption to rail customers during construction, leveraging the capacity available shortly after completion of Melbourne Metro expected in 2025.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. As implementation is over 15-30 years, it will need to be considered as part of future budgets.

Since the release of the 2016 strategy, the Victorian Government has not announced any new funding for planning work to reconfigure the City Loop.

Although our 2016 recommendation was for full delivery over 15-30 years, considerable planning and technical work will be required ahead of time to maximise the benefit of the reconfiguration and minimise disruptions for travellers during construction. This work will need to start soon if the project is to be able to capitalise on the delivery of Melbourne Metro, which is now planned for 2025.<sup>56</sup> The window of opportunity to deliver the project will close as demand continues to increase, and the network may only temporarily have enough spare capacity to change train service patterns during construction.

Additionally, our modelling suggests the Craigieburn and Shepparton and Seymour lines will soon reach capacity. Increasing demand for services on these lines is being driven by the expansion of the northern growth corridor beyond Craigieburn to Donnybrook, Beveridge and Wallan, as well as urban intensification along the two rail lines.<sup>57</sup>

#### Assessment: not commenced

Infrastructure Victoria continues to recommend the City Loop be reconfigured to improve passenger rail services, and this is reflected in recommendation 60 - 'Reconfigure the City Loop for more frequent and reliable services'.

## Clyde rail extension (1.3.7, 10.8.4, CRE)

**Construct an extension of the Cranbourne rail line from Cranbourne to Clyde within 10-15 years to connect this designated growth precinct with the central city, including assessment of options to use alternative modes. This will provide better access to high growth areas in the south-east of Melbourne.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. As this recommendation is over 10-15 years, implementation will be considered as part of future budgets.

The Victorian Government has funded upgrades to the Cranbourne line with the objective of enabling services to run every 10 minutes and pave the way for a future rail extension to Clyde.<sup>58</sup> The project includes track upgrades, the removal of level crossings, and larger trains. The 2019-20 Victorian Budget outlines funding of \$750 million to plan and deliver the duplication of 8 kilometres of single track from Dandenong to Cranbourne,<sup>59</sup> without which the train line cannot be extended to Clyde.<sup>60</sup> It has not purchased all of the land needed for a rail extension and extra stations. The Victorian Government committed \$7 million to undertake vital planning work for Clyde Rail Link.<sup>61</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend increases to rail capacity to Melbourne's south-east, as well as other rapidly-growing areas in the city's north and west. This is reflected in recommendation 59 - 'Increase off-peak service frequencies and suburban rail corridor capacity' and recommendation 75 - 'Link outer suburbs to rail with 'next generation' buses'.

## Coastal protection infrastructure (19.1.4, CPI)

**Improve coastal protection infrastructure over 5-30 years, focusing on key locations proximate to the coast where assets of state importance are at risk from rising sea levels and extreme weather and tidal events. The first steps are for government to develop the ongoing technical capacity and expertise to monitor and collect data on the impacts of coastal hazards, develop a systematic approach to identifying priorities and provide advice to relevant infrastructure managers. Cost sharing arrangements should also be explored.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports increases in coastal protection infrastructure, as appropriate. As this recommendation is over 5-30 years, implementation will be considered as part of future budgets.

Since 2016, Victorian Government investments have been ad hoc and included \$4 million to monitor coastal flooding, erosion and land stability,<sup>62</sup> \$15 million to replace critical coastal protection assets,<sup>63</sup> \$7.2 million for coastal planning and management including maintaining assets such as beaches, groynes and seawalls,<sup>64</sup> and \$4.8 million to prepare the Barwon region for climate change, focusing on coastal infrastructure renewal.<sup>65</sup> The Victorian Government's Building Works stimulus package allocated \$11 million to coastal maintenance and erosion management projects,<sup>66</sup> and an extra \$15.9 million to safeguard marine and coastal environments in 2020-21.<sup>67</sup> In response to climate change, Infrastructure Victoria continues to recommend investing in coastal protection upgrades and maintenance, as well as developing clear guidance on coastal adaptation planning to support local area decision-making.

In a 2018 audit of coastal assets, the Victorian Auditor-General's Office (VAGO) found that government agencies are not managing coastal assets adequately to protect them from current and future hazards.<sup>68</sup> VAGO found a real risk of Victorians losing valued assets and infrastructure along the coast without adequate and more effectively targeted funding.<sup>69</sup>

The Victorian Government passed the *Marine and Coastal Act 2018*, which came into effect on 1 August 2018.<sup>70</sup> The Act provides a simpler, more integrated and coordinated approach to planning and managing the marine and coastal environment by:

- \ Enabling protection of the coastline and the ability to address the long-term challenges of climate change, population growth and ageing coastal structures
- \ Ensuring that partners work together to achieve the best outcomes for Victoria's marine and coastal environment.

The Victorian Government finalised a new *Marine and Coastal Policy* in early 2020. The policy provides guidance for decisions on coastal issues, including climate change, population growth and ageing coastal structures.<sup>71</sup>

#### Assessment: in progress

Infrastructure Victoria notes the considerable progress made to date and continues to recommend protective coastal infrastructure. This is reflected in recommendation 18 - 'Invest in protection and adaptation for Victoria's coasts'.

## Communications infrastructure (12.1.3, 19.1.2, ETP)

**Improve internet and mobile phone connectivity across Victoria, and particularly in major economic centres and rural and regional areas, over 0-10 years by using the Victorian Government's existing communications infrastructure base and significant purchasing power to maximise benefits from the NBN roll-out (and other Commonwealth initiatives) and ventures by private sector telecommunications providers. This would require a coordinated, partnership-based approach, with state government departments and agencies working with each other and with other levels of government and the private sector to identify and pursue opportunities to provide better services.**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports the recommendation and agrees that providing fast and reliable internet and mobile phone connectivity across Victoria is a priority, particularly in regional and rural areas.

Since 2018, the Victorian Government has made a number of investments in improved internet and mobile phone connectivity in regional areas, in partnership with the Australian Government and internet providers. These investments have included \$55 million in 193 new mobile towers to fix blackspots in regional areas, \$31.7 million in enhanced broadband demonstration projects and free public Wi-Fi in central Melbourne and selected regional areas, and \$18 million to fund mobile connectivity improvements along the Geelong, Ballarat, Bendigo, Traralgon and Seymour rail lines.<sup>72</sup> Pilots of free public Wi-Fi are being conducted in Melbourne, Bendigo, Ballarat, Shepparton and Geelong, while pilots of high quality business broadband are being conducted in Morwell, North Geelong and Horsham.<sup>73</sup>

Following the outbreak of COVID-19 significant funding was allocated for digital connectivity through the \$626 million Digital Future Now initiative. This included \$250 million to co-fund business-grade broadband connectivity for selected suburbs and regional towns, in conjunction with industry partners, and \$300 million to eradicate mobile blackspots in populated areas of regional Victoria (subject to a co-contribution from the Australian Government).<sup>74</sup>

The NBN's \$4.5 billion Network Investment Plan, funded by private debt, was approved by the Australian Government in 2020. It aims to bring high-speed broadband to more homes and businesses. This includes provision for NBN to work with state governments to identify areas for future investment.<sup>75</sup> The Australian Government's Regional Connectivity Program, which complements the roll-out of the NBN, will also support delivery of reliable and affordable digital services in regional Australia.<sup>76</sup>

#### Assessment: in progress

Infrastructure Victoria notes considerable plans for improving internet and mobile connectivity, particularly in regional areas. However, given the critical importance of digital connectivity, further highlighted by the COVID-19 pandemic, Infrastructure Victoria continues to recommend improving digital connectivity in regional areas. This is reflected in recommendation 84 - 'Address regional Victoria's digital connectivity gaps'. Continued co-investment in more resilient telecommunications infrastructure is advocated in recommendation 85 - 'Improve regional telecommunications infrastructure resilience'.

## Community cultural facilities (5.1.2, CCF)

**Develop a stronger evidence base and more transparent decision-making processes to support future state government investment in community cultural infrastructure within 0-5 years. This should include consideration of the condition and use of existing facilities, gaps in provision and demand forecasts, changing trends in participation and more integrated delivery models. Opportunities for integrating community cultural facilities with schools should be considered where schools are well located.**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports this recommendation as it aligns with *Plan Melbourne* and the government's creative industries strategy. Initial work is underway for a review of an assessment methodology that will inform future investments and grant allocations.

The Victorian Government has taken a number of steps towards more transparent investment process for community cultural infrastructure.

In 2016, *Creative State 2016-2020*, Victoria's first creative industries strategy, was launched. The strategy contained 40 targeted actions 'to grow the state's creative and cultural economy, provide opportunities for Victorians to embark on creative careers and enjoy creative experiences, and position Victoria as a globally recognised creative state'.<sup>77</sup> The next iteration of the creative industries strategy is due to be released in 2021.<sup>78</sup> Consultation on the new strategy finished in late 2019 and resulted in guiding principles reflecting a focus on diversity, Aboriginal Victoria and a holistic approach ('First Peoples first', 'Whole of state', 'Whole of ecosystem' and 'All voices welcome').<sup>79</sup>

In 2017, the Victorian Parliament passed the *Creative Victoria Act 2017*. This Act requires the Minister to promote, improve access to, and grow participation in, the arts and creative industries while assisting with the provision and display of artistic and creative industries' products.<sup>80</sup>

When designing schools, the Victorian School Building Authority (VSBA) is increasingly considering scope for shared facilities, including whether sports, arts, health and other facilities could be used by the local community outside of school hours. Such shared facilities offer benefits for newer communities, which have grown faster than community resources, and established areas, where existing facilities might be dated. *The Creative State Strategy 2020-2024* should help to guide investment in this sector.<sup>81</sup>

#### Assessment: in progress

Infrastructure Victoria notes considerable progress to date on this recommendation, and that continued improvements should continue to be delivered through the normal business of government.

## Community space refurb/rationalisation (1.5.5, 2.3.2, 5.4.2, CSR)

**Create an incentive fund with clear criteria to assist local government, service providers and community organisations to refurbish or rationalise community assets (such as kindergartens, sports facilities and parks) over 0-30 years to better meet the needs of the community, while ensuring financial sustainability. A reasonable level of funding would be required as an incentive, with local governments and other organisations placing bids to government on the basis of demonstrating a significant service gap, refurbishment requirements, resource constraints and efforts to divest surplus or ineffective assets.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, with the Growing Suburbs Fund providing funding to interface councils for refurbishment and expansion of community facilities. The Community Sport and Recreation Facilities Strategy will also help to guide investment in sport and recreation facilities. As this recommendation is for 0-30 years, future budget consideration will be needed to further investment.

The Victorian Government's actions on community space refurbishment and rationalisation have primarily been through the Growing Suburbs Fund and the Community Infrastructure Loans Scheme.

Since 2015, the Growing Suburbs Fund has been provided \$913.2 million<sup>82</sup> to support investments in local infrastructure within the fast-growing outer suburbs of Melbourne.<sup>83</sup> In 2020 the Victorian Government provided \$75.2 million and extended the fund to peri-urban councils,<sup>84</sup> with a further \$50 million announced in 2021.<sup>85</sup> The Victorian Government has described the Growing Suburbs Fund as a mechanism for prioritising communities that can demonstrate a service gap, need for refurbishment, constrained resources or a commitment to divest ineffective assets. However, the Fund appears to prioritise 'shovel-ready' local government projects that can be actioned immediately<sup>86</sup> rather than areas most in need and is not designed to deliver on Victorian Government portfolio outcomes.

Under the Victorian Government the Community Infrastructure Loans Scheme local governments can borrow sums from \$500,000 to \$10 million from the Treasury Corporation of Victoria at interest rates lower than are commercially available.<sup>87</sup> These loans can fund 100% of project costs and be used in conjunction with other assistance such as government grants.<sup>88</sup> Eligible projects include spaces such as community centres and hubs, multipurpose community facilities, kindergartens, and early learning facilities and parks.<sup>89</sup> Loans for upgrades have not been prioritised over the construction of new assets. In practice, the scheme prioritised local governments with shovel ready projects and expanding revenue bases – and thus most able to repay loans – over those without, which may exclude councils with a greater demonstrable need. This is problematic for rural councils, which are less likely to have a large revenue base, often struggle to afford the upgrades required to ensure their varied and geographically dispersed infrastructure is accessible, safe and able to support a range of services, and which can find it difficult to divest existing assets due to the limited potential for purchases or community opposition to asset sale.<sup>90</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend the Victorian Government support local councils to make the most of existing community infrastructure, including through refurbishment and rationalisation where appropriate. This is reflected in recommendation 89 - 'Update community infrastructure'.

## Community space shared use agreements (1.4.2, 2.3.1, 5.2.2, CSS1)

**Better support the sharing of state facilities by local government, service providers and community organisations by standardising shared use agreements and providing supporting tools and guidelines within 0-5 years. As a first step, there should be a review of the effectiveness of existing agreements and barriers to the use of these agreements.**



**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation but will need to give further consideration to its implementation through existing strategies and funding programs. Future funding may be required depending on the future implementation actions.

Sharing facilities, particularly school facilities remains important. In November 2020, the Victorian Government updated the policy for completing joint use proposals.<sup>91</sup>

#### Assessment: substantially complete

Infrastructure Victoria notes the intent of the recommendation has been met. Preparing joint use agreements with other facilities will remain important and is reflected in recommendation 88 - 'Deliver multipurpose shared social service facilities in the regions'.

## Community sport/recreation facilities (4.3.2, SRF)

**Develop a stronger evidence base and more transparent decision-making processes to support future state government investment in community sport and recreation infrastructure within 0-5 years. This should include consideration of the condition and use of existing facilities, gaps in provision and demand forecasts, changing trends in participation and more integrated delivery models. The focus should be on enabling the development of facilities that meet the needs of communities across multiple local government areas. Opportunities for integrating community sports facilities with schools should be considered where schools are well located.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation as it aligns with Active Victoria and will be fully addressed through the development of the Community Sport and Recreation Facility Strategy.

In 2017, the Victorian Government released *Active Victoria*, a strategic framework for sport and recreation. The framework recognises that high-level priorities include: meeting demand and increasing the capacity of sport and recreation infrastructure; broadening participation and making it more inclusive; a greater focus on active recreation; building system resilience and capacity; and better connecting investment in events, high performance and infrastructure.<sup>92</sup> These broadly align with the considerations listed in our recommendation. In 2021, *Active Victoria: a framework for sport and recreation* will be refreshed to reflect community attitudes and expectations, and respond to the impacts of COVID-19 including how these impacts might affect access to physical activity in the future.<sup>93</sup>

Since 2016, grants programs for local sport and recreation infrastructure have also become more informed by an evidence-based strategy which identifies local needs. The Local Sports and Infrastructure Fund as well as the Community Sports Infrastructure Stimulus Fund overseen by Sport and Recreation Victoria both have clear definitions for eligible applications, and stipulate outcomes to be achieved by successful grants.<sup>94</sup>

The Local Sports and Infrastructure Fund also encourages partnerships with schools to deliver shared sporting facilities on school sites.<sup>95</sup> This complements efforts by the Department of Education and Training to deliver competition-standard sports courts with new schools that can be shared with their surrounding communities.<sup>96</sup>

#### Assessment: substantially complete

Infrastructure Victoria notes the intent of the recommendation has been met. Infrastructure Victoria will continue to advocate for evidence based and regional service planning for the delivery of community sports infrastructure as demonstrated by Recommendation 73 - 'Fund libraries and aquatic centres in growth areas'.

## Community use of TAFE assets (9.4.2, TAF)

**Conduct an audit of TAFE assets to understand opportunities for shared community use of facilities within 0-5 years, including for community education providers to deliver courses on TAFE sites. Sharing these facilities with a wider range of groups would assist in maintaining the longer-term viability of these assets.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports conducting an audit of TAFE assets. Utilising these assets as community facilities will assist in maintaining the longer-term viability and increase the integration of TAFEs into their communities. Closer links between TAFEs and the community will also help improve the quality of services and education for communities.

Since 2016, the Victorian Government has established 10 'Tech Schools' in Ballarat, Banyule Nillumbik, Bendigo, Casey, Geelong, Gippsland, Monash, Whittlesea, Wyndham and the Yarra Ranges. These aim to provide innovative, problem-based education programs that give students practical experience with access to the latest technology and equipment.<sup>97</sup> Tech Schools are built on land belonging to Technical and Further Education (TAFE) institutions or university campuses to introduce school students to tertiary education, and use TAFE assets to offer subjects that would be otherwise unavailable at school.<sup>98</sup>

The Victorian Government is currently planning for a new library and learning hub in Warrnambool. The position of the new hub will be on located on the South West TAFE campus, demonstrating a partnership with local government, with the land asset on which the TAFE sits on belonging to the Victorian Government.<sup>99</sup>

While the Victorian Auditor-General's Office undertakes annual financial audits of TAFE institutes,<sup>100</sup> Infrastructure Victoria is not aware of the existence of any audit of TAFE assets by the Victorian Government to understand opportunities for shared community use of facilities.

#### Assessment: in progress

Infrastructure Victoria continues to recommend the organisation and support of shared facilities by the Victorian Government, and this is reflected in recommendation 88 - 'Deliver multipurpose shared social service facilities in the regions'.

## Courts in high growth areas (8.1.2, JDG)

**Deliver new or refurbished courts and tribunals into a number of high growth metropolitan Melbourne areas and regional centres over 0-15 years. The immediate priorities are Wyndham, Dandenong and Bendigo. These should be delivered in most instances as integrated facilities (see Recommendation 8.1.1).**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, with current investments directed to priority areas. Further budget consideration will be required to implement the full scope of this recommendation over the next 15 years.

Since the release of the 2016 strategy, the Victorian Government has provided funding for planning and land acquisition at the Werribee and the Bendigo law courts. A further \$166.2 million for the Bendigo Law Courts was provided in the 2019-20 Victorian Budget,<sup>101</sup> and \$272 million was provided for the new Wyndham Law Court, which will be part of a future Wyndham justice precinct that will also include a new police station.

No announcements have been made regarding the Dandenong law court.

Specialist Family Violence Courts have been opened in Ballarat, Shepparton and Moorabbin, with Frankston and Heidelberg due to commence operations this year.<sup>102</sup> Courts Services Victoria recently released an updated version of its *Strategic Asset Plan* that sets out Victoria's future court infrastructure needs.<sup>103</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend a modernised, flexible court system, to deal with increased demand, and this is reflected in recommendation 26 - 'Modernise courts through digitisation and contemporary shared facilities'.

## Courts in Melbourne's CBD (8.3.4, JLP)

**Address growing demand pressures on courts in the CBD legal precinct by delivering a program of development and refurbishment over 15-30 years that enables court and tribunal buildings in the precinct to be used as multi-jurisdictional facilities focused on either criminal or civil matters that can hear VCAT and Children's, Magistrates', County and Supreme Court matters. In the interim, opportunities to optimise the use of existing facilities should be pursued, such as reviewing operating hours.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation and will consider options to make best use of existing facilities in the next five years. As this recommendation is over 15-30 years, further investment will be considered with future budgets and the investment priorities identified through the Court Services Victoria Strategic Asset Plan.

Although implementation of this recommendation was not due to begin until 2031, improvement to the Melbourne court system has begun. Funding has been announced for upgraded ICT at the Supreme Court and security upgrades for the Melbourne Magistrates' Court and the Melbourne Children's Court.<sup>104</sup>

Responding to the COVID-19 pandemic, the Magistrates' Court moved to allow the limited use of remote testimony for filing hearings where the accused is on summons or bail. In these circumstances, the accused is not required to attend, provided their legal representative attends.<sup>105</sup> VCAT accelerated upgrades to allow remote hearings, including project management software, software programmers, software licences, information technology hardware and digitisation and scanning of paper files.<sup>106</sup> In 2020-21, the Victorian Government allocated \$20.7 million to support courts to operate effectively and efficiently during the pandemic, including through upgrading audio visual and other technology at the County Court and a program to increase the capacity of the Magistrates' Court to hear matters remotely. In 2021-22, the Victorian Government allocated \$12.2 million for County Court accommodation and renewal, \$10.2 million for the Online Magistrates' Court and \$29 million for the Victorian Civil and Administrative Tribunal digital service transformation.<sup>107</sup>

A new Bail and Remand Court has also been established, with operation commencing in May 2018.<sup>108</sup>

Courts Services Victoria recently released an updated version of its *Strategic Asset Plan* that sets out Victoria's future court infrastructure needs.<sup>109</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend investments which alleviate demand pressures on Melbourne's courts. This is reflected in recommendation 26 - 'Modernise courts through digitisation and contemporary shared facilities'.

## Courts maintenance (8.3.2, CMD)

**Address a backlog in maintenance for high-demand courts over 0-15 years to enable safer and more accessible environments, improve functionality and drive efficiencies of existing courts and tribunals.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation as it aligns with the Court Services Victoria Strategic Asset Plan. While some progress will be made, as this recommendation is over 0-15 years, further investment will be considered with future budgets.

The Victorian Government and Court Services Victoria have developed a strategy to ensure that Victorian Magistrates' Court headquarter courts meet safety, security, privacy and access standards.<sup>110</sup> These initiatives will provide safe waiting areas, proper security staffing and equipment, remote witness facilities, as well as accessibility and usability improvements.<sup>111</sup>

The delivery of five specialist Family Violence Courts, at Shepparton, Frankston, Ballarat, Heidelberg and Moorabbin, required the facilities at these locations to undergo upgrades. Shepparton, Ballarat and Moorabbin are now operating, with Frankston and Heidelberg due to commence operations this year.<sup>112</sup>

As covered previously, significant investments are also being made in the expansion and refurbishment of the Bendigo and Shepparton law courts. Other projects to improve security at courts across Victoria are currently underway.<sup>113</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend a modernised, flexible court system, which can deal with increased demand, and this is reflected in recommendation 26 - 'Modernise courts through digitisation and contemporary shared facilities'.

## Crisis accommodation and supportive housing (7.4.2, CHP, TSA)

**Continue to expand access to crisis accommodation and supportive housing responses within 0-5 years. An increase in short-term housing is required for highly vulnerable Victorians, particularly people experiencing homelessness, households escaping family violence, people exiting prison and young people without independent living skills. The effectiveness of this approach is highly dependent on there being an increased supply of housing for people to transition into for the longer term.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation and will meet expected demand over the next 4-5 years, noting that continual monitoring of future demand should occur.

The Victorian Government has made several commitments to expanding crisis accommodation and supportive responses through the 2017 *Homes for Victorians* plan.<sup>114</sup> Under Initiative 5 of that plan, the Victorian Government recognised the need to improve housing services for people in need. It stated it would work to assist 19,000 homeless Victorians to stable housing through the investment of \$109 million over five years in leasing support, crisis accommodation and support services (Initiative 5.1).<sup>115</sup> The government also announced it would spend \$10 million over two years to provide accommodation and support services to those sleeping rough in the City of Melbourne (Initiative 5.2),<sup>116</sup> and \$152 million over three years to support people facing family violence with 300 new social housing properties, redeveloped refuges, private rental assistance and support services (Initiative 5.3)<sup>117</sup>. The *Homes for Victorians* plan also included \$30 million to upgrade rooming houses and facilities in the community housing sector (Initiative 5.4).<sup>118</sup>

In addition, the Victorian Government released the Rough Sleeping Action Plan in 2018.<sup>119</sup> The plan included funding for assertive outreach, multidisciplinary teams to deliver individualised ongoing case management, as well as extra funds for supportive housing and crisis accommodation.<sup>120</sup>

The COVID-19 pandemic has boosted investment in homelessness services. In early 2020, the Victorian Government provided extra funding to homeless agencies to help ensure people experiencing homelessness had secure accommodation to stay safe during the pandemic,<sup>121</sup> and repurposed aged care sites to provide self-isolation facilities for Victorians experiencing homelessness.<sup>122</sup> This was followed by an extension of Housing Establishment Funding to continue providing temporary accommodation,<sup>123</sup> and further support to help find more permanent housing to those using temporary accommodation during the crisis.<sup>124</sup>

While these initiatives assist, there remains a significant shortfall in social and affordable housing. The private market has not supplied the kind of housing required to support Victoria's most vulnerable people, and the Victorian Government has not delivered enough social housing to meet current and projected need.

### Assessment: substantially complete

Infrastructure Victoria continues to recommend that more housing – and particularly social housing – is provided to support vulnerable people. This is reflected in recommendation 68 - 'Set targets to grow social housing'.

## Critical infrastructure contingency planning (19.2.1, CSB)

**Introduce regulatory and contractual requirements for public and private operators of critical infrastructure to develop and maintain adequate contingency plans for the delivery of essential services in the event of major disruptions, particularly ICT failures, within 0-5 years.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation with the establishment of the Victoria State Emergency Services headquarters and critical assets to be addressed in the next four years. Further consideration is required in future budgets to address this recommendation in full.

Since the publication of the 2016 strategy, the Victorian Government has addressed the requirements of this recommendation. This has been achieved with the development of Victoria's first *Cyber Security Strategy*.<sup>125</sup> In 2021-22 the Victorian Government continued to support Victoria's program to protect public services from cyber-attacks with funding of \$50.8 million.<sup>126</sup> Emergency Management Victoria has updated its *Critical Infrastructure All Sectors Resilience* report, releasing a new framework in 2018 which seeks to continually strengthen critical infrastructure resilience and limit significant disruption to essential services.<sup>127</sup> The Inspector-General of Emergency Management has transitioned from monitoring and implementation of the critical infrastructure resilience arrangements to assessing their efficiency and effectiveness.<sup>128</sup>

In 2021, the Australian Government allocated \$90 million to support Emergency Management Australia to improve national disaster preparedness and response, including through closer cooperation with the states and territories.<sup>129</sup> The Australian Government's \$107.2 million Supply Chain Resilience Initiative aims to ensure supply in the event of future shocks.<sup>130</sup> A further \$98.8 million was allocated in 2021 to establish an Office of Supply Chain Resilience, to provide ongoing capacity to monitor and coordinate efforts to boost supply chain resilience.<sup>131</sup>

#### Assessment: substantially complete

Infrastructure Victoria continues to recommend contingency planning for critical infrastructure, and this is reflected in recommendation 20 - 'Improve critical infrastructure information flows and embed resilience'.

## Critical infrastructure control systems (19.1.1, ECS)

Ensure security of control systems for critical infrastructure is continually strengthened to meet best-practice standards through regulatory change and contractual agreements within 0-5 years.

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation and has developed a *Cyber Security Strategy*. The rolling program of work commenced in July 2017, with the full scope subject to future budget processes.

The Victorian Government has released a 23-point plan to improve cyber resilience and governance in government, major infrastructure and service providers.<sup>132</sup> The Victorian *Government Cyber Security Strategy 2016-2020* appoints a Chief Information Security Officer to oversee the response to cyber threats and coordinate government action; develop cyber emergency governance arrangements; strengthen intelligence sharing and insights across government and the private sector; improve the coordination of procurement of cyber security services; build public sector cyber security skills and present quarterly cyber security briefings to the Victorian Secretaries Board and the State Crisis and Resilience Committee.<sup>133</sup>

The Cyber Security Strategy intends to develop best practice and coordination across government.<sup>134</sup>

#### Assessment: in progress

Infrastructure Victoria notes considerable progress to date on this recommendation, and that continued improvements should continue to be delivered through the normal business of government.

## Cycling corridors/walking improvements (4.1.3, 10.3.2, BWP2, BWP3, BHT)

**Finalise and accelerate investment in the roll-out of Victoria's Strategic Cycling Corridors and identified walking network improvements for completion within 0-15 years, working closely with local government. The immediate first step is to deliver improvements on state government roads and land and in other significant locations (such as the central subregion of Melbourne). An accelerated roll-out beyond current funding commitments should include: expanding walking and cycling networks, including to address missing links, improving standards for existing walking and cycling networks, in particular the separation of walking and cycling paths and also from other road users, identifying and prioritising locations where grade-separated bicycle highways in the central city could facilitate safer and more direct access into and across central Melbourne.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, and full implementation over 0-15 years will be considered as part of future budgets.

In 2018, the Victorian Government released the *Victorian Cycling Strategy 2018-2028* to guide planning and investment to promote cycling as a mode of travel. The strategy emphasises the need to invest in a better connected network, prioritise strategic cycling corridors and update guidelines for these corridors.<sup>135</sup> To support the strategy and 'provide a lower-stress cycling experience', the Victorian Government committed \$22.7 million for 12 projects to make the roads safer for cyclists and pedestrians.<sup>136</sup>

In 2019, the Victorian Government allocated \$15 million for a package of upgrades under its 'Walking and cycling upgrades – Stage 2' program. Upgrades were planned to be delivered by 2022, and include: investigation and planning for a Strategic Cycling Corridor between Box Hill and Hawthorn; bike path upgrades at Woodland Street, Strathmore; bike path upgrades between Heidelberg and Rosanna railway stations; pedestrian infrastructure upgrades at the intersection of Bayview Terrace and Maribyrnong Road; and pedestrian infrastructure upgrades at the intersection of Hoffmans Road and Rosehill Road.<sup>137</sup>

An additional \$27.3 million was committed to fund a new layout for St Kilda Road that provides a separated lane and physical barriers to better protect cyclists.<sup>138</sup>

Every major new Victorian transport project is now required to include new or upgraded infrastructure to support pedestrians and cyclists. Examples of improvements delivered include: 35 kilometres of new or upgraded walking and cycling paths under the North East Link Project; 43 kilometres of new cycling and walking paths under the Level Crossing Removal Project, as well as additional bicycle parking at railway stations; 14 kilometres of paths under the West Gate Tunnel Project, and shared paths to complement the Western Roads Upgrade.<sup>139</sup>

Upgrades to walking and cycling infrastructure are also being funded under the Transport Accident Commission's Safer Cyclists and Pedestrians fund, including: a shared user path from Morwell to Traralgon that also includes a connection to the Latrobe Regional Hospital; two cycling connections from Herne Hill and Waurn Ponds to the Geelong CBD; a network of walking and cycling connections across Ballarat; and a cycling corridor from Preston to central Melbourne.<sup>140</sup> In 2020-21, the Victorian Government provided \$63 million statewide for a School and Community Safety program, which includes new and enhanced pedestrian crossings, regional intersection upgrades, development funding for a shared path as part of the Hurstbridge line works, and temporary walking and cycling infrastructure. It is delivering pop-up lanes to improve travel options from inner Melbourne areas such as Footscray, Northcote and St Kilda. The Heidelberg Road pop up lane was installed in December 2020 and is currently recording over 5000 cyclists per week.<sup>141</sup>

The *Victorian Cycling Strategy*, ad hoc initiatives and requirement for major transport projects to include active transport infrastructure are welcome, but there remains significant room for improvement. The Victorian Government is yet to publish a network plan that identifies and prioritises strategic cycling corridors and commits to a seamless network of low stress cycling corridors. Despite a number of significant long-distance connections being completed in recent years, such as the Djerring Trail, there remains no firm and consistent policy commitment to implementation of Strategic Cycling Corridors as part of major transport investments.

### Assessment: in progress

Infrastructure Victoria continues to recommend the improvement of cycling corridors and pedestrian networks as part of a more strategic approach to meeting Victoria's future transport needs. This is reflected in recommendation 33 - 'Publish Victoria's transport plan', recommendation 38 - 'Partner with local governments to fund pedestrian infrastructure', and recommendation 39 - 'Transform cycling in Melbourne, Ballarat, Bendigo and Geelong'.

## Cycling end-of-trip facilities (4.1.1, ALR)

**Increase the provision and improve the standards of end-of-trip cycling facilities by reviewing and updating prescribed rates and design requirements in the planning system (clause 52.34) within 0-5 years to better reflect current and projected demand across the state and particularly in high demand areas such central Melbourne.**

Victorian Infrastructure Plan 2017: Supported. Government supports this recommendation. Changes to the planning system will be undertaken within 0-5 years, subject to an analysis process and alignment with Victoria's Cycling Strategy, currently in development.

In 2018, the Victorian Government released the *Victorian Cycling Strategy 2018-2028* to guide planning and investment to promote cycling as a mode of travel. The strategy emphasises the need to invest in a safer, better-connected network, prioritise strategic cycling corridors and update guidelines for strategic cycling corridors.<sup>142</sup>

Consultations for the 2016 strategy found amendments to the Victoria Planning Provisions (VPP) were needed to achieve the goals of the *Victorian Cycling Strategy*. The strategy stated the VPP should be updated to align the need for high-quality cycling infrastructure and requirements for new developments. As cycling participation increases, the VPP will need to ensure there are adequate end-of-trip facilities in workplaces and residential developments. The updated VPP will also provide useful guidance about best practice provision of end-of-trip facilities.

In the *Victorian Cycling Strategy*, the Victorian Government committed to amending the VPP to recognise strategic cycling corridors and improve the provision of cycling infrastructure in new developments. It also recognised the need to work with local government to review the VPP (particularly Clause 52.34 'Bicycle facilities') to enable more, and higher quality, bicycle parking and end-of-trip facilities, particularly in high-demand areas.<sup>143</sup>

### Assessment: not commenced

Infrastructure Victoria continues to recommend the improvement of cycling infrastructure, including through better alignment with land use planning. This is reflected in recommendation 33 - 'Publish Victoria's transport plan' and recommendation 39 - 'Transform cycling in Melbourne, Ballarat, Bendigo and Geelong'.



## Cycling/walking data (4.1.2, 10.3.1, BWP1)

**Improve and standardise walking and cycling data capture and analysis across the state, including expanding the network of bike counters and leveraging smart phone technology, within 0-5 years. This will enable the development of high-quality investment proposals and better promotion of walking and cycling, including by providing information on route choice.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, subject to finalisation of the Victorian Cycling Strategy, currently in development. Any potential capital works associated with this recommendation will be considered as part of future budgets.

In 2018, the Victorian Government released the *Victorian Cycling Strategy 2018-2028* to guide planning and investment to promote cycling as a mode of travel. The strategy emphasises the need to invest in a safer, better-connected network, including prioritising investment in strategic cycling corridors and updated design guidance for strategic cycling corridors.<sup>144</sup> The *Victorian Cycling Strategy* notes that while road and rail networks have 'built-in technology that enables the real-time collection of data about how the networks are performing', this is not the case for bicycle networks.<sup>145</sup>

Since 2016, the Department of Transport has completed several small-scale trials to collect active transport data, including one in 2019 that trialled technology that counts pedestrians and on-road bicycle riders. The trial recommended high-performing technology to be purchased and installed. In 2018, the Department of Transport provided access to bicycle count and speed data collected from 43 (mainly off-road) locations through the Bicycle Counter Power BI platform. The data was made available online.<sup>146</sup>

Cycling counters are now routinely installed when major expansions of the cycling network are constructed (for example, Ringwood to Box Hill, Darebin Bridge Project). However, there has been no expansion to the network of cycling counters on existing parts of the network to date, and no attempt to improve and standardise data collection across the state.

### Assessment: not commenced

Infrastructure Victoria continues to recommend improving the collection of cycling and walking data to inform planning and design, and this is reflected in recommendation 40 - 'Improve walking and cycling data to better estimate travel, health and safety impacts and benefits'.

## Cycling/walking in established areas (4.2.1, AEA)

**Run three pilots in Melbourne and two pilots in regional Victoria to retrofit walking and cycling facilities in established suburbs with high levels of car dependence (such as Sunbury) within 0-5 years. Evaluation of these pilots would inform whether the initiative should be rolled out more broadly over the coming decades. A more extensive program could support the delivery of the '20-minute neighbourhoods' concept championed through *Plan Melbourne*.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, subject to further investigation, finalisation of Victoria's Cycling Strategy and future budget consideration.

Released in 2017, the Victorian Government's metropolitan planning strategy, *Plan Melbourne*, is guided by the principle of '20-minute neighbourhoods'. This is the concept of planning to provide people the ability to meet most of their daily needs within a 20-minute walk from home (roughly 800 metres), as well as access to safe cycling and local public transport.<sup>147</sup> In January 2018, the Victorian Government launched the '20-Minute Neighbourhood Pilot Program' to test practical delivery in Melbourne; Stage 1 of the program focused on existing suburbs, namely Strathmore, Croydon South and Sunshine West;<sup>148</sup> while Stage 2 focused on greenfield neighbourhoods and was overseen by Monash University and the Royal Melbourne Institute of Technology.<sup>149</sup> This research has led to the publication of a number of reports online, and will support the Victorian Government's review of the Precinct Structure Plan Guidelines.<sup>150</sup>

In 2018, the Victorian Government released the *Victorian Cycling Strategy 2018-2028* to guide planning and investment to promote cycling as a mode of travel. The strategy emphasises the need to invest in a safer, better-connected network, prioritise strategic cycling corridors and update guidelines for strategic cycling corridors.<sup>151</sup> The Victorian Government is also investing in cycle networks through the Safer Cyclists and Pedestrians Fund and as part of major new transport projects (see 'Cycling corridors/walking improvements').

Infrastructure Victoria notes the walking and cycling pilots undertaken in Melbourne as part of the 20-minute neighbourhood pilot,<sup>152</sup> the \$13 million COVID-19 investment for pop up cycling lanes announced in October 2020,<sup>153</sup> and the Transport Accident Commission's Local Government Grants program and Safer Cyclists and Pedestrian Fund.<sup>154</sup> Infrastructure Victoria is not aware of dedicated program funding to support active transport infrastructure retrofits as part of the 20-minute neighbourhood concept.

### Assessment: in progress

The pop up lane investment represents progress towards this recommendation. There is a need to accelerate the pace of the roll out to capitalise on travel behaviour changes triggered by the pandemic and provide a sufficient evidence base to fully evaluate the pilot, as articulated in this recommendation. Infrastructure Victoria continues to recommend improving walking and cycling facilities around Victoria, and this is reflected in recommendation 38 - 'Partner with local governments to fund pedestrian infrastructure' and recommendation 39 - 'Transform cycling in Melbourne, Ballarat, Bendigo and Geelong'.

## Development in established areas (1.1.1, 10.1.1, UDC)

**Intensify medium density housing development in established areas of Melbourne and regional cities, such as Geelong, Ballarat and Bendigo, that are already well serviced with infrastructure by amending planning schemes within 0-5 years. This should focus initially on Melbourne's inner and middle ring eastern and southern suburbs, in particular within walkable catchments for train stations on the Lilydale, Belgrave, Glen Waverley, Alamein, Frankston, Sandringham, Pakenham and Cranbourne lines, as these train lines are expected to experience fewer capacity constraints over the next 30 years. Investigations to better understand the capacity of the tram network should also commence, with a view to intensifying housing along tram corridors. This reform will require greater state government leadership, working in partnership with local government, to identify opportunities for densification in established areas and any supporting infrastructure priorities.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government supports these recommendations (with 1.1.2/10.1/11.1.1) in part; however it will broaden its focus to encourage development in areas identified for growth more broadly across Melbourne and regional cities to align with the vision of *Plan Melbourne*. The pipeline of infrastructure provision outlined throughout this plan further supports development in established areas and in/around employment centres.

The Victorian Government has sought to address this recommendation through a metropolitan-wide approach, rather than focusing on specific areas in the inner and middle suburbs, or on transport corridors. *Plan Melbourne 2017-2050* calls for 70% of new dwellings to be built in established areas, and policies for housing in urban renewal precincts, activity centres and areas with good access to jobs, services and public transport.<sup>155</sup>

The *Plan Melbourne* Implementation Plan and 2019 Progress Report advance these objectives by including Land Use Framework Plans to identify precincts and activity centres for: medium and higher density development; transit-oriented development opportunities; a pipeline of urban renewal projects for mixed use neighbourhoods; metropolitan regional housing plans for identifying medium and high density housing locations; and review residential development provisions to increase the supply of housing in established area.<sup>156</sup> The Land Use Framework Plans are expected in 2021.<sup>157</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend considered, appropriate development in established areas to make the best use of existing infrastructure and allow increased housing density. This is reflected in recommendation 35 - 'Support more homes in priority established places'.

## Development in/around employment centres (1.1.2, 10.1.2, 11.1.1, STO)

**Intensify medium to high density housing, services and commercial development in and around employment centres by amending planning schemes within 0-5 years. Areas for consideration should include National Employment and Innovation Clusters (NEICs) such as La Trobe, Monash and Sunshine, Melbourne's Metropolitan Activity Centres (MACs), and major regional employment centres, as well as the transport corridors that feed them. This reform will require greater state government leadership, working in partnership with local government, to identify opportunities for more densification around employment centres and any supporting infrastructure priorities.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government supports these recommendations (with 1.1.2/10.1/11.1.1) in part; however it will broaden its focus to encourage development in areas identified for growth more broadly across Melbourne and regional cities to align with the vision of *Plan Melbourne*. The pipeline of infrastructure provision outlined throughout this plan further supports development in established areas and in/around employment centres.

The Victorian Government's *Plan Melbourne 2017-2050* strategy has, as a core principle, the desire to become a globally connected and competitive city. *Plan Melbourne* says this can be achieved by delivering infrastructure to support competitive advantages, in business services, health, education, manufacturing and tourism, and enhance employment, research, retail, cultural and sporting precincts.<sup>158</sup> *Plan Melbourne* also identifies: seven National employment and Innovation Clusters, 11 metropolitan activity centres, five industrial precincts, 11 transport gateways, 10 major urban renewal precincts, and a range of health and education precincts as places of state

significance for planning, investment and growth.<sup>159</sup> Since the release of *Plan Melbourne*, the Victorian Government has committed to the Suburban Rail Loop. The broad alignment and, stage one precinct locations are now confirmed to include new underground stations at Cheltenham, Clayton, Monash, Glen Waverley, Burwood and Box Hill. These locations will be important destinations for employment, housing, services and commercial development.<sup>160</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend higher density development in established areas, including employment and activity centres. This is reflected in recommendation 35 - 'Support more homes in priority established places'.

## Dispute resolution technology (8.2.2, 12.1.2, JSD)

**Support the introduction of technology that facilitates online dispute resolution by the private sector, government and the legal assistance sector over 0-5 years, including by removing any identified barriers to greater private sector participation and effective implementation. This is aimed at improving access to justice and enabling case load to be diverted from courts, in particular the Magistrates' Court.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation and will determine investment requirements for its implementation once the Access to Justice Review is complete in 2017.

From September 2018, the Victorian Civil and Administrative Tribunal (VCAT) conducted a pilot program to test whether online dispute resolution could improve access to justice for those involved in goods and services disputes below the value of \$10,000. Through the pilot, VCAT heard 65 cases, and 71 parties participated in online hearings.<sup>161</sup> VCAT found online dispute resolution offered a fast, cost-effective option for people with civil disputes, and its polling found almost three quarters of those polled would be interested in using online services.<sup>162</sup> VCAT subsequently increased its use of teleconferencing.<sup>163</sup>

The adoption of digital technologies by VCAT and the courts accelerated to meet demand on Victoria's justice system during the COVID-19 pandemic.

In 2020, the Victorian Government provided VCAT additional funding to upgrade its information technology to allow video conferencing, enabling it to hear important planning and other matters remotely. VCAT was also provided to undertake a Digital Transformation Project.<sup>164</sup>

Courts have made significantly greater use of technology to operate,<sup>165</sup> and have used remote testimony to reduce the number of attendances required for filing hearings.<sup>166</sup> The Supreme, County and Magistrates' courts heard hundreds of matters a month using audio visual links, with the Magistrates' Court hearing over 200 matters online in just one day in May 2020.<sup>167</sup>

Reliance on videoconferencing has varied across the justice system<sup>168</sup> and the COVID-19 pandemic delayed a significant number of matters before the courts even as it accelerated the rate of technology upgrades. There are now major backlogs, particularly for complex and criminal proceedings.<sup>169</sup> At the County Court, the time it takes cases to get to jury trial has almost doubled, from 12 to 13 months before the pandemic to up to 24 months.<sup>170</sup> To inform the future use of technology by courts, the Parliamentary inquiry into the Victorian Government's response to the COVID-19 pandemic recommended Court Services Victoria consider publishing information on how each court used technology during the pandemic.<sup>171</sup>

In early 2021, the Victorian Government passed legislation to enable courts to hear a wider range of matters via audio visual link and without in-person hearings. This legislation, the *Justice Legislation Amendment (System Enhancements and Other Matters) Act 2021*, also provides a legal framework for the electronic signing and remote witnessing of important legal documents, and continues measures introduced during the pandemic to streamline arrangements for serving documents, enabling remote attendance and examinations, and electronically inspecting documents.<sup>172</sup>

Significant obstacles to widespread adoption of online dispute resolution remain, including inflexible, outdated buildings and systems – particularly in the legal precinct in Melbourne's CBD.<sup>173</sup> Some investments are being made to help address such infrastructure constraints – for example, the new Bendigo Law Court, due to be delivered in late 2022, will be enabled for digital evidence, video conferencing, Wi-Fi, and digital recording.<sup>174</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend investments in dispute resolution technology and this is reflected in recommendation 26 - 'Modernise courts through digitisation and contemporary shared facilities'.

## Doncaster bus system (10.6.4, DBI)

**Upgrade the existing Doncaster Area Rapid Transit (DART) bus system within 5-10 years to support increased demand and improve the reliability of services. The roll-out should incorporate the latest technology and support infrastructure required for a modern bus rapid transit system, such as traffic signal priority, dedicated lanes and upgraded boarding facilities.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government agrees with the intent of improving the existing bus system, but as the recommendation is over 5-10 years further investment will be considered as part of future budgets.

The Victorian Government is delivering the Doncaster busway as part of the North East Link road project.<sup>175</sup> The busway project will deliver separate bus lanes along the Eastern Freeway, from Doncaster toward Melbourne. The project will upgrade the Doncaster park and ride, and deliver a new park and ride at Bulleen. Doncaster and Bulleen will both have additional bus platforms, multilevel parking, drop-off and collection areas, pedestrian and cycling access, cycling cages, lighting and toilets.<sup>176</sup>

#### Assessment: substantially complete

Infrastructure Victoria notes the intent of the recommendation has been met.

## Driver assistance applications (10.7.2, 13.2.3, ADA)

**Introduce regulatory changes, where needed, to enable the testing of advanced driver assistance applications over 0-15 years, with a view to deployment when technology is proven, commercially available and approved by national vehicle standards. Advanced driver assistance systems will provide drivers with real-time information about the road environment, such as warnings, to improve safety and create more efficient traffic flow.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports the testing of driver assistance applications and is working with national bodies to amend regulations to enable testing.

In October 2018, and at the request of the Victorian Government, Infrastructure Victoria published its *Advice on automated and zero emissions vehicles infrastructure*. This advice found a combination of advanced driver assistance systems could deliver a significant proportion of the benefits of automated vehicles.<sup>177</sup> The 17 recommendations set out in the advice report, including that the Victorian Government continue to participate in the development of national and international principles, standards and regulations for increasingly autonomous vehicles, are reflected in this strategy.<sup>178</sup>

This advice built on recent legislative reforms to support the safe trialling of increasingly advanced driver assistance and autonomous technologies. In February 2018, the *Victorian Road Safety Amendment (Automated Vehicles) Act 2018* came into effect, amending the *Road Safety Act 1986* to enable a permit scheme for the trialling of automated vehicles on Victorian roads.<sup>179</sup> This laid the groundwork for an 'Automated Driving System' (ADS) permit scheme, under which people wanting to trial a vehicle in automated mode on Victorian roads could apply for a permit.<sup>180</sup>

#### Assessment: in progress

While Infrastructure Victoria notes progress to date, further regulatory and other changes will be required to enable the safe and smooth introduction of increasingly advanced driver assistance and vehicle technologies. This is reflected in recommendation 21 - 'Prepare for increasingly automated vehicle fleets'.

## Driverless freight vehicles (13.2.2, DFV)

**Remove regulatory barriers to enable the testing and deployment of freight vehicle platooning (trucks travelling in close proximity linked by technology and with minimal drivers) within 0-15 years. This could improve traffic flow, reduce fuel consumption, increase productivity and improve the carrying capacity of roadways. Further research and consultation will be required to develop a national approach to maximising the benefits of freight vehicle platooning.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government supports the intent of this recommendation. Government is working closely with national regulators to enable testing of increased freight vehicle automation. Deployment of this technology is dependent on the results of these tests, and the suitability of current infrastructure.

The Victorian freight plan, *Delivering the Goods*, was released in 2018 and sets out short, medium and long-term priorities for the freight and logistics system. The plan identifies autonomous or automated vehicles as one of the new technologies that have the potential to change every aspect of transport and logistics. *Delivering the Goods* notes driverless vehicles (trucks and trains) will potentially reduce (or change) the freight sector's need for labour, enable automated delivery networks and improve safety and efficiency on our transport networks.<sup>181</sup>

The National Transport Commission (NTC) is leading work on establishing Australia-wide regulations for automated vehicles.

In 2017, in partnership with Austroads, the NTC released the *Guidelines for trials of automated vehicles in Australia* to support national consistent conditions for automated vehicle trials.<sup>182</sup> In May 2020, it published a discussion paper to support a review of these guidelines. This paper noted Victoria had enacted legislation to enable trials<sup>183</sup> and developed trial guidelines, and that heavy vehicle platooning trials had been undertaken overseas.<sup>184</sup> The NTC also noted some stakeholders had emphasised the need for consistency in Victorian regulation to support future cross border trials of freight platooning in Australia.<sup>185</sup>

In October 2018, and at the request of the Victorian Government, Infrastructure Victoria published its *Advice on automated and zero emissions vehicles infrastructure*. This advice found that commercial incentives could drive more rapid automation in the freight sector than in passenger vehicles. It also determined that changes to road space allocation and road design may be needed in the medium-term to enable freight operators to implement platooning of freight vehicles,<sup>186</sup> as well as high quality roads with clear lane markings and signage.<sup>187</sup> The findings in the advice report are reflected in this strategy.<sup>188</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend regulatory and other changes to enable the safe testing and deployment of increasingly autonomous freight vehicles. This is reflected in recommendation 21 - 'Prepare for increasingly automated vehicle fleets'.

## Driverless vehicles (6.2.2, 10.7.3, ACT)

**Introduce regulatory changes to enable the testing and deployment of driverless vehicles over 0-30 years to improve traffic flow, increase the operational efficiency of public transport, expand the range of available transport options and potentially improve the carrying capacity of roadways by allowing vehicles to safely travel together in close proximity at the same speed. Further research and consultation will be required to develop a national approach for maximising the benefits of driverless vehicles.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government supports enabling the trial of highly automated vehicles with appropriate controls and is working with national bodies to develop regulations that support this testing. Once the results of these trials determine the technology is safe and suitable, government will assist in enabling its deployment.

In 2018, the *Victorian Road Safety Amendment (Automated Vehicles) Act 2018* came into effect, amending the *Road Safety Act 1986* to enable a permit scheme for the trialling of automated vehicles on Victorian roads.<sup>189</sup> Later the same year, the Victorian Government established an 'Automated Driving System' (ADS) permit scheme, under which people wanting to trial a vehicle in automated mode on Victorian roads could apply for a permit,<sup>190</sup> and released the *Guidelines for Trials of Automated Vehicles* to provide practical guidance for permit holders and potential applicants.<sup>191</sup> Amongst other requirements, regulations require permit holders to provide details of the trial location and details of the design constraints within which the vehicle is to operate (which may include road types, and traffic, weather and infrastructure conditions).<sup>192</sup>

Victoria's efforts have complemented work led by the National Transport Commission (NTC) to establish Australia-wide regulations for automated vehicles. In 2017, in partnership with Austroads, the NTC released the Guidelines for trials of automated vehicles in Australia to support consistent conditions for automated vehicle trials,<sup>193</sup> and in 2020 the NTC published a discussion paper to support a review of these guidelines.<sup>194</sup> The NTC has also worked with transport ministers from across the country to decide who is legally in control of an autonomous vehicle, agree the need to develop a purpose-built national driving law, and progress safety assurance for users (at market entry/first supply).<sup>195</sup> Other reform priorities include the regulation of government access to automated vehicle data and the application of motor accident injury insurance to automated vehicles.<sup>196</sup>

In October 2018, Infrastructure Victoria provided the Victorian Government with advice on the infrastructure that may be required to enable highly automated and zero emissions vehicles. This advice, provided at the request of the Victorian Government, included 17 recommendations and is reflected in this strategy.<sup>197</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend regulatory and other changes to enable the safe testing and deployment of increasingly autonomous vehicles. This is reflected in recommendation 21 - 'Prepare for increasingly automated vehicle fleets'.

## Eastern Freeway-CityLink- Western Ring Road (11.5.8, 13.5.4, EWW, EWE)

**Plan for longer-term links between the Eastern Freeway and CityLink and between CityLink and Western Ring Road within 0-5 years to ensure future provision is not precluded, as these links may be required in the latter part of the 15-30 year period. While introducing transport network pricing would particularly attenuate demand on links to and through the congested central areas of Melbourne, emerging transport technologies and other uncertainties that could increase the need for these links make it prudent to review potential alignments and protect the corridor where appropriate.**

**Linking the Eastern Freeway, CityLink and Western Ring Road will support accessibility to major employment centres as an alternative corridor to the M1 Monash and M80 Ring Road and improve the capacity of the freight network.**



**Victorian Infrastructure Plan 2017:** Partly supported. The Government is moving forward with the West Gate Tunnel, which creates a vital second river crossing and delivers improved transport connections between CityLink and the Western Ring Road. Past business case modelling did not support the development of an Eastern Freeway to CityLink connection, and the previous design had severe environmental and social impacts. There is no case therefore to commence planning works to facilitate this project, given higher transport priorities.

The Victorian Government is continuing to manage the delivery of the West Gate Tunnel project, which will improve links between Melbourne's west and the rest of the city by better connecting the Western Ring Road (M80) and CityLink. The \$6.7 billion project will deliver a new tunnel between the West Gate Freeway (at Yarraville) and the Port of Melbourne and CityLink (at Docklands), as well as supporting works that include extra lanes between the Ring Road and Williamstown Road and access improvements to Webb Dock in the Port of Melbourne. The project is anticipated to be completed by 2023 and also includes funding for a complementary, major upgrade to the Monash Freeway to improve connections to the city's south-east.<sup>198</sup> While works continue to deliver the West Gate Tunnel project it is understood there may be delays to the completion date.<sup>199</sup>

Infrastructure Victoria's analysis of demand forecasts and transport modelling indicates that, in the long term, there may still be a need to better connect CityLink and the Eastern Freeway. The alignment of the corridor to preserve the option of a cross-city connection should be updated to consider the construction of the West Gate Tunnel, City Link Widening, the status of land holdings originally acquired for this purpose in 2013 and urban development plans and projects.<sup>200</sup>

#### Assessment: in progress (western section)

Infrastructure Victoria continues to recommend preserving the option of constructing a new road connection between the Eastern Freeway and CityLink. This is reflected in recommendation 62 - 'Protect a long-term option for a new cross-city motorway', which involves determining an updated future alignment and preserving the option for constructing a new motorway linking the Eastern Freeway and CityLink if required.

## Education delivery through technology (2.2.2, 9.2.1, 12.1.4, SRS)

Expand and accelerate the provision of ICT infrastructure in schools (such as Wi-Fi and video conferencing) over 0-10 years, with a particular focus on regional and rural schools and schools in disadvantaged areas. This will support new ways of learning, enable the sharing of resources and teachers across school sites, and ensure students in smaller schools have access to a wide range of curriculum such as Science, Technology, Engineering and Maths (STEM) subjects and languages other than English.

**Victorian Infrastructure Plan 2017:** Supported. Government supports access to digital education in schools, no matter the location. We will ensure improved connectivity across the state, access to newly established Tech Schools, and promote technology use through STEM centres.

In 2017-18, the Victorian Government made commitments totalling \$84.3 million in improving ICT in public schools.<sup>201</sup> Of this total, \$68 million was allocated to provide every student with access to critical information technology, including through upgrades to provide reliable access to digital services essential to teaching and learning such as school Wi-Fi and virtual conferencing. \$16.4 million (\$4.1 million per year) was allocated to increase bandwidth and connectivity for rural schools, with the aim of reducing disparity in digital access between rural and metropolitan schools.<sup>202</sup> This investment boosted internet speeds at rural and regional schools (such as at Geelong, Surf Coast and Bellarine Peninsula) and enabled students to access an extended choice of subjects and learning programs.<sup>203</sup>

In 2020, the COVID-19 pandemic drove a significant shift in the way Victorian students access education, with most Victorian students learning from home for significant periods. The Victorian Government provided free access to the internet and laptops to students who would otherwise struggle to access education services online.<sup>204</sup> In 2020, the Department of Education and Training conducted an extensive survey with Victorian students, parents, principals and teachers to understand lessons learned from this significant behaviour change and how the education system can be improved as a result of the experience.<sup>205</sup> The findings from this survey showed that 8% of secondary and 7% of primary students had problems with technology either internet connectivity or hardware and software issues. The survey also found the problems were exacerbated in disadvantaged communities.<sup>206</sup>

#### Assessment: substantially complete

Infrastructure Victoria notes progress to date on this recommendation, and that continued improvements should continue to be delivered through the normal business of government.

## Electricity network capability (18.2.2, ENI)

In liaison with the Australian Energy Market Operator (AEMO), provide information specific to the Victorian market on areas of the electricity grid well suited to absorb additional capacity within 0-5 years. This will ensure that investigation of feasible locations for lower emission energy generation projects by industry is effective, project approval processes are efficient, information sharing between project developers and network planners is increased, and there is increased visibility on likely developments in the Victorian electricity system.

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. Further work on the energy market will be undertaken by the Energy Taskforce, as well as with the AEMO over the next five years.

This recommendation has been met with the AEMO leading development of the Integrated System Plan. The plan identifies areas in Victoria well-suited to absorb additional capacity, namely Western Victoria, supported by the committed Western Victoria Transmission Network project, and South West Victoria and Central North Victoria renewable energy zones.<sup>207</sup> The AEMO has also provided additional connection insights in its 2019 and 2020 Victorian Annual Planning Reports,<sup>208</sup> and is examining further transmission development through the Victoria to New South Wales interconnector (VNI) West regulatory investment test for transmission.<sup>209</sup>

The Victorian Government has developed Regional Renewable Energy Roadmaps for Barwon South West, Grampians, Loddon Mallee, Gippsland and Hume.<sup>210</sup> Each strategy is tailored to identify supply chain opportunities, skills, infrastructure, manufacturing and transmission opportunities for businesses, industry and communities to establish or expand new energy projects. In addition, the Victorian Government has consulted on a Victorian Renewable Energy Zones Development Plan (consultation closed on 31 March 2021) which identifies potential supporting transmission investments and the creation of VicGrid.<sup>211</sup>

#### Assessment: substantially complete

Infrastructure Victoria recommends continuing efforts in the energy transition for electricity, reflected in recommendation 3 - 'Augment electricity transmission for renewable energy and resilience' and recommendation 4 - 'Identify and coordinate Renewable Energy Zones'.

## Employment centre arterial roads (11.5.1, ARN)

**Develop a transparent prioritisation framework within 0-5 years for future arterial road upgrades servicing major employment centres that support growth in use by all transport modes, particularly higher-capacity modes such as buses. A likely focus will be on ensuring an adequate road network that supports growing services and knowledge sector employment at the Sunshine, Monash and La Trobe National Employment and Innovation Clusters (NEICs).**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation. This initiative aligns with *Plan Melbourne* and with integrated transport planning work currently being undertaken.

A transparent prioritisation framework, prioritising roads which directly improve access to suburban employment centres, has yet to be developed.

Major Road Projects Victoria is currently delivering many major road projects (arterial roads and freeways) around Melbourne and Victoria. These projects include new bridges and roads, road widenings and major freeway upgrades,<sup>212</sup> and aim to reduce congestion and travel times, improving access to employment centres.

Some upgrades – while not to arterial roads – will directly boost access to NEICs. The Monash Freeway Upgrade (stage 2), expected to be complete in 2022, will improve connections to the Monash NEIC for commuters in Melbourne's south-east.<sup>213</sup> Similarly, the M80 upgrade works, due in 2023, will connect people in the north and north-west to the La Trobe and Sunshine NEICs.<sup>214</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend improved connections to major employment centres, and this is reflected in recommendation 58 - 'Connect suburban jobs through 'next generation' buses and road upgrades' and recommendation 76 - 'Expand and upgrade Melbourne's outer suburban road and bus networks'.

## Employment centre mass transit (11.5.4, MTN)

**Create mass transit bus or light rail networks that feed into major employment centres and connect to existing heavy rail lines and other major centres over 0-15 years to support intense development and business interaction. Feasibility and planning of the networks, integrated with broader land use and transport planning, would need to be undertaken and a range of transport technologies could be considered. Priorities should be identified to support land use plans and it is likely the Monash, La Trobe and Sunshine National Employment and Innovation Clusters (NEICs) would be early priorities given their existing scale, potential for growth in the short term and geographic location spanning beyond the rail network.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. Ongoing planning for major employment centres will determine the types of transit links required, the most appropriate solutions and timing. Supporting major employment centres in Melbourne and regional Victoria is a fundamental role of the transport system. Strategic integrated transport, economic development and land use planning will help determine priorities and potential solutions. Any capital works will be considered as part of future budgets. Any potential capital works associated with this recommendation will be considered as part of future budgets.

Since the 2016 strategy was published, the Victorian Government has announced details of the Suburban Rail Loop (SRL). SRL will provide twin rail tunnels linking every metropolitan rail line from Frankston to Werribee, with transport super hubs at Broadmeadows, Clayton and Sunshine connecting regional services with the metropolitan network and SRL. The 90kilometre SRL project will also deliver a rail link to Melbourne Airport.<sup>215</sup>

SRL aims to help to develop cross-suburban travel patterns, linking major hospitals, higher education, retail and employment centres beyond the CBD. New capacity, and radial passenger movements, will ease congestion and take pressure off existing transport networks.<sup>216</sup>

In 2020, the Victorian Government committed \$2.2 billion to start construction of SRL.<sup>217</sup> This investment will deliver the initial and early works of SRL Stage One which will provide a rail tunnel between Cheltenham and Box Hill, with six new underground stations. Future stages of SRL will be delivered over the next few decades.

#### Assessment: in progress

Infrastructure Victoria continues to recommend improvements to public transport to and between employment hubs, consistent with land use planning. This is reflected in recommendation 58 - 'Connect suburban jobs through 'next generation' buses and road upgrades'.

## Energy efficiency of existing buildings (18.1.2, EDM1)

**Develop targeted energy use efficiency programs to retrofit existing public sector buildings over 0-10 years. This initiative will show leadership in energy use efficiency and influence energy use reduction for existing buildings in the commercial and industrial sector. This should involve maximising social benefits from these programs, such as improving the energy efficiency of public housing to reduce energy bills for tenants.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation through improving the energy efficiency of public buildings and has committed to improvements through the Greener Government Buildings program. As this recommendation is over 0-10 years, full implementation will be considered as part of future budgets.

In 2009, the Victorian Government established the Greener Government Building program. This program seeks to improve the energy efficiency of existing government buildings with energy saving initiatives such as lighting upgrades, heating, venting and cooling upgrades, solar panels and automation and controls.<sup>218</sup> In 2020, funding was allocated to continue the Greener Government Buildings program, and \$40 million was provided to improve energy efficiency in hospitals.<sup>219</sup>

The Victorian Government is also using Energy Performance Contracts to design and identify enduring solutions. Energy Performance Contracts allows departments and agencies to engage a contractor to design, implement, verify and guarantee the savings from an energy efficiency project. This method of delivering energy efficiency upgrades to buildings is considered low risk and is widely accepted around the world.<sup>220</sup>

In late 2017, the Victorian Government published the Energy Efficiency and Productivity Strategy that included the \$4.3 million EnergySmart Public Housing Program to boost the energy efficiency of 1500 public housing properties.<sup>221</sup> Upgrades may include replacement hot water and heating systems, draught sealing and insulation.<sup>222</sup> A further \$112 million was provided to improve energy efficiency in 35,000 social housing properties.<sup>223</sup> In May 2021 the Victorian Government also made commitments for a minimum 5-star energy efficiency rating from 2021 and a 6-star rating from 2025 for all new government buildings.<sup>224</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend improving the energy efficiency of government buildings, and this is reflected in recommendation 8 - 'Make Victorian Government buildings more energy efficient'.

## Energy efficiency of new buildings (18.1.3, EED)

**Implement more sophisticated energy efficiency requirements for new buildings by replacing existing prescriptive initiatives with a broader greenhouse gas emissions target approach within 0-10 years. This will allow greater flexibility in considering energy efficient building design and adopting cost-effective innovative approaches. A range of initiatives currently exist to address energy efficiency for new buildings. A greenhouse gas emissions target can go a step further and enable holistic consideration of the energy impact of new buildings during design, while allowing the market to determine uptake of cost-effective products.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports initiatives to address energy efficiency for new buildings consistent with existing strategies, such as *Plan Melbourne*, the Energy Efficiency and Productivity Statement and Victoria's Climate Change Framework. Full implementation of this recommendation is dependent upon national regulation delivered through the provisions of the National Construction Code.

The Victorian Government has made progress in implementing this recommendation, with some initiatives still ongoing. *Plan Melbourne 2017-2050* seeks higher building energy efficiency standards through engagement with other governments, including the Australian Government.<sup>225</sup> The Victorian Department of Environment, Land, Water and Planning is working with other jurisdictions, using working groups of the National Energy Productivity Plan, to develop improved energy efficiency standards for residential and non-residential buildings under the National Construction Code.<sup>226</sup>

During 2019, the Australian Building Codes Board consulted on a proposed approach and scope of future changes to the residential energy efficiency provisions in the National Construction Code.<sup>227</sup> Public consultation on proposed regulatory changes is likely to occur in mid-2021.<sup>228</sup> Building energy efficiency requirements for commercial buildings were included in the 2019 National Construction Code update.<sup>229</sup>

The Victorian Government has also developed an Energy Efficiency and Productivity Strategy. As part of this strategy, \$8.9 million has been allocated to 'improve energy efficiency regulations for new homes, strengthen compliance for the as-built quality of homes, and promote leading-edge sustainable design through volume home builders.'<sup>230</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend improved energy efficiency in new residential buildings, and this is reflected in recommendation 5 – 'Require 7-star energy rated new homes by 2022, and increase afterwards'.

## Energy pricing (18.1.1, EDM2)

**Mandate cost-reflective pricing for all energy customers within 0-5 years to fully realise the benefits of smart meters, increase customer engagement on energy consumption patterns and influence customer choices to reduce peak and potentially total energy demand. The first step to achieving this would be to provide leadership in working with industry to increase customer awareness on the benefits of cost-reflective tariffs, benefits that include fairer pricing and lower costs.**

**Victorian Infrastructure Plan 2017:** Not supported.

This does not align with existing government policy. The government will be reviewing the effectiveness of existing voluntary cost-reflective pricing arrangements in 2020, at the end of the current regulatory period.

Although the Victorian Government did not support this recommendation, steps have been made towards increased customer engagement on consumption patterns. This includes \$10.8 million in funding to improve the Victorian Energy Compare tool, piloting an energy brokerage service, improving energy information services for vulnerable Victorians and facilitating customer access to energy data.<sup>231</sup>

During summer 2017-18, the government partnered with an electricity distributor to trial new ways for consumers to manage energy consumption. Named Power Chargers, the trial used smart meters and an interactive app to encourage participants to think about and change how they use energy. Participating households on average reduced their energy consumption by up to 35% on the selected days with peak energy use.<sup>232</sup>

In 2020, the Victorian Government provided support towards introducing more time of use tariffs in the next regulatory pricing period.<sup>233</sup>

These are good steps towards broader reform, which will need to continue to generate bigger power savings and support the energy system's transition to net zero emissions.

#### Assessment: in progress

Infrastructure Victoria continues to recommend electricity pricing reform and this is reflected in recommendation 9 – 'Encourage demand management pricing to reduce peaks and optimise distributed energy'.

## Environmental water delivery (16.3.3, 17.2.2, EWD)

**Utilise infrastructure to deliver optimal environmental watering in 15-30 years where further research on watering requirements identifies sites that would benefit from infrastructure investment. It is likely these sites would need to have high environmental value to justify investment.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. As this recommendation is over 15-30 years, implementation will be considered as part of future budgets.

Since 2016, the Victorian Commissioner for Environmental Sustainability has undertaken preliminary work to understand environmental watering outcome monitoring and reporting in Victoria.<sup>234</sup> This is to support the Commissioner reporting on outcomes of environmental watering in the 2023 *State of Environment* report, providing a scientific baseline of environmental condition and challenges ahead.

In 2017, the Victorian Government and other states part of the Murray Darling Basin Plan agreed to nine new environmental work projects worth \$320 million. This investment will deliver infrastructure such as pipes, pumps and flow regulators to divert environmental water from the river to 14,000 hectares of high-value Murray floodplain that includes wetlands, red gums and black box eucalypt trees.<sup>235</sup> Capital stimulus investment of \$17 million in environmental waterway works projects is being undertaken in Northern Victoria,<sup>236</sup> and additional funding to improve regional waterways and catchments was provided in the 2020-21 and 2021-22 Budgets.<sup>237</sup>

**Assessment: in progress**

Infrastructure Victoria notes continued improvements should continue to be delivered through the normal business of government.

## Fishermans Bend tram link (1.2.1, 10.8.1, CCT)

**Extend the tram network to Fishermans Bend to stimulate high density major urban redevelopment within 5-10 years. This tram extension would have a city-shaping and catalytic impact of opening up Australia's largest urban renewal precinct and enable housing for 80,000 people and 60,000 jobs to be located adjacent to central Melbourne.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. As this recommendation is over 5-10 years, investments will be considered as part of future budgets.

The Victorian Government is broadly implementing this recommendation. The Fishermans Bend Integrated Transport Plan (ITP) was released in October 2017.<sup>238</sup> The ITP recommended northern and southern light rail connections be provided to support precinct development and growth, with the initial priority being the north. It recommended a crossing over the Yarra River between Collins Street on the north bank and Lorimer Street on the south to enable the two alignments. In 2017, the Victorian Government committed funding to additional bus services for routes 235 and 237 with the intention of addressing higher demand for travel to the Fishermans Bend precinct.<sup>239</sup>

In October 2018, the Victorian Government released the *Fishermans Bend Framework*, a strategic plan for the development of the area to 2050.<sup>240</sup> In July 2019, Planning Scheme Amendment GC81 updated zone and overlay controls for the Fishermans Bend Urban Renewal Area to implement the *Fishermans Bend Framework*, including to identify and safeguard potential key transport alignments and services.<sup>241</sup> In 2018, the Victorian Government provided \$1 million in funding to develop a business case for tram and active transport connections between Fishermans Bend and central Melbourne.<sup>242</sup> In 2019, the Victorian Government allocated \$4.5 million in additional funding to further progress planning, design and business case development by 2021.<sup>243</sup> In 2021, a further \$15 million was allocated to continue planning, development and protection of transit corridors for Fishermans Bend.<sup>244</sup>

**Assessment: in progress**

Infrastructure Victoria continues to recommend the extension of the tram network to Fishermans Bend, and this is reflected in recommendation 43 - 'Activate urban renewal with new tram links'.

## Forensic mental health facilities (3.3.1, 8.3.3, NEF)

**Provide new or expanded forensic mental health facilities (currently provided by the Thomas Embling Hospital) within 5-10 years. Detailed planning will be required to address the needs of different patient cohorts and determine the level of security required for the facilities.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government agrees with the intent of this recommendation. The 2017-18 Victorian Budget provides \$43.9 million in capital funding to expand the state's adult forensic mental health capacity. This investment builds on the existing work to provide 18 new beds at Thomas Embling Hospital, as well as expanding mental health treatment services at Dame Phyllis Frost and Ravenhall prisons. As this recommendation is over 5-10 years, investment will need to be considered as part of future budgets.

In late 2017, the Victorian Government released the *Statewide Design, Service and Infrastructure Plan for Victoria's Health System 2017-37* (the Plan).<sup>245</sup> Building on the reforms of the existing *10Year Mental Health Plan*,<sup>246</sup> the Plan's objectives include addressing mismatches between hospital capacity, infrastructure, and patient needs. The Plan lists the expansion of forensic mental health services as a statewide priority,<sup>247</sup> and sets out a \$43.9 million government commitment to expanded forensic mental health services.<sup>248</sup>

In 2019, the Victorian Auditor-General's Office (VAGO) released *Access to Mental Health Services*, an audit of the *10-Year Mental Health Plan*.<sup>249</sup> The audit found the Department of Health and Human Services had made 'almost no progress in addressing the supply and demand imbalance'.<sup>250</sup> The same year, the Victorian Government established the Royal Commission into Victoria's Mental Health System, which released an interim report in late 2019 that identified the undersupply of forensic services as an area of focus.<sup>251</sup>

The Royal Commission into Victoria's Mental Health System's final report, released in early 2021, recommended major upgrades to Thomas Embling Hospital, including the refurbishment of 136 existing beds and the delivery of an additional 127 (107 by 2026).<sup>252</sup> The Victorian Government has committed to implementing this and all other recommendations of the Royal Commission.<sup>253</sup> In the 2021-22 Budget, \$350 million for the Thomas Embling Hospital, including a new 34-bed dedicated women's precinct, new 48-bed men's precinct and refurbishing existing units.<sup>254</sup>

**Assessment: in progress**

Infrastructure Victoria continues to recommend investment in infrastructure that will support the more responsive and integrated mental health system advocated by the Royal Commission, including to deliver better forensic mental health services. This is reflected in recommendation 70 - 'Deliver infrastructure for a more responsive and integrated mental health system'.



## Freight precincts (13.3.2, FPL)

**Identify existing and future potential precincts requiring planning protection in respect of air, land and sea freight operations within 0-5 years. These precincts are required to protect the future expansion of Victorian freight and logistics hubs in response to the growing freight task, to avoid negative impacts on surrounding land uses and to maintain the integrity of the freight operations.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government agrees with the intent of this recommendation. Implementation will need to be considered in the context of Victoria's freight strategy (in development), *Plan Melbourne* and a 0-10 year timeframe. Further budget consideration is required in future years to address the full scope of the recommendation.

Melbourne's metropolitan planning strategy, *Plan Melbourne* 2017-50, recognises the need to provide strategically located land for major industrial development linked to the Principal Freight Network and transport gateways, and to protect this land from incompatible land uses.<sup>255</sup> *Plan Melbourne* identifies the Port of Melbourne, Port of Geelong, Port of Hastings, Melbourne Airport, Avalon Airport, Moorabbin Airport and Essendon Airport as state significant transport gateways. It also identifies potential for new gateways at Beveridge Interstate Freight Terminal, a Western Interstate Freight Terminal near Truganina, a second port at Bay West, and an airport in the southeast.<sup>256</sup>

In 2018, the Victorian Government (Freight Victoria) released the statewide freight plan, *Delivering the Goods*. This set out short, medium and long-term priorities for the freight and logistics sector, which is facing rapid growth and continuous change. The plan emphasises the need to assess long-term metropolitan industrial land needs for freight purposes, in order to designate appropriate areas for future development. It also notes the importance of continuing to provide for industrial and freight precincts (with buffers) in metropolitan Melbourne as the city grows.<sup>257</sup>

Following *Plan Melbourne* and *Delivering the Goods*, the Victorian Government is planning to deliver new intermodal freight precincts at Truganina in Melbourne's west (the Western Interstate Freight Terminal) and Beveridge in Melbourne's outer north. These precincts and their connecting transport infrastructure will supplement, and potentially replace, the existing terminal at Dynon. They will primarily handle interstate freight, in addition to import and export container trade.<sup>258</sup> The Australian and Victorian governments are currently developing a joint business case to align the development of the proposed terminals with the delivery of the Inland Rail Project.<sup>259</sup> In May 2021, the Federal Government committed \$2 billion for an initial investment in a Melbourne Intermodal Terminal.<sup>260</sup>

The joint commitment to the Inland Rail Project underlines the importance of completing detailed planning quickly to enable the timely development of the precincts and efficient operations of the rail freight line once it is constructed (expected to be 2025).

### Assessment: in progress

Infrastructure Victoria continues to recommend the purchase of land and development of business cases to support the delivery of new interstate freight terminals. This is reflected in recommendation 65 - 'Deliver a new intermodal freight terminal for Inland Rail'.

## Future prisons (8.3.1, NMP, NWP)

**Identify and secure land for future prisons, considering accessibility for staff and visitors, within 0-5 years. Reserving land now will enable new facilities to be provided as and when required.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation and has funded the identification and planning for future prisons. This recommendation will be met within the short term.

The Victorian Government has responded to this recommendation by identifying suitable land for future prisons. Land acquisition has been supported by new prison infrastructure and beds at many existing prisons.<sup>261</sup>

Most major projects delivered since, or currently under construction, were funded by the Victorian Government's allocation in 2018 of \$1.8 billion to increase bed capacity and improve prison infrastructure. Key projects include: a new 1248-bed maximum security men's prison at Chisholm Road as part of the Lara Prison Precinct; a new 140-bed high-security youth justice centre in Cherry Creek west of Werribee; major upgrades to existing prisons in Lara, Castlemaine, Ararat and Ravenhall; 106 additional beds at Dame Phyllis Frost Centre; short-stay and holding cells for up to 200 people on remand at a new court and custody complex in West Melbourne; and 68 more beds across the Youth Justice custodial precincts in Parkville and Malmsbury.<sup>262</sup>

### Assessment: substantially complete

Infrastructure Victoria continues to recommend improvements to planning for correctional facilities, and this is reflected in recommendation 71 - 'Plan and consistently deliver corrections and youth justice infrastructure while managing demand with policy settings'.

## Geelong/Werribee/Wyndham rail (1.3.4, 10.8.2, 12.3.1, WWW, GWR, GRE)

**Deliver new stations with rail capacity expansion on the existing Regional Rail Link corridor in western Melbourne to support these high growth areas while reducing travel times and relieving overcrowding on the Geelong line within 5-15 years. Further work is required to determine the scope and sequence of this rail upgrade.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. As this recommendation covers years 5-15, implementation will be considered as part of future budgets.

The Victorian Government has taken a number of steps to progress the planning for, and development of, a number of transport projects that aim to expand the capacity of the Regional Rail Link corridor connecting Geelong and Western Melbourne.

In 2020, the Victorian Government provided funding to develop a business case and prepare a reference design for Geelong Fast Rail works, with \$2 billion set aside for the future delivery of the project, matching the Australian Government's contribution.<sup>263</sup> \$160 million has been allocated to upgrade the Geelong line under the Regional Rail Revival program, which is also jointly funded by the Victorian and Australian governments. This investment aims to deliver upgrades to Waurin Ponds Station, an additional track at Waurin Ponds Station, planning and development for track duplication between South Geelong and Waurin Ponds, and planning for the Armstrong Creek transit corridor to Torquay.<sup>264</sup> Currently, construction on the Waurin Ponds Station upgrade is underway (due to be completed in late 2021). Planning and development work is being done to support the rail duplication between South Geelong and Waurin Ponds, with construction proposed to begin in 2022.<sup>265</sup>

The Victorian and Australian governments have committed \$100 million for fast regional rail and metro rail for the West.<sup>266</sup> Known as the Western Rail Plan, it involves the separation and electrification of the Wyndham Vale and Melton lines from regional rail services, facilitating faster connections to Ballarat and Geelong.<sup>267</sup> The 2021-22 Victorian Budget allocated around \$94 million to the Melton and Wyndham Vale corridors to allow for the running of higher capacity trains, including nine-car VLocity trains.<sup>268</sup> The Australian Government has also committed \$30 million toward the Western Rail Plan.<sup>269</sup> Staging of the Western Rail Plan is being considered alongside the Melbourne Airport Rail business case, and project delivery is likely to take around a decade to complete.<sup>270</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend increases to rail capacity on Melbourne's suburban rail corridors, including to improve connections between the city's centre, its west and Geelong. This is reflected in recommendation 57 – 'Reshape the metropolitan bus network and introduce 'next generation' bus services', and recommendation 76 – 'Expand and upgrade Melbourne's outer suburban road and bus networks'.

## Government service/infrastructure planning (1.5.1, 2.4.1, 11.1.2, SIP)

**Formalise an area-based, whole-of-government, integrated service and infrastructure planning and investment prioritisation process within 0-5 years to improve coordination and minimise siloed decision-making. Initially this would focus on mechanisms to make state government departments plan services and infrastructure better together. Once state government has become more integrated, it will be critical to include local and federal government in this process to enable more effective integrated land use and infrastructure planning (ref. SIP).**

**Victorian Infrastructure Plan 2017:** Partly supported. Government is committed to improving integration of service and infrastructure planning. Integrated infrastructure planning occurs through the production of Precinct Structure Plans for new developments in growth corridors. A further 17 PSPs are committed for completion by December 2018 and the guidelines for PSPs are being reviewed as one of the immediate actions out of *Plan Melbourne*. Local government is already closely involved in these processes. Infrastructure is being funded through State Budgets, developer contributions and the Growth Areas Infrastructure Contributions. Growth Corridor Plans have been produced for each corridor and are currently being updated. In addition, the Premier has appointed a Minister for Suburban Development who will produce five-year Jobs Services and Infrastructure plans for each of the six sub-regions in *Plan Melbourne*. These will ensure the respective forward plans for major departments and agencies are better coordinated. The Regional and Metropolitan Partnerships enable regions to directly advise government on local priorities. The Value Creation and Capture Framework has also been released to deliver better community outcomes from infrastructure investment.

The Victorian Government has developed a number of initiatives and policies to implement this recommendation. Establishing the Department of Jobs, Precincts and Regions (DJPR) has allowed it to play a more formal governance role, while partnering with community, industry and research organisations, to create more housing and employment across the city.<sup>271</sup> Six metropolitan partnerships have been established, each responsible for developing a five-year plan for jobs, services and infrastructure

in its respective region<sup>272</sup> and involving partnerships between levels of government, industry and communities to address distinct priorities.<sup>273</sup> The current five-year plans cover 2018 to 2022. In practice, the plans simply list the Victorian Government's election commitments and past Budget decisions.<sup>274</sup>

Economy and Planning Groups (EPWGs) have also been established to combine planning, infrastructure, transport and economic development portfolios for each metropolitan region. EPWGs also align the work being done by the Victorian Government and local councils in each region.<sup>275</sup> EPWGs provide input to metropolitan partnerships and are responsible for delivering Land Use Frameworks Plans for their region.<sup>276</sup> Drafts are due to be completed in 2021.<sup>277</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend more integrated service and infrastructure planning within and across the Victorian and local governments to improve coordination and investment outcomes. This is reflected in recommendation 32 - 'Produce public plans for priority infrastructure sectors' and recommendation 72 - 'Prioritise and oversee infrastructure delivery in growing communities'.

## Green infrastructure (1.4.6, 4.2.3, 16.3.1, UFF)

**Increase the amount and quality of green infrastructure in urban settings over 0-30 years to support a range of outcomes, including creating open space for planned and incidental exercise, improving biodiversity by increasing forested and planted areas and supporting water-sensitive design to mitigate flooding events. The immediate first step is to produce a statewide green infrastructure plan in partnership with local government, leveraging opportunities to unlock restricted public land held by, for example, water or transport authorities.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government agrees with the intent of this recommendation and will continue to work with local governments to expand urban forests and other green infrastructure, but will not undertake centralised planning of green infrastructure across Victoria.

Although the Victorian Government has not produced a statewide green infrastructure plan, a range of green infrastructure initiatives are currently underway.

*Plan Melbourne 2017-2050* called for the establishment of a metropolitan open space strategy, and a whole-of-government approach to cooling and greening Melbourne. The *Open Space Strategy for Metropolitan Melbourne: Open Space for Everyone* launched in April 2021<sup>278</sup> will boost recreation, amenity, health and wellbeing, species diversity, sustainable water management and urban cooling across Melbourne.<sup>279</sup>

Similarly, the Department of Environment, Land, Water and Planning (DELWP) is also working on the proposed whole-of-government approach to cooling and greening.<sup>280</sup> DELWP has launched a number of greening initiatives and worked with stakeholders to publish a range of data on vegetation, heat and land use.<sup>281</sup>

The Victorian Government has also launched its Suburban Parks Program. The \$154 million initiative will purchase 6500 hectares of land for large regional parks, in growth areas, and pocket or dog parks in established suburbs. In August 2020, it announced a further \$2.5 million for seven new dog parks in Melbourne, and 10 more in regional Victoria, bringing the total number announced to 33.<sup>282</sup>

DELWP and metropolitan local governments have endorsed the *Living Melbourne: our metropolitan urban forest*. Developed by Resilient Melbourne and The Nature Conservancy, this urban forest strategy intends to connect, extend and enhance urban greening across the metropolitan area.<sup>283</sup> It also allocated \$10 million towards the revitalisation of 41 existing parks with facilities such as new and improved playgrounds, landscaping, picnic and toilet facilities through the Park Revitalisation Grants Program.<sup>284</sup>

The Victorian Government has invested \$4 million to support 218 Integrated water management projects in Melbourne and regional Victoria.<sup>285</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend more green infrastructure in metropolitan areas, particularly rapidly growing areas of Melbourne. This is reflected in recommendation 37 - 'Develop an interconnected open space network' and recommendation 77 - 'Target 30% tree canopy coverage in new growth areas'.

## Growth area local buses (1.3.2, 11.5.2, LBS)

**Expand the local bus network coverage in growth areas and provide service enhancements over 0-15 years to support local trips and connection with other trunk services, such as SmartBus routes and local train stations, subject to transparent assessment to determine priorities. This would include new buses, better timetables and more services and help to ensure quality access to jobs and services including to major employment centres from growth areas.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, and supports the expansion of bus services to connect growing communities with employment, education and social opportunities. As the recommendation is over 0-15 years, full implementation will be considered as part of future budgets.

Since 2016, expansions to bus services – including to growth areas – have been largely funded through additional budget allocations rather than wholesale bus network reform.

In 2017, the Victorian Government announced it would renegotiate new contracts with the 12 metropolitan bus operators which together operated 70% of the city’s bus network. The new contracts aimed to provide better services and expand services.<sup>286</sup> Prior to these reforms, the complex contracting environment had made it difficult for the Department of Transport to reconfigure the bus network to respond to customer needs, particularly with regard to existing bus routes.

The 2017-18 Victorian Budget funded several route extensions, upgrades and new services to improve bus network coverage. In 2019, the Victorian Government allocated \$7.9 million over the forward estimates to improve bus services and access to these services through a new ‘Better Buses Fund’. Initiatives identified under the new fund included the creation of new bus services linking Mernda and Craigieburn Station, and Donnybrook to Craigieburn.<sup>287</sup> In the 2021-2022 Victorian Budget, the government allocated \$60.6 million for bus service improvements across the state, including a number of route adjustments and extensions to complement its Big Build projects, and new and extended routes in Clyde, Clyde North and Tarneit North and network changes in the Yarra Valley and Broadmeadows.<sup>288</sup> However, these initiatives were not accompanied by a transparent identification of priority locations or how new connections would link to the trunk network.

#### Assessment: in progress

Infrastructure Victoria continues to recommend improving access to, and the quality of, bus services in Melbourne’s growth areas through reform of the network and targeted upgrades. This is reflected in recommendation 57 - ‘Reshape the metropolitan bus network and introduce ‘next generation’ bus services’, recommendation 58 - ‘Connect suburban jobs through ‘next generation’ buses and road upgrades’ and recommendation 76 ‘Expand and upgrade Melbourne’s outer suburban road and bus networks’.

## Habitat corridors (16.3.2, HCL)

**Deliver expanded habitat corridors over 5-30 years to protect biodiversity from emerging challenges, including climate change, by connecting remnant vegetation with areas such as rivers and roadsides, providing incentives (including tax relief) to private land owners, and undertaking strategic land purchases, supported by fencing and revegetation.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, noting protection of habitat corridors should occur where they are of biodiversity importance. As this recommendation is for 5-30 years, future budget consideration will be needed to further investment.

In 2017, the Victorian Government committed to preserving Victoria’s natural environment and unique biodiversity in Protecting Victoria’s Environment – Biodiversity 2037.<sup>289</sup> A strategic plan, Protecting Victoria’s Environment recognises the need for transformational developments in conservation, sustainability and the economic development of biodiversity and natural habitats.<sup>290</sup> The Victorian Government also runs a program supporting landholders or managers who provide habitat for native wildlife on their land.<sup>291</sup>

In November 2020 the Victorian Government made several commitments to fund programs to deliver on actions against targets set out in the Biodiversity Plan.<sup>292</sup> For example:

- \ Pest predator control – \$6 million to fund a predator proof fence at Wilsons Promontory National Park to protect unique plants and animals.
- \ Pest herbivore control –
  - \$18.25 million Deer Control Program (2021-24) plus \$4.4 million ongoing from 2024-25
  - \$29 million for Biodiversity Bushfire Response and Recovery (BBRR) adding to the \$22.5 million for immediate response in early 2020. The BBRR program has a major focus on pest herbivore control.
- \ Revegetation for habitat connectivity \$92.3 million for storing carbon including revegetation for habitat connectivity (starting in 2021). The funding will be allocated to two programs, BushBank, supporting revegetation and restoration of native vegetation on public and private land, and the Victorian Carbon Farming Program, targeted to agricultural land.<sup>293</sup>

#### Assessment: in progress

Infrastructure Victoria notes continued improvements should continue to be delivered through the normal business of government.

## Health-care delivery through technology (2.2.3, 3.1.2, 12.1.6, THE)

**Expand the roll-out of video conferencing and remote monitoring for health care and enable technologies to ‘plug in’ and share information over 5-10 years to deliver real-time, cost-effective and convenient health services.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. Government is committed to increasing the use of technology to expand access to health care services remotely, including through the Better Care Innovation Fund. As this recommendation is over 5-10 years implementation will be considered with future budgets.

The Victorian Government's *Statewide Design, Service and Infrastructure Plan for Victoria's Health System* was released in 2017.<sup>294</sup> The plan identifies as a priority the need to develop the regional health workforce to strengthen health care over the period to 2037, including through 'using digital technologies (such as telehealth) to reduce isolation and support remote practice'.<sup>295</sup> The *Statewide Design, Service and Infrastructure Plan* notes technology is increasingly being used in Victoria to deliver better health outcomes, including telehealth, hub-and-spoke models that connect regional hospitals with specialist sites, and the Victorian Stroke Telemedicine Program, which provides 24/7 access to stroke neurologists.<sup>296</sup>

From 2016 to 2020, the Victorian Government provided funding for innovations in the health care sector, including through technology, under the Better Care Victoria Innovation Fund. This fund provided resources for small projects that used technology to better deliver health care services, including: utilising telehealth to provide regional patients suffering from young onset dementia with better, more timely access to specialist care; delivering in-home telemedicine services to rural residents near Latrobe; and using telemedicine to deliver services to rural patients in Intensive Care Units with chronic complex care needs. While these projects were welcome, they were one-off and did not reflect a commitment to recurrent funding. The Better Care Victoria Innovation Fund has also now concluded.<sup>297</sup>

The COVID-19 pandemic accelerated the adoption of telehealth and digital technology more broadly across the health sector. To minimise the risk of COVID transmission in health settings, the health system made greater use of technologies such as remote imaging services, online secondary consultations, electronic scripts, remote monitoring, online team coordination, and electronic health records.<sup>298</sup> The Australian Government provided greater access to bulk-billed video and telephone consultations with medical professionals, extending support in the 2020 and 2021 Australian Budgets.<sup>299</sup> In 2020, \$12.5 million funding was provided to support health services to maintain high usage rates for telehealth services.<sup>300</sup> It is clear that telemedicine and telehealth services offer significant potential to continue to deliver improved health outcomes for patients.<sup>301</sup> In addition, \$2.3 million was allocated in 2021 to trial two new digital services, so rural and regional Victorians can access care from their own homes.<sup>302</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend the adoption of innovative and digital health technologies where these can appropriately complement in-person services, including in regional areas. This is reflected in recommendation 25 - 'Use innovation to deliver better models of health care' and recommendation 87 - 'Use rural schools for children's specialist and allied telehealth services'.

## Health-care ICT systems (3.1.1, 12.1.5, EEA)

**Improve the capability of digital health systems over 0-10 years. This will involve implementing digital clinical systems across public hospitals and health services, establishing clinical and research information exchanges and connecting all elements with a secure communications network. This will enable patient information to be shared within and between health service providers and the research community, improving quality and safety, coordinating services and enabling developments in medical research and technology.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports improving the capability of digital health systems with some recent investments made. As this recommendation is made over 0-10 years, implementation of its full scope will need future budget consideration and the readiness of health services.

The Victorian Government's *Statewide Design, Service and Infrastructure Plan for Victoria's Health System 2017-37* aims to align hospital capacity, infrastructure and patient needs.<sup>303</sup> It builds on a number of existing health care oriented policies by 'continuing to invest in medical technologies', 'ensuring investment in technology goes where it is needed', and 'bringing together medical technology and medical research to drive innovation'.<sup>304</sup> This included a \$11.9 million clinical technology refresh.<sup>305</sup> In 2020, an additional \$30 million funding was provided to upgrade networks and computer servers that support services like pathology, diagnostic imaging, and patient management systems.<sup>306</sup>

In 2017, the Victorian Auditor-General's Office (VAGO) released its *ICT Strategic Planning in the Health Sector* audit.<sup>307</sup> In the audit, VAGO evaluated whether planning effectively aligned with and implemented government policy objectives, finding that while the Department of Health and Human Services' 'recent initiatives show that it is committed to [...] planning more effectively for integrated clinical ICT systems [...] further work is required from the department to fully and effectively implement the Framework'.<sup>308</sup>

The Victorian Government supported and participated in the Australia-wide roll-out of *Australia's National Digital Health Strategy*.<sup>309</sup> However, the government has not released any notable policies related to improving ICT in the health system since 2017, nor has it published a response to VAGO's 2017 audit.

#### Assessment: in progress

Infrastructure Victoria continues to recommend technological (and other) improvements to support more efficient and effective health services. This is reflected in recommendation 25 - 'Use innovation to deliver better models of health care'.



## Health-care partnerships (3.2.1, HAP)

**Develop additional partnerships with community and private sector health care providers over 0-30 years to complement the public health system and promote the sharing of resources and facilities. The completion of the Victorian Statewide system design, service and infrastructure plan will provide greater visibility of where opportunities exist for government and other parties to form partnerships in a more structured, longer-term manner.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation and it will be explored as part of the development of the statewide design, service and infrastructure plan to be released in 2017.

In the *Statewide Design, Service and Infrastructure Plan for Victoria's Health System 2017-37*<sup>310</sup>, the Victorian Government committed to metropolitan<sup>311</sup> and regional partnerships<sup>312</sup> to integrate community insights into health care planning and prioritisation.<sup>313</sup> These partnerships are intended to have 'direct links into major metropolitan health services', with the aim of delivering improved health outcomes for rural Victorians.<sup>314</sup>

The partnerships were renewed in 2019, with the release of the *Rural and Regional Health Partnerships – Guidelines 2020*.<sup>315</sup> The guidelines provide a framework for continuing the partnerships into 2020 by setting core principles to; improve the safety and quality of care to patients, increase the capacity and accessibility of rural health care, improve regional self-sufficiency, and strengthen the sustainability of rural health services and their workforce, with funding commitments of \$750,000 from 2018-19.<sup>316</sup>

During the COVID-19 pandemic, the Victorian Government and major private hospital operators agreed to work together to relieve pressure on the public system.<sup>317</sup> This demonstrated the potential for re-shaping the partnership between public and private hospitals to deliver better health outcomes.

### Assessment: in progress

Infrastructure Victoria notes continued improvements should continue to be delivered through the normal business of government, including as a result of lessons learned from the COVID-19 pandemic response.

## High capacity signalling (10.4.7, RSF)

**Roll out high capacity signalling systems on key sections of the metropolitan rail network, beyond current commitments, over 5-30 years to support the operation of additional services at peak times and improve reliability. This program should build on existing studies and imminent trials, with a likely early focus being the lines that operate through Clifton Hill.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. A High Capacity Signalling project is being rolled out to prepare the network for future demand. The program will require continual review to ensure its deployment schedule reflects demand.

The Victorian Government has committed to a trial and limited roll-out of high capacity signalling on some parts of the network. A high capacity signalling trial is currently underway on the Mernda line, between Epping and South Morang. Following the results of the trial, high capacity signalling will be rolled out along the Sunbury to Cranbourne-Pakenham line. High capacity signalling on this line will be delivered as part of the Metro Tunnel Project, with Signal Control Centres (SCC) in Sunshine and Dandenong. The Sunshine SCC will be complete late 2020, with the Dandenong SCC ready in 2022.<sup>318</sup>

To date, no high capacity signalling roll-outs have been announced for other railway lines.

### Assessment: in progress

Infrastructure Victoria continues to recommend improved signalling to support service and reliability uplifts, and this is reflected in recommendation 59 - 'Increase off-peak service frequencies and suburban rail corridor capacity'.

## High Productivity Freight Vehicles (13.4.3, HPFV)

**Roll out a program of upgrades to the road network supporting high mass High Productivity Freight Vehicles (HPFV), particularly bridges to accommodate heavier axle loads, over 5-15 years. The first step is to confirm the future HPFV network, then identify priority locations and works, focusing on supply chains that will benefit most. This program should be integrated with asset management plans and be undertaken in partnership with local government where appropriate. Work in this area will reduce the number of freight trips required, improving productivity, road safety and environmental performance.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation.

Work is underway with the Australian Government to develop the Higher Productivity Freight Vehicle network and deploy improvements to roads to enable this network. Further budget consideration is required in future years to address the full scope of this recommendation over 5-15 years.

In 2018, the Victorian Government (Freight Victoria) released the statewide freight plan, *Delivering the Goods*.<sup>319</sup> This outlined the need to continue to invest in the expansion of the existing transport network for Victorian Higher Productivity Freight Vehicles

(HPFVs) – heavy vehicle combinations that exceed 26 metres or which have a Gross Combination Mass of more than 68.5 tonnes.<sup>320</sup> *Delivering the Goods* noted the expansion of the HPFV network would require strengthening and upgrading bridges and intersections on regional and metropolitan road networks, and need to consider the role of rail in meeting future freight needs.<sup>321</sup>

In recent years, the Victorian Government has allocated funds to upgrade road network infrastructure to support the expansion of the use of HPFVs. In 2018, \$61.9 million was allocated to upgrade bridges for better access by local communities and HPFVs,<sup>322</sup> and an additional \$19.2 million for Shepparton heavy vehicle alternative freight route upgrades.<sup>323</sup> In 2019, the Victorian Government allocated \$10 million to improve freight transport across regional Victoria,<sup>324</sup> permitted HPFVs to use more of the road network,<sup>325</sup> and made maps of the HPFV Network available online.<sup>326</sup> As of May 2021, approximately 25% of the road network is now permitted for use by high productivity freight vehicles due to the recent addition of several main routes, including the Loddon Valley Highway, the Murray Valley Highway, the Midland Highway and the Northern Highway.<sup>327</sup> In June 2021 the Victorian Government added around 3000 kilometres of road to the pre-approved HPFV network, including key freight routes along the Bass Highway, Murray Valley Highway, Wimmera Highway and Ballarat-Maryborough Road. The new networks will be published online. Six new A Double Tanker networks were also announced.<sup>328</sup> The Australian Government allocated \$39 million to Victoria for the Heavy Vehicle Safety and Productivity Program in its 2021-22 Budget.<sup>329</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend road upgrades and maintenance to meet road freight needs, particularly in regional areas. This is reflected in recommendation 78 - 'Deliver long-term funding certainty for regional road maintenance and upgrades'.

## Housing rental assistance (7.1.1, HRA)

**Extend current state government housing rental assistance and advocacy programs over 0-30 years to support people to stay in the private rental market and avoid the need for higher cost social housing support.**

**Victorian Infrastructure Plan 2017:** Supported.

Government is committed to this recommendation and will deliver through a number of key initiatives set out in *Homes for Victorians*. As this recommendation is 0-30 years, continual monitoring is required to determine whether further investments are needed to address any supply and demand constraints.

The Victorian Government has made several commitments to expanding crisis accommodation and supportive responses through the 2017 *Homes for Victorians* plan.<sup>330</sup> Under Initiative 3 of that plan, the Victorian Government recognised the need

to promote stability and affordability for renters. It announced \$33.2 million over two years to support households to access or maintain private rental housing, through funding private rental brokers to provide flexible support and practical assistance (Initiative 3.2).<sup>331</sup> It also undertook to increase protections for vulnerable residents of 'residential parks' (caravan parks and residential villages) in the event of a park closure for redevelopment. These protections were to be considered as part of the Victorian Government's 'Plan for Fairer, Safer Housing' reforms, which include a review of the *Residential Tenancies Act 1997*, and provide residents time to find somewhere else to live when a caravan park is to close while also requiring park owners to provide appropriate support (Initiative 3.4).<sup>332</sup>

In the *Homes for Victorians* plan, the Victorian Government also committed to investing \$109 million over five years in leasing support, crisis accommodation and support services to help 19,000 homeless people to move into stable housing (Initiative 5.1).<sup>333</sup>

The COVID-19 crisis caused rapid decisions to safeguard tenancies through the pandemic. The Victorian Government legislated a temporary ban on rental evictions during the crisis, provided land tax relief, and established a rental assistance fund.<sup>334</sup> These were extended in September 2020, and the eligibility and support provided by rental assistance increased.<sup>335</sup> The temporary ban on rental evictions expired in 28 March 2021, and on 29 March 2021 amendments were introduced to facilitate a transition out of the eviction moratorium. The transitional regulations will expire in June 2021.<sup>336</sup>

#### Assessment: in progress

Infrastructure Victoria notes continued improvements should continue to be delivered through the normal business of government and the COVID-19 pandemic response.

## Inland Rail (13.5.1, MBF)

**Undertake further scoping and planning work within 0-5 years for delivery of the Inland Rail project, working with the Australian Rail Track Corporation and the Australian Government, to maximise benefits for Victorian freight operations. Completion of this project is anticipated within 10-15 years. Potential benefits include productivity improvements from double stacked containers (noting that construction of an intermodal facility for double stacked containers would be required – see recommendation 13.3.3), decreased transit time between Melbourne and Brisbane and reduced reliance on road-based haulage (ref. MBF).**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports the development of the Inland Rail project with the Commonwealth Government.

In 2018, the Victorian and Australian governments signed a bilateral agreement to deliver the Victorian leg of the Inland Rail project, which will comprise 13 individual projects and span over 1700 kilometres from Melbourne to Brisbane.<sup>337</sup> The agreement includes a commitment to negotiate a long-term lease with the Australian Rail Track Corporation (ARTC), and support from both governments for the extension of the North East Rail Corridor to enable the project to be delivered.

Planning for the Victorian section from Tottenham to Albury (T2A) is currently underway, with construction planned to begin in 2021 along 305 kilometres of existing rail corridor from metropolitan Melbourne to the New South Wales border. This first stage of the project will involve improvements at 12 sites along the North East line to enable double stacked freight trains 1800 metres in length to be run on the track.<sup>338</sup>

The Victorian Government is due to complete the planning work in 2021 for the location of a new interstate intermodal terminal in Melbourne with the Inland Rail project.<sup>339</sup> Two possible sites have been identified at Truganina and Beveridge, currently operating as interstate freight terminals. The 2021-22 Federal Budget committed \$2 billion towards the terminal.<sup>340</sup> Infrastructure Victoria recommend the Victorian Government immediately determine the preferred the new intermodal freight terminal and facilitate its delivery (see recommendation 65).

#### Assessment: substantially complete

Infrastructure Victoria notes the intent of the recommendation is being met.

## Innovative transport services (1.3.1, 10.7.1, 12.2.2, MAS)

**Remove barriers to the entry of new market players offering innovative transport services within 0-5 years to increase travel options and encourage higher vehicle occupancy.**

**Particular areas of opportunity include ride hailing, car pooling and private minibuses and coaches providing either on-demand or fixed schedule services through third-party applications. In regional areas, the ability to earn a supplementary income and provide much needed local on-demand transport has the potential for widespread community benefit. This should be undertaken with a review of metropolitan bus contracts to ensure that new players are not contractually precluded or otherwise disadvantaged from entering the market.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the development of new and innovative transport options, subject to further investigation including safety, equitability and value for the community. Government has already started to reform the commercial passenger vehicle sector and will continue to explore other areas where new types of services can improve connectivity.

Since 2016, the Victorian Government's actions on promoting innovative transport services have focused on encouraging minor improvements while mitigating the impact on existing services from technological change. This has involved legislative change to enact reforms of the taxi and hire car industries, specifically the *Commercial Passenger Vehicle Industry Act 2017* and *Commercial Passenger Vehicle Industry Amendment (Further Reforms) Act 2017*.<sup>341</sup>

On the basis of these Acts, the Department of Transport has progressively implemented reforms that include: increasing the number of commercial vehicles and rideshare and taxi booking service providers in the market; applying more stringent and consistent standards and customer protections across commercial passenger vehicle types, including rideshare vehicles, and requiring all drivers to pass police, medical and driving history checks; promoting more services for people with a disability; and providing funding for industry transition assistance. The Victorian Government has also replaced annual taxi and hire car licence fees – a cost not borne by rideshare vehicles – with a new levy of \$1 per trip for all commercial passenger vehicles.<sup>342</sup>

Most recently, to assist with electric vehicle uptake by commercial passenger fleets and in passenger car sales, the Victorian Government announced a \$3000 subsidy for at least 20,000 new zero emission vehicle purchases from May 2021. Subsidies will be available in stages, with an initial 4000 on offer in the first round.<sup>343</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend reforms to promote innovative transport service models, across travel modes, to generate greater efficiency and competition across the network. This is reflected in recommendation 22 - 'Facilitate integration of public transport with new mobility services'. The continuing need to provide innovative transport solutions which respond to community needs in regional areas is reflected in recommendation 83 - 'Redesign regional public transport to meet local needs'.

## Integrated community health hubs (3.2.3, 12.1.7, ICP)

**Expand the provision of integrated, community-based health hubs over 5-30 years, in partnership with a mix of health providers and other complementary human services and justice service providers. This will allow for a greater focus on primary and preventative health, better meeting local community needs and reducing pressure on hospitals (ref. ICP).**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, and has implemented examples of integrated community health hubs through the Better Care Innovation Fund and the Regional Health Infrastructure Fund. As this recommendation is over 5-30 years, its full scope will need to be considered as part of future budgets.

Since 2016, the Victorian Government has expanded support for facilities that deliver community and primary health services in an integrated way. That year, and in response to the 2015 Travis Review of the public hospital system, Better Care Victoria (BCV) and the BCV Innovation Fund were established to support more timely, appropriate access to quality care, particularly through more innovative health practices. BCV and the BCV Innovation Fund concluded in 2020, having supported health services to deliver upgrades in three focus areas: digital health; care delivered outside of hospital premises; and quality and safety.<sup>344</sup>

In 2016, the Victorian Government also established the Regional Health Infrastructure Fund (RHIF), an annual grant program targeted at improving health and aged care services for regional Victoria. Managed by the Department of Health, the RHIF has been allocated \$470 million since 2016 and generally funds facility and equipment upgrades, including projects which add services to existing facilities.<sup>345</sup>

The *Statewide Strategic Services and Infrastructure Plan 2017-37* recognised as priorities the use of health and wellbeing hubs to 'make it easier for people to access what they need to stay well or recover sooner in the community'.<sup>346</sup> In 2019, the Victorian Government committed \$675 million to build and upgrade 10 community hospitals close to rapidly growing areas in Craigieburn, Cranbourne, Pakenham, Phillip Island, Sunbury, Torquay, the City of Whittlesea, Eltham, Point Cook and Fishermans Bend. Managed by the Department of Health, these hospitals are to provide a broad range of walk-in, primary and preventative hospital, community health and social services and reduce unnecessary presentations to hospitals. Construction is expected to start by 2022 and be completed by 2024.<sup>347</sup>

The Australian Government also contributes funding to health, hospital and infrastructure projects in Victoria.<sup>348</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend innovative improvements to health care, reflected in recommendation 25 - 'Use innovation to deliver better models of health care'. In addition, recommendation 88 - 'Deliver multipurpose shared social service facilities in the regions' seeks to address barriers to planning and delivering integrated facilities which incorporate a mix of health and community services.

## Irrigation water delivery (14.1.3, WDE)

**Deliver modernisation or pipelining projects for irrigation water delivery systems in areas where this is yet to be addressed within 0-10 years to ensure systems across the state are operating with minimal water losses. This closes out the range of initiatives to improve delivery efficiency in irrigation systems.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, with any major upgrades to be considered on a project-by-project basis over the next 10-years, as part of future budgets.

The Victorian Government has continued to contribute to modernisation and pipelining projects for irrigation water delivery systems. This includes automating and upgrading channels, removing redundant channels, replacing open channels to reduce evaporation, upgrading the accuracy of meters, and lining and remodelling channels to minimise water lost during transport.<sup>349</sup>

In 2016, the Victorian Government contributed funding towards the Macalister,<sup>350</sup> Bacchus Marsh and Werribee Irrigation Districts. These projects have been progressively delivered, with the Bacchus Marsh project due to be completed in 2021.<sup>351</sup> In 2021, Australian Government allocated \$11 million towards stages 4 and 5 of the Werribee project.<sup>352</sup> In 2020, the Victorian Government committed \$10.4 million in funding for Phase 2 of the Macalister Irrigation District Modernisation project, bringing its contribution for the project to \$46 million with local irrigators and the Australian Government contributing the remainder of funding.<sup>353</sup> This phase of the project is due to be completed by 2024.<sup>354</sup>

The South West Loddon Pipeline Project, a 1300 kilometre pipeline to secure water supply for the south-west Loddon area as part of the Victorian Government's Water for Victoria plan, was completed in May 2020.<sup>355</sup> The project was jointly funded by the Victorian and Australian governments, Grampians Wimmera Mallee Water and landowners.<sup>356</sup> In addition, the Victorian Government committed \$500,000 to a study scope potential infrastructure options for expanding irrigation development in central Gippsland.<sup>357</sup>

The Victorian Government, through Goulburn Murray Water, is delivering the Goulburn Murray Water Efficiency Project to generate 15.9 gigalitres of environmental water savings by modernising, upgrading or decommissioning water channels and outlets by 2023. In 2021, the Australian Government contributed \$177.5 million to the Water Efficiency Project, to modernise and upgrade ageing off-farm water infrastructure in the Goulburn-Murray Irrigation District.<sup>358</sup>

The Victorian Government is also providing grants for landowners to improve the efficiency of their on-farm water use, including through appropriate irrigation development and modernisation, as part of its Sustainable Irrigation Future Initiative. So far, 276 grants have been provided, covering a total of 2073 hectares.<sup>359</sup>

#### Assessment: substantially complete

Infrastructure Victoria notes considerable progress in modernising water infrastructure. However, given the ongoing impacts of climate change on water security, we continue to recommend the modernisation of water delivery systems and infrastructure. This is reflected in recommendation 16 - 'Strengthen agricultural water security by modernising irrigation'.

## Justice case management ICT system (8.2.3, CSC)

**Develop a justice case management ICT system within 0-10 years that builds on work occurring for courts and aims to create one view of the client across the criminal justice system. This should be designed and delivered with consideration of how to link to civil justice systems with health and human services.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation and will address the needs of the Magistrates' Court and Children's Court in the short term through an \$89.2 million investment for a new case management system. As this recommendation is over 0-10 years further investment will be considered in future budgets.

The implementation of the \$89.2 million case management system (CMS) is underway at the Magistrates' Court and Children's Court.<sup>360</sup> CMS will be a single point of entry for cases in both courts. This will enable greater justice agency interaction with the courts, minimise manual and paper-based practices by moving some processes online, and improve efficient court management.

Courts will seek to share large volumes of information with several external parties. Consultation has begun with Victoria Police, Department of Justice and Community Safety – including Corrections Victoria, Youth Justice, Infringement Management and Enforcement Services and Fines Victoria – the Department of Health and Human Services, Department of Transport, Victoria Legal Aid, Office of Public Prosecutions, Law Institute of Victoria and Victorian Bar Association.

The initial and procurement phases of CMS implementation are now complete. Implementation is underway, with an early step the establishment of a web portal that allows external users and courts to securely exchange documents digitally.<sup>361</sup> A fully integrated system will not be implemented until CMS is rolled out in the Magistrates' and Children's courts.

Case management will be helped by the new *Justice Legislation Amendment (System Enhancements and Other Matters) Act 2021*, which provides a legal framework for the electronic signing and remote witnessing of important legal documents such as deeds, wills, powers of attorney, statutory declarations and affidavits.<sup>362</sup>

The COVID-19 pandemic changed how justice is administered in courts and tribunals.<sup>363</sup> Courts now make significantly greater use of technology<sup>364</sup> and have used remote testimony to reduce the number of attendances required for filing hearings.<sup>365</sup> In early 2021, the Victorian Government passed the *Justice Legislation Amendment (System Enhancements and Other Matters) Act 2021* to enable courts to hear a wider range of matters via audio visual link and without in-person hearings. The Act also provides a legal framework for the electronic signing and remote witnessing of

important legal documents, and continues measures introduced during the pandemic to streamline arrangements for serving documents, enabling remote attendance and examinations, and electronically inspecting documents.<sup>366</sup>

In 2021-22 the Victorian Government also allocated \$12.2 million for County Court accommodation and renewal, \$10.2 million to grow the for Online Magistrates' Court and \$29 million for the Victorian Civil and Administrative Tribunal digital service transformation.<sup>367</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend a modern, flexible justice system, which can improve service delivery, as reflected in recommendation 26 - 'Modernise courts through digitisation and contemporary shared facilities'.

## Justice/health/human services integrated planning (8.1.1, JCS)

**Develop joint service delivery plans for justice, health and human services within 0-5 years that identify opportunities for incrementally delivering complementary integrated systems and facilities. This includes planning ahead when refurbishing existing facilities or delivering new facilities or ICT upgrades. These plans should include consideration of related services provided by government, community and private sector organisations to victims and offenders.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government agrees with the intent of this recommendation. Considerable work is already underway with the integration of family violence services with justice and potential of forensic mental health linkages where appropriate; however, it may be noted that some elements of service delivery are not suitable for integration.

Health and human services such as specialist family violence agencies, community, health, education, police and justice services, are integrated with justice services.<sup>368</sup> Joint service delivery plans have not been developed for justice, health and human services.

In 2021 the Victorian Government announced a \$500 million social housing funding boost, including stable housing and support services for those in contact with the justice system. The funding included \$42 million from the Maintenance Stimulus Package to create 250 bedrooms across 16 projects in Melbourne and regional Victoria, \$4.6 million will see new self-contained units at two Annie North Haven sites in the Greater Bendigo area, and \$2.3 million to expand the EACH Housing's supervised rehabilitation facility in the Yarra Ranges area. These projects are due for completion by mid-2022.<sup>369</sup>



**Assessment: not commenced**

Infrastructure Victoria continues to recommend justice, health, human services integrated planning, and this is reflected in recommendation 27 - 'Improve technology and infrastructure for a responsive police service', recommendation 32 - 'Produce public plans for priority infrastructure sectors', and recommendation 88 - 'Deliver multipurpose shared social service facilities in the regions'.

## Landfill protection (15.2.1, FLS)

**Amend planning provisions to require consideration of the location of landfills and sensitive land uses in decision-making by applying the Environmental Protection Agency's buffer distances, such as the 500 metre gas migration area, within 0-5 years. The 'reverse amenity' principle, which aims to ensure that sensitive land uses are not located or designed in ways that would expose people to unacceptable amenity impacts, can be considered to prevent land use conflicts.**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports this recommendation, which will be addressed through implementation of the response to the review of the Environment Protection Authority (EPA) Victoria.

The Victorian Government has made several commitments to including location and land use considerations within planning provision guidelines. This has primarily been through the response to the review of the EPA Victoria.

*Victoria's Recycling Infrastructure Plan* – formerly known as the *Statewide Waste and Resource Recovery Infrastructure Plan* (SWRRIP)<sup>370</sup> – lists the ways in which the Victorian Planning Provisions (VPPs) integrate the land use planning system with the Waste and Resource Recovery Infrastructure Planning Framework.<sup>371</sup> For instance, the VPPs require consideration of the SWRRIP and Regional Implementation Plans, where an assessment against the planning scheme is required.<sup>372</sup>

In May 2020, DELWP introduced amendment VC175<sup>373</sup> to strengthen the policy for managing buffers and better explain how different uses and activities should manage their off-site impacts. In March 2021, DELWP made further changes by introducing amendment VC10<sup>374</sup> introducing a new Buffer Area Overlay to the VPPs. The overlay is to control land use and development within buffer areas and help prevent encroachment of incompatible land use. The overlay also helps to manage unintended impacts on sensitive land uses. DELWP also released planning note (92) *Managing buffers for land use compatibility*<sup>375</sup> to help plan for land use compatibility and the management of buffers.

In 2017, the EPA Victoria released Publication 1642: *Assessing planning within the buffer of a landfill*. While not legally binding, the publication provides guidelines to assist planning and responsible authorities under the *Planning and Environment Act 1987*. The guidelines aim to assist the assessment of planning permit applications and planning scheme amendments that would lead to development within the buffer of an operating or closed landfill.<sup>376</sup> The guidelines look at the need for buffers around landfill sites and the legislation and VPPs that apply to them, providing a recommended approach to assessment.<sup>377</sup> The publication may need to be updated to reflect the recent changes to the Victorian planning system.

The new *Environment Protection Amendment Act 2018* will come into force on 1 July 2021.<sup>378</sup> The new Act will provide for stronger penalties and introduce a General Environmental Duty to reduce the risk of activities to the environment and community. In November 2020, the EPA Victoria released *Implementing the general environmental duty: A guide for licence holders*<sup>379</sup> to help licence holders minimise impacts from their activities and comply with the General Environmental Duty.

**Assessment: substantially complete**

Infrastructure Victoria continues to recommend an approach to waste disposal and processing sites that minimises landfill and the impact of landfill on communities and the environment. The Victorian Government should continue to strengthen infrastructure planning to manage residual waste through the *Victorian Recycling Infrastructure Plan*, as reflected in recommendation 31 - 'Minimise waste and improve residual waste infrastructure planning'.

## Level crossing removals (11.3.3, MLC)

**Develop a transparent prioritisation process within 0-5 years for targeted removal of level crossings beyond current commitments made by government. This should build on work already completed by VicRoads and consider desired land use outcomes, including supporting major employment centres, noting that, even over a 30-year period, it is likely that removing all remaining metropolitan level crossings will not be viable. Level crossing removals reduce the potential for conflicts between road users and rail operations and reduce congestion on surrounding roads.**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports this recommendation. A prioritisation framework that considers updated data, including land use, should be considered as part of any future decisions to expand the level crossing removals program, noting there is no financial commitment beyond the current schedule.

The Department of Transport and Level Crossing Removal Project (LXRP) spent 18 months developing a four-step prioritisation framework, which was released in 2018.<sup>380</sup> The framework navigates the complex task of prioritisation in a clear, logical and transparent way. The four steps of the framework, detailed on the LXRP website,<sup>381</sup> are:

- \ **Step 1: Gather data** – Identify remaining level crossings for potential removal and gather data for each site regarding the key principles. The key principles that underpin the framework are Movement, Place, Safety and Delivery.
- \ **Step 2: Categorise** – Categorise which sites demonstrate a ‘very high need’ and a ‘high need’ regarding each key principle.
- \ **Step 3: Prioritise** – Prioritise sites based on a balanced consideration of key principles. Select initial priority sites.
- \ **Step 4: Optimise** – Undertake a supplementary ‘sense check’ assessment of all sites.

#### Assessment: substantially complete

Infrastructure Victoria notes the intent of the recommendation has been met.

## Long distance rail services (12.2.9, RTL)

**Provide targeted additional rail services on existing long-distance lines over 0-10 years. The initial focus should be on delivering five services five days per week. However, further planning and investigation is required to understand the unique service needs of each line across the network and develop a service plan that meets these needs, including consideration of weekend demand. Long distance lines including Warrnambool, Bairnsdale, Albury-Wodonga, Echuca, Swan Hill and Shepparton should all be considered, but Shepparton is a high priority for further assessment.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. A range of recent initiatives make progress against this recommendation. As this recommendation is over 10 years, implementation of its full scope will require future budget consideration, as well as further investment in rolling stock.

The *Regional Network Development Plan*, released in 2016, followed significant consultation with local and regional stakeholders to assist with the development of long-term infrastructure and service priorities. The plan foreshadowed additional investments in V/Line rail and bus passenger infrastructure and services.

The most significant improvements in regional rail since 2016 have been under the Regional Rail Revival program. A joint initiative of the Australian and Victorian governments, this program aims to upgrade stations, track and signalling along every regional passenger line. Funding for upgrades under the Regional Rail Program includes: \$518 million for the Ballarat line;<sup>382</sup> \$91 million for the Bendigo and Echuca line;<sup>383</sup> \$160 million for the Geelong line;<sup>384</sup> \$530 million for the Gippsland line;<sup>385</sup> \$235 million for the North East line;<sup>386</sup> \$10 million for capacity improvements on the Shepparton Freight Network;<sup>387</sup> and \$114 million for the Warrnambool line.<sup>388</sup>

The Shepparton line upgrade will deliver more reliable services and modern trains. The first stage of the Shepparton line upgrade was delivered in 2018, with delivery of the next upgrades to enable VLocity trains to and from Shepparton, as well as level crossing upgrades, platform upgrades and train stabling due to conclude in late 2022.<sup>389</sup> The Ballarat line upgrade was delivered in early 2021, with passengers now enjoying trains every 20 minutes during peak times.<sup>390</sup>

#### Assessment: substantially complete

Infrastructure Victoria notes the intent of the recommendation has been met.

## Major cultural/sporting infrastructure (4.3.1, 5.1.1, CSM)

Develop a transparent decision-making framework to guide any future state government investment in major cultural/arts and sporting infrastructure within 0-5 years. The criteria applied, and the supporting resources, should ensure that any future infrastructure investment will benefit more than one or two main groups; but have a wider community benefit new spaces for community use.

### Victorian Infrastructure Plan 2017: Partly supported.

Government partly supports this recommendation and notes that considerable work is already underway through existing strategy development including the Creative State Strategy, State Facilities Strategy and Major Stadia Strategy. Further work will be undertaken to determine the practicality of a framework that considers sport and creative industries infrastructure together.

In 2018, the Victorian Government published its major stadia strategy, *Home Ground Advantage*, which focuses on major field stadia and indoor arenas which host national and international men's and women's sporting competitions and entertainment events.<sup>391</sup> The strategy aims to identify investments and initiatives that would support Victoria to retain its reputation as a leader in providing sporting and other major events over the coming three decades.<sup>392</sup> Priorities identified in *Home Ground Advantage* include: professional women's sport; regional event attraction; transport integration around major venues; safety and security; and universal design.<sup>393</sup> Investments are outlined for Etihad Stadium in Melbourne's Docklands; upgrades to women's professional sport venues; Eureka Stadium at Ballarat; Kardinia Park at Geelong; and the Melbourne Cricket Ground.<sup>394</sup>

The *Creative Victoria Act 2017*<sup>395</sup> and the launch of the Creative State strategy, which sets out 40 actions to grow the creative and cultural economy,<sup>396</sup> represent significant steps toward improving the decision-making frameworks for investment in major cultural infrastructure. The Victorian Government has also made a series of major announcements for the Melbourne Arts Precinct, including: major new attractions, such as the National Gallery of Victoria's new contemporary art gallery; the new Australian Performing Arts Gallery; expanding the Australian Music Vault; and modernising the Arts Centre Melbourne's theatre buildings.<sup>397</sup> The Victorian Government is also investing \$1.4 billion in the redevelopment of Melbourne's arts precinct in Southbank.<sup>398</sup>

### Assessment: in progress

Infrastructure Victoria notes progress to date on this recommendation, the remaining elements of which should continue to be delivered through the normal business of government.

## Major hospitals (3.2.4, THR)

Respond to the aged condition of the Alfred, Royal Melbourne and Footscray hospitals, with a view to completing a major refurbishment or new facility construction of one or more of these hospitals within 10-15 years. This will be required to efficiently support the delivery of specialist and complex statewide health services and meet the needs of rapidly growing inner city populations.

**Victorian Infrastructure Plan 2017:** Government supports the intent of this recommendation. A number of funded projects align with the priority hospitals identified by Infrastructure Victoria. As this recommendation is over 10-15, its full scope will need to be considered with future budgets.

In 2018, the Victorian Government committed to, and allocated funding for, a complete rebuild of Footscray Hospital. This rebuild project will see a new, \$1.5 billion hospital built on Victoria University's Footscray Park campus, with the existing facility continuing to operate in the interim. Construction is underway and due to be completed by 2025.<sup>399</sup>

To date, funding for upgrades at the other two major hospitals identified in the recommendation – the Alfred Hospital and Royal Melbourne Hospital – had been much more modest. Initially allocating \$40 million for upgrade works at the Royal Melbourne's City and Parkville campuses<sup>400</sup> in 2020, the Victorian Government announced \$10 million for initial planning to redevelop the Royal Melbourne Hospital's City Campus and consider a new site for the hospital in the Arden Renewal Precinct in North Melbourne.<sup>401</sup> That redevelopment is yet to be fully funded. The Alfred Hospital has received \$4.1 million in funding to upgrade its fire services<sup>402</sup> and \$69.5 million to upgrade the old Main Ward Block.<sup>403</sup>

In response to the COVID-19 pandemic, the Victorian Government committed significant additional funds to increase the capacity of public hospitals. In April 2020, it announced \$1.9 billion to increase bed capacity statewide by more than 700, including at the Alfred Hospital and other major hospitals.<sup>404</sup> In the 2020-21 Victorian Budget, the government committed an extra \$2.7 billion, including to support the continued operation of new facilities opened in response to the COVID-19 pandemic.<sup>405</sup> However, these investments were made in response to a short-term need rather than in response to projections of long-term demand.

### Assessment: in progress

Infrastructure Victoria continues to recommend refurbishment of Melbourne's major hospitals, and this is reflected in recommendation 32 - 'Produce public plans for priority infrastructure sectors' and recommendation 56 - 'Upgrade and rebuild public hospital infrastructure'.

## Major water supply augmentation (14.3.1, RWW, WSA1)

**In liaison with water businesses, transparently determine trigger points for major water supply augmentation within 0-5 years to enable timely community engagement and investment decisions in the long-term interests of the community. Major water supply augmentation may be required in 15-30 years or beyond. To increase water security, consideration of rainfall-independent technologies is appropriate, but the mix of technologies or sequencing of technology choices requires informed community discussion. Consideration of suitable technologies should reflect innovative opportunities available in the market. Some currently available options for consideration include: recycling water for drinking; increasing the capacity of Wonthaggi desalination plant from 150 gegalitres to 200 gegalitres; additional groundwater capacity; new major desalination capacity elsewhere in the state.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government supports the intent of this recommendation, and will continue to monitor the need for major augmentation of water supplies through existing planning processes. Of the potential augmentation options, recycling wastewater for drinking is not supported and not government policy.

The Victorian Government has progressed its statutory processes for statewide resource planning through reviewing existing strategies and undertaking long-term water resources assessments. The Victorian Government are reviewing the *Central and Gippsland Region Sustainable Water Strategy* (CGRSWS), the state's plan for the sustainable use of water resources in the Central Region. The final CGRSWS and implementation plan is expected to be released in 2022.<sup>406</sup> It also undertook long-term water resource assessment for southern Victoria, completed in February 2020.<sup>407</sup>

Public urban water corporations released their urban water strategies in 2017, including the *Melbourne Water System Strategy*.<sup>408</sup> These strategies identify a range of augmentation options but are constrained in their consideration of technologies based on Victorian Government policy. The *Melbourne Water System Strategy* has an action to identify and evaluate potential long-term water supply options by June 2021, including trigger points and adaptive pathways for flexible stage investments.<sup>409</sup> The urban water and system strategies for Melbourne are under review. The final strategy is due to be submitted to the Department of Environment, Land, Water and Planning (DELWP) by the end of March 2022. Barwon Water is also currently reviewing its urban water strategy due for release in 2022.<sup>410</sup> DELWP released guidelines to guide the development of urban water strategies which promotes the use of all available sources to support liveability outcomes where the water sources are fit-for-purpose.<sup>411</sup> Melbourne Water, Greater Western Water, South East Water, and Yarra Valley Water are jointly preparing a 50-year strategy for greater Melbourne called 'Water for Life'.<sup>412</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend consideration of rainfall-independent technologies, and this is reflected in recommendation 13 - 'Consider all water supply sources'. We also continue to recommend improvements to major water supply augmentation planning in recommendation 15 - 'Improve decision-making for urban water investment'.

## Melbourne Airport bus (10.9.1, 11.4.1, MAB)

**Deliver a high level of on-road priority to bus services linking Melbourne Airport to central Melbourne, including better signalling and managed motorway improvements, over 0-10 years. This will maximise the capacity, efficiency and reliability of these services and defer the need for a more costly investment in a heavy rail line to Melbourne Airport to the 15-30 year period (see recommendation 10.9.2/11.4.2). Upgrading airport bus services will make this mode more attractive for use by employees at the airport and surrounding facilities and for travellers, reducing demand and congestion on Tullamarine Freeway.**

**Victorian Infrastructure Plan 2017:** In progress. Works are underway to increase road capacity as part of the CityLink Tulla Widening project that will improve bus travel to the airport. Higher levels of on-road prioritisation will be assessed in the context of the broader network and long-term airport access planning.

The Victorian Government responded to this recommendation with the CityLink Tulla Widening project. Completed in 2018, the project increased capacity on the Tullamarine Freeway, CityLink and West Gate Freeway, from Melbourne Airport through to Power Street, Southbank. Major Road Projects Victoria, which managed the project, state that average speeds during the morning peak almost doubled after the new lanes opened.<sup>413</sup>

### Assessment: not commenced

Infrastructure Victoria notes progress on this recommendation, noting the Victorian Government's commitments to the Airport Rail Link effectively supersede the need for significant new investment in bus connections between central Melbourne and Melbourne Airport.

## Melbourne Airport rail link (10.9.2, 11.4.2, MAH)

**Deliver a rail line to Melbourne Airport, preferably linking with central Melbourne and the south-east, within 15-30 years once the additional capacity of the airport bus is close to being exceeded (see recommendation 10.9.1/11.4.1). This rail line will provide a higher capacity and higher quality service for interstate and international visitors to travel from the airport to the central city. Further network planning to confirm the optimum way to integrate this line into the network will be required, given projected high growth on the Sunbury and Melton lines, with which a Melbourne Airport rail link is currently proposed to share tracks along the Sunshine corridor. Opportunities to improve access to employment in and around Melbourne Airport and the potential land use outcomes should be investigated as part of the project scope.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of the Melbourne Airport rail link. The CityLink Tullamarine Freeway Widening project will provide extra capacity in the near future for the airport bus. Funding has been provided for an airport rail study and will work with the Commonwealth and private sector to explore ways to fund and deliver the project. As the build component of this recommendation is over 15-30 years, implementation will be considered as part of future budgets.

The Victorian and Australian governments made commitments of up to \$5 billion each to deliver the Melbourne Airport Rail Link project.<sup>414</sup>

In 2017, the Victorian Government committed \$10 million towards a business case for the project and the Australian Government \$30 million.<sup>415</sup> In 2018, the Victorian Government allocated an additional \$50 million for a detailed investigation of a rail pathway to Melbourne Airport, as well as a high-speed rail link between Geelong and Melbourne.<sup>416</sup> In March 2019, the Australian and Victorian governments signed an agreement for the project, under which the agreed route for the Melbourne Airport Rail Link would see a line constructed from Melbourne Airport (Tullamarine) via the existing rail corridor to Sunshine and then on to the CBD. The total cost of the Sunshine alignment is estimated at \$8 to \$13 billion.<sup>417</sup>

The Melbourne Airport Rail Link will run through the Melbourne Metro Tunnel to the airport via Sunshine.<sup>418</sup> Train services are expected to provide passengers with a 10-minute turn-up-and-go service from Melbourne Airport, creating a journey to the CBD in under 30 minutes.<sup>419</sup> Melbourne Airport Rail will use the new fleet of high capacity trains.<sup>420</sup> Construction will begin in 2022 with a target opening date of 2029.<sup>421</sup> These delivery timeframes are subject to the business case and relevant Victorian and Federal planning, environmental and other government approvals.<sup>422</sup>

### Assessment: in progress

Infrastructure Victoria notes the intent of the recommendation has been met, and will continue to be delivered by the normal business of government.

## Melbourne Metro – future stages (10.10.2, MMS)

**Identify trigger points and update the long-term plan for a major uplift in capacity on the Mernda, Werribee and Sunshine rail corridors within 0-5 years. It is likely this extra capacity will be required in the latter part of the 15-30 year period or potentially beyond 30 years. A new rail tunnel linking Newport and Clifton Hill offers a potential solution, along with providing greater accessibility to Fishermans Bend and Parkville. However, this is a particularly high cost solution and further network planning is required, considering how such an investment could deliver greater benefits (given that current plans do not show any improvements to the Sunshine corridor) as well as all available options to better use existing infrastructure first.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation. Future metropolitan rail extensions will be assessed as part of integrated transport planning. Trigger points will be identified as part of this work.

Since the release of the 2016 strategy, the Victorian Government has announced the Western Rail Plan (WRP). The WRP will deliver new electrified metro lines to Melton and Wyndham Vale; increase capacity between Sunshine and the CBD; and deliver improvements to the Geelong and Ballarat lines, allowing trains to run faster than 160 kilometres per hour.<sup>423</sup> The WRP will create capacity so the full benefits of the Metro Tunnel project can be realised. The WRP is being considered with the Melbourne Airport Rail link business case, due in late 2020.

The *Fishermans Bend Integrated Transport Plan*, published in 2017, included a recommendation for light rail,<sup>424</sup> and considered potential locations for underground stations to be delivered, as part of Melbourne Metro Two.<sup>425</sup> To date, no trigger points for further investment on the Mernda, Werribee or Sunshine rail corridors have been made public. No commitments to the Melbourne Metro Two project have been made.

### Assessment: not commenced

Infrastructure Victoria continues to recommend the protection of land required to expand Melbourne Metro. This is reflected in recommendation 61 - 'Prepare for Melbourne Metro Two and direct Geelong rail services'.



## Melton rail electrification (1.3.6, 10.8.3, MRE1)

Extend the electrified rail network to Melton, including additional stations in growth areas, within 10-15 years to support the western growth corridor and improve services on the Ballarat line. This electrification is critical to meeting the significant projected patronage growth on the Melton line for access to the central city and requires the support of 10-car high-capacity metro trains (see recommendation 10.5.2) to operate on this line.

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. As this recommendation is over 10-15 years, implementation will be considered as part of future budgets.

In 2017, construction commenced on upgrades to the Ballarat line, including the duplication of 18 kilometres of track between Deer Park West and Melton. These works aimed to increase the reliability of services for Melbourne's outer west and the Ballarat region by separating metropolitan and regional services.<sup>426</sup>

In 2018, the Victorian Government released a high-level Western Rail Plan, which included a commitment to deliver two new electrified metropolitan rail lines through the western suburbs to growth areas in Melton and Wyndham Vale. These lines will be separated from the Ballarat and Geelong lines, enabling frequent and high-capacity services between Melton and Wyndham and freeing capacity on the regional rail lines. In addition to separating the two lines, the Western Rail Plan also sets an intention to explore the electrification of lines to Ballarat and Geelong as well as upgrades to enable express regional train services faster than 160 kilometres per hour.<sup>427</sup> In 2019, the Victorian Government allocated \$75 million for planning and development of the Western Rail Plan, including the development of a business case and detailed design work.<sup>428</sup> The Australian Government has also committed \$30 million towards the Western Rail Plan.

In early 2020, upgrades to the Ballarat line, including the track duplication (but not electrification), were completed at a cost of \$545 million.<sup>429</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend increases to rail capacity to Melbourne's west, as well as other rapidly growing areas in the city's north and south-east. This is reflected in recommendation 76 - 'Expand and upgrade Melbourne's outer suburban road and bus networks'.

## Mental health/AOD facilities (3.3.2, MHA)

Expand the provision of infrastructure to support mental health and alcohol and other drug (AOD) rehabilitation services across emergency, acute, sub-acute, community and long-term care over 5-30 years. The first step is to define the strategic approach to service delivery and align infrastructure planning accordingly. Opportunities to co-locate with complementary justice services and human services should also be considered.

**Victorian Infrastructure Plan 2017:** Government supports the intent of this recommendation. Funding commitments in 2017/18 include \$10 million for mental health and alcohol and other drug facilities renewal, \$34.8 million for new rehabilitation beds and \$9.7 million to acquire land in regional Victoria to build new residential drug rehabilitation facilities. Further detailed planning is underway through the statewide design, service and infrastructure planning framework. Additional facilities over 5-30 years will require future budget consideration.

The Victorian Government has made a range of commitments to infrastructure which supports mental health and alcohol and other drug (AOD) rehabilitation services. The 2017 *Statewide Design, Service and Infrastructure Plan for Victoria's Health System*<sup>430</sup> highlights the importance of 'closing the gaps in clinical mental health services and alcohol and other drug treatment services'.<sup>431</sup> In the plan, the Victorian Government committed \$201.1 million for bed-based and community mental health capacity and \$78.4 million to expand the Ice Action Plan, including upgrades to mental health and AOD service facilities.<sup>432</sup> The *Drug Rehabilitation Plan*, also released in 2017, saw the Victorian Government commit \$87 million in funding for 100 new rehabilitation beds and other drug treatment projects.<sup>433</sup>

The Royal Commission into Victoria's Mental Health System was established in 2017, released an interim report in late 2019 and delivered its final recommendations in early 2021. It recommended sweeping reform of the mental health system, including the establishment of a dedicated capital investment fund to address historical underinvestment. This fund would support the delivery of infrastructure required to deliver more services in the community, as well as improve the quality of quantity of acute care services.

The Victorian Government has made a commitment to implementing every recommendation from the Royal Commission.<sup>434</sup> In late 2020, it allocated significant funding to deliver on the interim recommendations, including \$492 million to deliver 120 new acute mental health beds in Geelong, Epping, Sunshine and Melbourne and \$18.9 million to deliver another 35 beds for public patients in private health services. The government also committed \$2.2 million to design work for a new Victorian Collaborative Centre for Mental Health and Wellbeing, \$7.3 for a new residential mental health service, and \$20 million for upgrades to state-owned mental health facilities.<sup>435</sup>

In 2021, the Victorian Government announced it would establish six new mental health 'hubs' in Benalla, Brimbank, Frankston, Greater Geelong, Latrobe Valley and Whittlesea by the end of 2022, with up to another 60 sites to open by 2026.<sup>436</sup>

In 2020, the Victorian Government allocated \$20 million for the renewal of state-owned facilities, \$4.4 million for new alcohol and other drug residential rehabilitation beds in Corio, Wangaratta and Traralgon, and \$1 million to continue support for the Aboriginal Metropolitan Ice Partnership Initiative.<sup>437</sup>

The Australian Government has also provided additional funding to mental health and suicide prevention. In 2021, it announced \$487 to establish a national network of adult mental health centres, \$278 million to expand *headspace* youth services, and over \$100 million each for digital mental health services and group therapy.<sup>438</sup>

In 2021, the Victorian Government committed a \$3.8 billion overhaul of the mental health system.<sup>439</sup> This included \$507 million in capital projects to add capacity and help rebuild Victoria's mental health system. This funding was in addition to the investment in the 2020–21 Victorian Budget to deliver 120 acute mental health beds. The new investments include:

- \ \$350 million for the Thomas Embling Hospital, including a new 34-bed dedicated
- \ women's precinct, new 48-bed men's precinct and refurbishing existing units
- \ \$141 million for five new 10-bed youth prevention and recovery care (YPARC) units
- \ and refurbishing three existing YPARC units
- \ \$11 million to deliver an additional five beds at the mental health Acute Inpatient Unit in Warrnambool.<sup>440</sup>

#### Assessment: in progress

Infrastructure Victoria notes the recent significant announcement and commitments, but continues to recommend expanded mental health and addiction facilities, and this is reflected in recommendation 70 - 'Deliver infrastructure for a more responsive and integrated mental health system' and recommendation 91 - 'Build regional residential alcohol and drug rehabilitation facilities'.

## Metropolitan bus network (10.4.5, 11.3.4, MBN)

**Reform the metropolitan bus network starting from a clean slate within 0-10 years, with planning work to begin as soon as possible. This should include a review of the existing routes and services based on the approach taken in the City of Brimbank in 2013. Focusing on major employment centres, this reform of the bus network will progressively deliver more targeted services, primarily with existing resources.**

#### Victorian Infrastructure Plan 2017: Partly supported.

The intent of this recommendation is supported and is being addressed by the overhaul of existing bus contracts; however a 'clean slate' is not possible due to existing contractual agreements - new contracts will be negotiated with bus operators as contracts come up for renewal.

In 2017, the Victorian Government announced it would renegotiate new contracts with the 12 metropolitan bus operators which together operated 70% of the city's bus network. The new contracts aimed to provide better services and expand services.<sup>441</sup> Prior to these reforms, the complex contracting environment had made it difficult for the Department of Transport to reconfigure the bus network to respond to customer needs, particularly with regard to existing bus routes.

The 2017-18<sup>442</sup> and 2018-19<sup>443</sup> Victorian Budgets contained significant investment in upgrading and expanding existing metropolitan bus services, including by creating new services. The 2019-20 Victorian Budget also established a Better Bus Fund to facilitate the creation of a range of new bus services<sup>444</sup> and a Bus Industry Innovation Fund to support the industry to deliver improvements to network efficiency, patronage, customer experience, safety and driver support.<sup>445</sup> A team dedicated to passenger-focused bus service recontracting, for metropolitan and regional bus services, was also established.<sup>446</sup> In the 2021-22 Victorian Budget, the government allocated a further \$60.6 million over five years for bus service improvements across the state.<sup>447</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend a focus on more efficient, effective metropolitan bus services, and this is reflected in recommendation 57 - 'Reshape the metropolitan bus network and introduce 'next generation' bus services' and recommendation 58 - 'Connect suburban jobs through 'next generation' buses and road upgrades'.

## Metropolitan rail stations (10.4.6, MRI)

**Upgrade metropolitan railway stations with high passenger volumes, such as central city stations and Caulfield and South Yarra stations, subject to transparent assessment to identify priority locations, over 5-30 years. These upgrades will facilitate faster, safer and easier passenger access and transfers (ref. MRI).**

#### Victorian Infrastructure Plan 2017: Supported in principle.

Government supports the intent of this recommendation and a range of existing projects are delivering upgraded or new stations. As this recommendation is over 30-years, its full scope will require consideration in future budgets.

Since the 2016 strategy was released, work has progressed on a range of railway station upgrades. This includes:

- \ \$12.33 million for an upgrade of South Yarra railway station, including enhancing the entrance and building a new accessible tram stop, with work starting in November 2020<sup>448</sup>
- \ \$16.3 million for train station accessibility improvements at Essendon and Watergardens, improvements at Seaford and Kananook, and business cases for upgrades to interchange stations at Broadmeadows and Pakenham<sup>449</sup>
- \ \$2.0 million towards future upgrades at Caulfield Station to improve customer amenity and passenger flows in recognition that an increase in platform-to-platform interchange movements is expected at the station after the opening of the Metro Tunnel.<sup>450</sup>

In addition, a number of railway stations are being upgraded as part of the Victorian Government's Big Build program. The Level Crossing Removal Project aims to remove 75 level crossings by 2025. This work involves the delivery of new or upgraded track, stabling yards and railway stations. As of May 2021, 46 level crossings have been removed and 26 new stations have been opened.<sup>451</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend investment in rail infrastructure, including platform improvements where necessary. This is reflected in recommendation 59 - 'Increase off-peak service frequencies and suburban rail corridor capacity'.

## Metropolitan rail upgrades (10.4.4, MRC)

**Review and update Public Transport Victoria's Network development plan – Metropolitan rail within 0-5 years to transparently identify and prioritise network upgrades and enhancements required to remove physical and operational constraints that will maximise the use of the existing rail network. High-priority projects that will increase the reliability of passenger services, reduce ongoing maintenance costs and support the delivery of additional services could include upgrading and renewal of life-expired signalling systems, untangling rail junctions (such as at Clifton Hill) and providing additional platforms at existing railway stations (such as Dandenong).**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation. The metropolitan rail network plan is being refreshed as part of strategic integrated transport planning.

The Victorian Government has made a range of significant investments in the metropolitan railway network in recent years. These have been guided by the Department of Transport's *Growing Our Rail Network 2018-2025* strategy.<sup>452</sup> That strategy outlines the progress on a range of projects, such as the Mernda Rail extension, Hurstbridge line upgrade, Metro Tunnel project, and the Level Crossing Removal Project.<sup>453</sup> It also makes clear that planning work is underway for further upgrades, such as the Cranbourne line duplication and Hurstbridge line duplication stage 2.<sup>454</sup>

Recent budgets have begun to realise these works. In 2018, the Victorian Government allocated \$572 million for work on the Sunbury to Cranbourne-Pakenham line.<sup>455</sup> In 2019, it provided \$530 million for Hurstbridge line works, and \$750 million to duplicate the Cranbourne line.<sup>456</sup> In 2021, about \$94 million was allocated to the Melton and Wyndham Vale corridors to allow for the running of higher capacity trains, including nine car VLocity trains<sup>457</sup> and over \$240 million was allocated to Caulfield junction to allow for increased train speeds and improved service plans.<sup>458</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend improvements to rail corridor services and capacity, and this is reflected in recommendation 59 - 'Increase off-peak service frequencies and suburban rail corridor capacity' and recommendation 76 - 'Expand and upgrade Melbourne's outer suburban road and bus networks'.

## Metropolitan rolling stock (10.5.1, HCT3, HCT4)

**Institute an asset management-based approach to a long-term program of tram and train rolling stock procurement within 0-5 years, building on the 2015 Victorian rolling stock strategy. This program should implement a cycle for the continuous build of new rolling stock, beyond the current commitments, that avoids the stop-start procurement of recent decades. This will enable the timely retirement of older rolling stock and the ability to meet the demands of increased patronage across the network.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation. Transport For Victoria is developing plans for future rolling stock orders and improvements to provide greater certainty for industry and ensure smoother provision of trams and trains to meet Melbourne's needs.

Since 2015, the Victorian Government has ordered more than 180 new trains and trams.<sup>459</sup> Each of these trains and trams will be manufactured in Victoria. This is part of the Victorian Government's *Trains, Trams and Jobs 2015-2025* strategy, committing to a 10-year pipeline for new, locally made rolling stock. The strategy will ensure Victorian-built trains and trams expand the network's passenger capacity, and replace the ageing fleet.

The *Trains, Trams and Jobs* strategy has been underpinned by significant investments in several budgets, including the allocation in 2020 of \$1.5 billion to purchase 100 next generation trams.<sup>460</sup> Previous investments include \$84.9 million for high capacity trains<sup>461</sup> and \$218.1 million for 10 E-Class trams in 2017;<sup>462</sup> \$104 million for five new X'Trapolis Trains in 2018;<sup>463</sup> and \$2.1 billion Sunbury line upgrade to support high capacity metro trains, and \$145 million for 10 E-Class trams in 2019.<sup>464</sup> In 2021, around \$986m was announced to procure 25 new X'Trapolis 2.0 trains as well as funding to assist with progressively retiring the Comeng fleet as they reach their end-of-life.<sup>465</sup>

#### Assessment: in progress

While Infrastructure Victoria notes the progress made to date, we still recommend improvements to rolling stock to improve rail corridor services and capacity. This is reflected in recommendation 59 - 'Increase off-peak service frequencies and suburban rail corridor capacity'.

## North East Link (11.5.6, 13.5.2, NEL)

**Construct the North East Link within 10-15 years. As a first step, there needs to be a detailed assessment of alternative alignments. This link would enhance access to major employment centres, particularly the La Trobe National Employment and Innovation Cluster (NEIC) and the Epping, Ringwood and Broadmeadows Major Activity Centres (MACs), through improved orbital road connectivity, and improve the capacity of the freight network, particularly from the southeast and Gippsland.**

**Victorian Infrastructure Plan 2017:** Supported. Government has committed to this project, including funding for development to procurement. Construction will require future funding by a mix of government contributions and tolls, with final funding arrangements determined as part of the detailed planning process.

The Victorian Government has committed to the full delivery of North East Link (NEL), which will connect Melbourne's freeway network between the Eastern Freeway and the M80 Ring Road in the city's north-east.<sup>466</sup> In addition to providing a freeway connection for up to 135,000 vehicles a day, NEL will also build Melbourne's first dedicated busway from Doncaster to the central Melbourne, create a new park and ride at Bulleen, upgrade the Eastern Freeway and improve access and upgrade car parking at Watsonia railway station.<sup>467</sup>

A corridor alignment linking the M80 Ring Road in Greensborough to the Eastern Freeway in Bulleen was chosen in 2017 after assessing four other corridor options and extensive community feedback. Options were assessed against their potential to: ease congestion; cut travel times; reduce truck traffic on local roads; improve access to jobs and education; connect industrial and freight centres; improve public transport, walking and cycling; and result in minimal impact on local communities and the environment.<sup>468</sup>

The NEL business case was released in 2018 and planning approvals were received in 2019.<sup>469</sup> Early works began in 2020, with major construction to begin in 2021, with an aim to have NEL open to traffic in 2027.<sup>470</sup> The business case estimates the project cost to be approximately \$16 billion, with \$15.8 billion allocated in the 2019-20 Victorian Budget.<sup>471</sup>

#### Assessment: substantially complete

Infrastructure Victoria notes the intent of the recommendation is being met.

## On-demand transport services (2.1.3, 6.2.1, 12.2.6, PTA)

**Redeploy local community transport and taxis (or similar) to provide on-demand services in regional and rural areas, including for people who experience mobility challenges, within 0-10 years. This initiative may require ongoing subsidies and regulatory changes and should build on the recent trials of such services in Yarrowonga and Warrnambool. The first steps will be to refine the proposed service changes based on the evaluation of these trials and to identify high-priority locations for implementation.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government will explore its role in better coordination of transport services across multiple providers (examples: public transport, community provided services, not for profit and private providers) to improve connections in local communities. Five Local Transport Forums are currently being trialled in regional and metropolitan areas. Existing work and new funding partly address this recommendation. As this recommendation is over 0-10 years, future budget consideration is required for full implementation.

In 2016, the Victorian Government established local transport forums with the aim of providing regional communities, organisations and transport operators a greater say in how transport is planned and delivered in regional Victoria.<sup>472</sup> Some initiatives or ideas identified by these local transport forums are then funded by the Department of Transport under the Flexible Local Transport Solutions program. This program provides financial support to help seed small-scale initiatives in regional areas that address transport disadvantage, integrate with other local transport options and improve transport access. It aims to support flexible, tailored transport services or trials in regional Victoria, and on-demand transport trials are within the program's scope.<sup>473</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend improving the utility and timeliness of transport services in regional areas, and this is reflected in recommendation 83, 'Redesign regional public transport to meet local needs'.

## Organic waste (15.1.2, OWM)

**Accelerate actions identified in the Victorian organics resource recovery strategy to increase recovery of organic waste sent to landfill and address the low rates of recovery, such as 3% for food waste in 2011-12, within 0-10 years.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation and is committed to the actions in the Victorian Organics Resource Recovery Strategy, with implementation of medium and long-term implementation to be considered as part of future budgets.

The Victorian Government did not implement the 2016 recommendation, choosing not to allocate sufficient budget to enable the implementation of the Victorian Organics Recovery Strategy.<sup>474</sup> However, it made commitments to a new policy and funding.

In 2020, Infrastructure Victoria provided advice on waste and resource recovery infrastructure at the request of the Victorian Government including 13 recommendations reflected in the strategic priorities of this strategy.<sup>475</sup> The advice recommends improving end markets for recycled materials and waste processing infrastructure capabilities for priority materials, including organics.

In 2020, the Victorian Government also released the *Recycling Victoria* policy,<sup>476</sup> which lists several new targets relating to organics recovery. These included halving the volume of organic material going to landfill from 2020 to 2030, with an interim target of 20% reduction by 2025, as well as ensuring every Victorian household has access to organic waste recycling services by 2030.<sup>477</sup> The policy also raises new initiatives that aim to support the recovery of organics.<sup>478</sup> These include education and behaviour change programs, the Recycling Victoria Infrastructure Fund to encourage investment in organic waste infrastructure, as well as the Recycling Markets Acceleration package to build strong markets for products made from recovered organic waste.

In November 2020, the Victorian Government launched the *Circular Economy Business Innovation Centre*<sup>479</sup> to work with organisations to improve waste management. The centre will research, provide advice and offer grants through a virtual hub, with an initial focus on reducing food and organic waste. The Victorian Government also released the *Path to Half* report that prioritises solution that provide the greatest impact to halve food waste by 2030.<sup>480</sup>

The Victorian and Australian governments have partnered to invest \$46 million in recycling projects in Victoria. In January 2021, seven infrastructure projects were awarded \$8.1 million to increase Victoria's ability to process and recycle glass and plastic waste. These projects are expected to be completed prior to the national waste export ban coming into full effect by 2024.<sup>481</sup> In addition, the Victorian Government has provided separate funding of \$13.3 million<sup>482</sup> to improve the recovery of materials including organic waste.

In April 2021, the Victorian Government launched the \$7 million Sustainable Futures Innovation Hub at the Wunggurrwil Dhurrung Centre in Werribee. The centre will be research and develop responsible packaging will promote and undertake research projects promoting sustainable practices in the water, construction and packaging industries.<sup>483</sup>

Prior to the release of the *Recycling Victoria* policy, Sustainability Victoria had responded to the strategic directions and actions outlined in the Victorian Organics Recovery Strategy.<sup>484</sup> The initiatives Sustainability Victoria committed to include publishing the Resource Recovery Technology Guide<sup>485</sup> and the Guide to Best Practice for Organics Recovery,<sup>486</sup> working with compost and agricultural sectors to develop voluntary quality assurance schemes to improve end markets, and research regarding the application of organic waste to land. The *Recycling Victoria* policy supersedes the priorities in the Victorian Organics Recovery Strategy.<sup>487</sup>

The Recycling Markets Acceleration Program<sup>488</sup> is being delivered jointly by the Department of Environment, Land Water and Planning (DELWP), the Environment Protection Authority (EPA) Victoria and Sustainability Victoria. The total value of the program is \$1.8 million, with applicants able to request from \$75,000 to \$300,000 in funding, with applications closing in April 2021.

### Assessment: in progress

Infrastructure Victoria continues to recommend improving the low rates of recovery of organic waste. This is reflected in recommendation 28 - 'Facilitate improved recycling infrastructure for priority materials', recommendation 30 - 'Address barriers to recycling and reducing waste', and recommendation 31 - 'Minimise waste and improve residual waste infrastructure planning'.



## Outer metropolitan arterial roads (1.3.5, 11.5.5, OMA)

**Roll out a program of upgrades to the arterial road network, focusing on congested roads in outer metropolitan areas, over 5-15 years. The first step is to identify priority locations and works, which could include widening and duplication of existing roads, grade separations, connections to motorways and provision of bus lanes to improve safety and local access for people and goods.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, and the Roads for Growing Communities Package will upgrade arterial roads in Melbourne's west. As this recommendation is over 5-15 years, implementation of its full scope will be considered as part of future budgets.

Since 2016, the Victorian Government has made significant investments in upgrading Melbourne's arterial road network. However, it is unclear how upgrade locations have been prioritised or how these projects will support the creation of additional bus lanes.

In 2018, the Victorian Government committed \$2.2 billion for the 'Suburban Roads Upgrade', a program of 12 upgrades to arterial roads in the outer northern and south-eastern suburban areas of metropolitan Melbourne due for delivery by 2025.<sup>489</sup> The upgrade program aims to improve safety, reduce travel times, create and improve access to jobs, provide better access to growing suburbs, improve road freight routes and improve cycling and pedestrian connections.<sup>490</sup> In 2019, the Australian Government committed an additional \$1.1 billion to the package,<sup>491</sup> and in 2020, it committed additional funding to upgrade Hall Road and Narre Warren North Road.<sup>492</sup>

Roads due to be upgraded under the Suburban Roads Upgrade include: Bridge Inn Road in Doreen; Childs Road in Mill Park; Craigieburn Road in Craigieburn; Epping Road in Epping; Fitzsimons Lane in Eltham and Templestowe; Sunbury Road in Sunbury; Healesville-Koo Wee Rup Road in Pakenham South; Hallam North Road and Heatherton Road in Endeavour Hills; Lathams Road in Seaford and Carrum Downs; Narre Warren-Cranbourne Road in Cranbourne; Pound Road West in Dandenong South; and Golf Links Road in Langwarrin South, Baxter and Somerville.<sup>493</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend further upgrades to arterial (and freeway) networks, with a focus on congested roads and corridors in outer metropolitan and growth area suburbs. This is reflected in recommendation 76 - 'Expand and upgrade Melbourne's outer suburban road and bus networks'.

## Outer Metropolitan Ring Road (11.5.7, 13.5.3, OMR)

**Construct the Outer Metropolitan Ring Road within 15-30 years. As a first step, there needs to be further consideration of staging and integrated land use planning, including defining trigger points for project commencement. Some sections may be warranted sooner, perhaps as arterial roads initially, while others may be deferred to the latter part of this period or beyond, particularly where they pose a risk of encouraging dispersed urban development. The resulting redistribution of traffic would enhance access to major employment centres in the west and north, including the East Werribee, Sunshine and La Trobe National Employment and Innovation Clusters (NEICs), Melbourne Airport and the Epping and Broadmeadows Major Activity Centres (MACs), and improve the capacity of the freight network.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, and work is already underway in relation to the longer term network development. As the build component of this recommendation is over 15-30 years, full implementation will be considered as part of future budgets, noting delivery will be staged and may extend beyond the 30-year period.

The Outer Metropolitan Ring Road and E6 corridor is planned to ultimately accommodate a 100-kilometre long, high-speed road and rail transport link in Melbourne's north and west. It is intended to provide the Victorian Government with the option to deliver a freeway with up to four lanes in each direction and four railway tracks to enable interstate freight and high-speed passenger trains between Werribee and Kalkallo.<sup>494</sup> The interstate rail freight component is expected to be funded by the Australian Government as part of the Australian Rail Track Corporation Inland Rail project.<sup>495</sup> In 2010, the Victorian Government applied a Public Acquisition Overlay to define the corridor for a future Outer Metropolitan Ring Road and E6 corridor. This established a mechanism for the compulsory acquisition of property when required, and gave VicRoads the right to request refusal of development applications.<sup>496</sup>

In 2017, the Victorian Government set out the reservation for the Outer Metropolitan Ring Road and E6 corridor in its metropolitan planning strategy for Melbourne, *Plan Melbourne*.<sup>497</sup> This plan noted the proposed Outer Metropolitan Ring Road may help achieve the policy objective of 'Support[ing] sufficient gateway capacity with efficient landside access', and that building on the reservation remained a 'potential' future project.<sup>498</sup>

Later that year, Infrastructure Victoria provided advice to the Victorian Government on when to invest in container port capacity and the best potential location for a second container port. Our research highlighted the importance of strong transport connections to port operations, and that these connections were a key consideration in our identification of Bay West as the

preferred location for a second port. While we found this second port would not be required until about 2055, we noted that land would need to be preserved in the interim – including for the Outer Metropolitan Ring Road and associated rail corridor – to provide the necessary transport connections.<sup>499</sup>

In 2018, the Victorian Government's freight plan, *Delivering the Goods*, identified the need to progress the development of the Outer Metropolitan Ring corridor within the next 5 to 10 years, and develop it in the longer term (10-plus years).<sup>500</sup> It also echoed Infrastructure Victoria's findings that the Outer Metropolitan Ring Road would potentially support easy freight access to and from a new port at Bay West in the future.<sup>501</sup> In 2021, the Australian and Victorian governments each allocated \$10 million to an Outer Metropolitan Ring/E6 Corridor Detailed Business Case from the Major Projects Business Case fund.<sup>502</sup> Further funding is needed to complete detailed feasibility studies.

#### Assessment: in progress

Infrastructure Victoria continues to recommend the development of the Outer Metropolitan Ring Road within the context of other transport initiatives with which it will interact, and this is reflected in recommendation 66 - 'Construct an outer metropolitan road and rail corridor' and recommendation 33 - 'Publish Victoria's transport plan'.

## Parks Governance (16.2.1, NPP3)

**Establish governance arrangements between the Department of Environment, Land, Water and Planning and Parks Victoria within 0-5 years that ensure clear accountability for outcomes and enable Parks Victoria to act as an asset manager, forward planning for maintenance and renewal to address existing or emerging challenges, such as responding to increased visitation, weeds and pests, and bushfires.**

#### Victorian Infrastructure Plan 2017: Supported.

Government supports both of these initiatives (with 16.1.1) and they will be addressed as part of Valuing Victoria's Parks.

The Victorian Government decided to address this recommendation through its *Valuing Victoria's Parks* joint initiative. The focus of this initiative is using environmental accounting to quantify the benefits that parks and their ecosystems provide, and its *Valuing Victoria's Parks Report* aims to form the basis for ongoing work between the Department of Environment, Land, Water and Planning (DELWP) and Parks Victoria to improve environmental information and tools for decision-making on land management.<sup>503</sup> Under the initiative, park stakeholders across government are to review and clarify governance arrangements to better equip Victoria to respond to emerging challenges, complementing ongoing work by DELWP to improve the accountability, effectiveness and efficiency of investments in environmental management more generally.<sup>504</sup>

Parks Victoria is also in the process of developing a statewide *Land Management Strategy* to guide and inform future planning and decision-making across Victoria's parks, including the organisation's responses to emerging challenges. The first round of public consultation on the Draft Aspiration and Guiding Principles is complete, there will be further opportunities to contribute to the draft Land Management Strategy once released.<sup>505</sup>

#### Assessment: in progress

Infrastructure Victoria notes progress to date and anticipates the delivery of the Land Management Strategy will meet the intent of this recommendation.

## Parks partnerships (16.2.2, NPP2)

**Commercially engage private and community sector conservation groups to enable greater flexibility in the delivery of services in parks, particularly where scientific expertise can be used, within 0-5 years, to address acute challenges such as the impacts on ecosystems from climate change. This could include the establishment of measurable performance targets, such as improved numbers of an endangered species.**

#### Victorian Infrastructure Plan 2017: Partly supported.

Government supports the intent of this recommendation; however, further stakeholder consultation would need to occur especially with Traditional Owners involved in land management. Completion of the response to recommendation 16.2.1 would also be required prior to implementation.

The Victorian Government has committed to engaging with private and community conservation groups through the development of *Conservation Action Plans* (CAPs). CAPs are developed through workshops with Traditional Owners, partner agencies, stakeholders, researchers, and scientists, and aim to identify priority threats to conservation assets and the management strategies and actions to improve their condition over the next 15 years. There is an established five-year review process, with progress evaluated against implementation of priority actions, threat mitigation objectives and outcomes identified for conservation assets.<sup>506</sup> With completed CAPs for Wilsons Promontory, Wimmera, Grampians, Mallee and River Red Gum, this process is ongoing with additional plans in development for other regions.

Since 2016, the Victorian Government has committed to progressing Aboriginal self-determination of cultural landscapes with the completion of the *Pupangarli Marnmarnepu 'Owning Our Future', Self-Determination Reform Strategy 2020-2025*.<sup>507</sup> This is consistent with *Protecting Victoria's Environment Biodiversity 2037*, released in 2017, which recognises the need to engage more with Traditional Owners, including to support their greater involvement in parks management and consider impacts

on native title rights and cultural heritage. It is also consistent with the Managing Country Together framework, developed by Parks Victoria in partnership with Traditional Owners in 2019, which establishes an objective for appropriate Traditional Owner input into all aspects of park planning and management.<sup>508</sup> Further, DELWP has also committed to empower Traditional Owners to develop the Victorian Cultural Landscapes Strategy (upcoming), which will establish principles to integrate care for Country into forest and parks management decisions.<sup>509</sup>

*Protecting Victoria's Environment Biodiversity 2017* recognises the need to provide support more generally to support stakeholder networks to build understanding of statewide targets, how to contribute to them, and how to report data.<sup>510</sup>

In 2021, the Victorian Government announced the Community Volunteer Action Grants (\$2.87 million) that aim to support communities and community organisations to protect and enhance their natural environments. This includes building community capacity to support community adaption and improve ecosystem resilience to climate change.<sup>511</sup>

#### Assessment: in progress

Infrastructure Victoria notes progress to date on this recommendation, the remaining elements of which should continue to be delivered through the normal business of government.

## Parks pricing/funding/expenditure (16.1.1, NPP1)

**Implement a pricing, funding and expenditure regime for national parks, state forests and other protected areas as well as urban parks within 0-5 years, which ensures that funding and revenue for land management reflect an evaluation of the ecosystem services provided where possible and enables assessment of return on investments. The first step would be to better account for all assets and benefits that are provided on a park-by-park basis to inform assessment of cost-effective management actions underpinned by appropriate pricing, funding and expenditure, including by reviewing the operation and scope of the Melbourne Metropolitan Parks Charge.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports both of these initiatives (with 16.2.1) and they will be addressed as part of Valuing Victoria's Parks.

The Victorian Government has taken steps to evaluate and establish funding and revenue arrangements. Through Parks Victoria, it is currently engaged in developing an effective framework to provide evidence of the economic and social benefits the parks network provides to Victorians.

In the *Protecting Victoria's Environment Biodiversity 2037* strategy released in 2017, the Victorian Government announced its intention to employ a System of Environmental Economic Accounting (SEEA) to assess and document environmental assets. This framework will support government policy, planning and investment decisions affecting the environment. It will also strengthen the ability of local government, business, not-for-profit and community stakeholders to recognise benefits of protecting and investing in the environment.<sup>512</sup> *Protecting Victoria's Environment Biodiversity 2037* builds on the *Valuing Victoria's Parks* initiative, which began in 2015 and which used environmental accounting to recognise, quantify and value the ecosystem benefits provided by Victoria's parks.<sup>513</sup>

In April 2021, Victorian Government released the *Open Space Strategy for Metropolitan Melbourne: Open Space for Everyone*.<sup>514</sup> One of the strategy's enabling actions is to *update funding and financing models*. This includes reviewing existing funding arrangements to determine if they are delivering best public value and can fund the adequate provision and quality of open space in metropolitan Melbourne.<sup>515</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend an approach to the development of parks infrastructure that supports economic viability and environmental considerations. This is reflected in recommendation 81 - 'Plan for and facilitate regional nature-based tourism investment'.

## Police communications channels (2.2.1, 8.2.1, 12.1.1, MPW)

**Create new communications channels between the public and the police and broader justice workforce by delivering a non-emergency call centre (using the Police Assistance Line 131 444 available in other states) and supportive technology platforms within 0-5 years. When planning and delivering this system, consider whether it could support an integrated service model with human services and health.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation as it aligns with existing priorities. A police assistance line and online reporting channel is expected to be implemented in the next two years.

The Victorian Government has provided \$210 million in funding for the creation and operation of the Victoria Police Online Reporting Portal and the 24-hour Police Assistance Line. Both services for non-emergency matters were launched simultaneously on 1 July 2019. The contact centre is in Ballarat.<sup>516</sup>

#### Assessment: substantially complete

Infrastructure Victoria notes the intent of the recommendation has been met.

## Police complexes (8.1.3, PSS)

Deliver a network of police complexes across Melbourne's metropolitan regions and regional cities (without affecting stations in rural and remote areas) over 5-30 years. Priority should be given to providing new complexes in areas with high demand for additional police services (such as Wyndham), replacing or consolidating stations that are coming to the end of their service life, and consolidating facilities in areas where there are more local stations than necessary to provide efficient and responsive policing services (such as south-east Melbourne). These police complexes should be delivered in most instances as integrated facilities for a greater focus on crime prevention (see recommendation 8.1.1)

**Victorian Infrastructure Plan 2017:** Partly supported. Government is committed to delivering a comprehensive approach to tackling crime. Under the Community Safety Statement, significant investment has been committed to new and upgraded police stations across the state, with a focus on strengthening frontline and specialist police capacity. Police complexes as a specific response is inconsistent with government policy.

As the Victorian Government only partly supports this recommendation, limited progress has been made in delivering new complexes or consolidating existing facilities. However, the Victorian Government has committed \$200 million to replace or refurbish 32 metropolitan and regional stations, and these works have been completed at 13 stations (at May 2021).<sup>517</sup> The Victorian Government has also committed \$68 million in funding to replace the Narre Warren Police Station<sup>518</sup> and deliver a new Clyde North Police Station by 2022.<sup>519</sup> A new Victoria Police Headquarters has been delivered at 311 Spencer Street, Melbourne, while the \$45 million development of the Wyndham Police Precinct will replace the old Wyndham Police Station and be one of the largest police facilities outside the central city.<sup>520</sup>

In late 2020, the Victorian Government provided over \$300 million for Victoria Police to implement a range of system enhancements and reforms to deliver more effective and efficient police operations.<sup>521</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend responsive policing services and integrated facilities, and this is reflected in recommendation 27 - 'Improve technology and infrastructure for a responsive police service'.

## Port rail shuttle (13.3.1, PPM)

Deliver a port rail shuttle, with consideration of the rail access strategy prepared by the new port owner, within 0-5 years. The first rail access strategy will be delivered by the new Port of Melbourne operator within three years of the signing of the port lease, as required under the *Delivering Victorian Infrastructure (Port of Melbourne Lease Transaction) Act 2016*. A port rail shuttle would connect on-dock rail access at Swanson Dock with terminals across metropolitan Melbourne. This project will increase the capacity of the port by providing an alternative access route for the movement of freight in and out of the port and reduce truck visits and congestion around the port area.

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. Delivery of the port rail shuttle will depend on the Port Access Strategy, which is being produced by the Port of Melbourne operator.

The Victorian Government delivered its freight plan, *Delivering the Goods*, in 2018. The plan sets out priorities to support the freight and logistics sector, including the near-term need to support port rail shuttles and the Port of Melbourne's efforts to develop on-dock rail terminals for the Swanson Dock stevedores. *Delivering the Goods* also emphasises the importance of continuing to support the growth of port rail shuttles to enable the efficient movement of containers to and from the Port of Melbourne, including Webb Dock.<sup>522</sup>

A further \$3.6 million was allocated in May 2021 to continue the Mode Shift Incentive Scheme through to 30 June 2022. This funding will be used to support the movement of 42,500 containers by rail on the Port Rail Shuttle Network as well as from regional Victoria to ports. It is estimated that approximately \$30 million was expended on the scheme from 2014 to 2021.<sup>523</sup>

Under the Port Rail Shuttle initiative, the Victorian and Australian governments have committed funding to encourage industry to continue to shift more containerised freight from road to rail and connect the Port of Melbourne to major freight hubs (such as Somerton and Altona) using the existing rail network. This includes \$28 million to connect Salta's freight terminal in South Dandenong to the rail network.<sup>524</sup> Port Rail Shuttle trains are anticipated to be up to 600 metres long and operate to a regular scheduled service, allowing them to intermix with passenger and other freight trains on the rail networks.<sup>525</sup>

The Port of Melbourne has emphasised the importance of efficient and commercially viable rail infrastructure to port operations, including freight rail and intermodal terminals, in its own long-term strategy – the *2050 Port Development Strategy*, released in 2020. This strategy states that investment in rail that maximises port capacity and which improves landside transport connections is one of three key principles for future development. It prioritises working with the Victorian Government to improve rail capacity and reduce truck traffic on local roads, particularly in the inner west of Melbourne.<sup>526</sup> It also suggests the Victorian Government

may need to fund interventions with wider community benefits, such as new transport links which improve network performance.<sup>527</sup> This could involve rail freight shuttles between Swanson Dock and suburban terminals, or reserving land for a potential future freight rail link to Webb Dock.

#### Assessment: in progress

Infrastructure Victoria notes progress to date on this recommendation, the remaining elements of which should continue to be delivered through the normal business of government. Infrastructure Victoria notes port shuttle planning considerations in recommendation 63 – 'Optimise capacity at the Port of Melbourne' and recommendation 65 – 'Deliver a new intermodal freight terminal for Inland Rail'.

## Public housing asset management (7.2.1, SHA, SHS3)

**Continue to invest in and improve public housing asset management over 0-30 years, with a strong response in the early part of this period to deal with the existing maintenance backlog and significant volume of obsolete housing stock.**

**This will make the asset base more fit for purpose and sustainable, without reducing the number of social housing dwellings across Victoria. The program should involve refurbishment, divestment of obsolete stock and acquisition or construction of new dwellings based on a transparent, evidence-based prioritisation process. Stock and title transfer to the community housing sector should also be considered and attention will need to be paid to the needs of existing tenants' throughout any refurbishment works or tenancy reallocations.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government agrees with the intent of this recommendation; however, does not support divesting large portions of existing public housing dwellings. *Homes for Victorians* public housing estate renewal program will contribute toward the renewal and increase in the supply of social housing dwellings.

The Victorian Government has taken a number of steps since 2016 to improve public housing asset condition and management. Many are reflected in the 2017 *Homes for Victorians* plan, most notably through a commitment to invest \$341 million to renew and expand ageing public housing (Initiative 4.2), including \$185 million for the Public Housing Renewal Program to redevelop 2500 properties and provide at least 250 new properties, and \$120 million to deliver a pipeline of 913 social housing dwellings.<sup>528</sup> These projects build on the experience of previously successful renewal programs, such as the Olympia Housing Initiative.<sup>529</sup> The Victorian Government also decided to transfer 4000 properties to the community housing sector to provide that sector with greater certainty and a more reliable funding stream (Initiative 4.4).<sup>530</sup> The Victorian Government added \$209 million in the 2019-20 Victorian Budget to deliver 1000 new homes.<sup>531</sup>

The COVID-19 pandemic prompted extra social housing investment. The Victorian Government announced almost \$500 million in May 2020 to upgrade community and public housing. This included maintenance and upgrades on more than 15,000 public housing properties, renovations including kitchens and bathrooms in 2100 public housing properties, and funding for community housing providers to take similar maintenance and upgrade works.<sup>532</sup>

In November 2020, the Victorian Government announced the \$5.3 billion Big Housing Build program, contributing a further \$300 million to public housing growth and maintenance over the next four years. It also introduced new governance arrangements including the creation of Homes Victoria, a new public corporation to manage the social and affordable housing portfolio.<sup>533</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend significant investment in the maintenance and renewal of public housing stock, as well as a more strategic approach to its long-term maintenance, renewal and disposal. This is reflected in recommendation 32 – 'Produce public plans for priority infrastructure sectors' and recommendation 55 – 'Rapidly renew old public housing'.

## Public libraries (1.4.5, 5.4.3, 9.4.3, LLH)

**Provide additional support to local government for the delivery of 21st century municipal libraries (new or upgraded) over 0-30 years. Even a limited increase in state government funding would better recognise the cost of these facilities, which perform a crucial role in supporting lifelong learning, providing communities with access to digital technology and meeting multiple community needs. In some instances, it may be appropriate to integrate municipal libraries with schools.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, and will continue to support local councils to build and maintain public libraries within existing funding commitments. Future budget consideration is required for funding increases over the 30-year period.

The Victorian Government has taken some steps in supporting this recommendation, primarily through the Living Libraries grant program and the Rural Councils Information and Communications Technology (ICT) Infrastructure Support Program.

The Victorian Government committed \$18 million of funding to the Living Libraries Infrastructure Program from 2016 to 2020.<sup>534</sup> The program assists councils and regional library corporations to provide accessible, high-quality library infrastructure including redeveloped or refurbished facilities and new or updated mobile libraries.<sup>535</sup> Two thirds of the projects have been awarded to rural or regional public libraries.<sup>536</sup>



Under the Rural Councils ICT Infrastructure Support Program, the Victorian Government committed \$3.8 million to assisting rural councils to improve their information technology. This represents \$100,000 of funding per council.<sup>537</sup> Provided as a response to COVID-19, the funding assists the facilitation of virtual meetings, activities and community engagement.<sup>538</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend improvements to council facilities that provide communities with access to education, recreation and the internet, particularly in regional and growth areas. This is reflected in recommendation 86 - 'Fund regional libraries to provide better internet access', recommendation 89 - 'Update community infrastructure' and recommendation 73 - 'Fund libraries and aquatic centres in growth areas'.

## Public space utilisation (1.4.1, 5.2.1, CSU)

**Activate and open up state government land and facilities for wider community use by undertaking an audit to identify underutilised assets and reviewing and removing barriers to their use within 0-5 years. The initial focus should be on opportunities to utilise the estimated 2400 hectares of school grounds across metropolitan Melbourne outside school hours, provide land for community use in areas where land is in high demand and increase green infrastructure. The findings of the audit should be published to show where opportunities for better use of government assets exist currently and where they are likely to be in the future.**

#### Victorian Infrastructure Plan 2017: Supported.

Government supports this recommendation to ensure state owned public spaces are well-managed. Land Use Victoria will undertake an audit of Victorian Government land that will identify opportunities for potential community uses, including sport and active recreation, over the next five years.

The Victorian Government has made some progress in the implementation of this recommendation, though further work remains for it to be full realised. *Plan Melbourne 2017-2050* recommends the identification of surplus and underutilised government land. The 2018 progress report for *Plan Melbourne* noted new the Victorian Government Land Use Policy of Land Use Victoria (LUV) to maximise public value from government-owned land.<sup>539</sup> Under the policy, LUV use strategic land use assessments and the annual report on government landholdings to identify potential improvements in the use of government-owned land.<sup>540</sup>

Under the Department of Education and Training's *Community Use of Schools* policy, each school is responsible for managing arrangements for out of hours use.<sup>541</sup> School councils have power over hire and licence agreements, when not required for school use. These agreements must be for educational, recreational, sporting, or cultural activities for students, young people or the local community.<sup>542</sup> Although this policy was updated in 2020, this does not mandate access to school grounds.

In 2018, the Victorian Auditor-General's Office (VAGO) released an audit of how the government manages publicly-owned land.<sup>543</sup> The audit found that existing systems and processes do not support a strategic whole-of-government approach to making the best use of surplus government land.<sup>544</sup> VAGO also criticised sales targets, which lead to departments and agencies selling assets rather than considering better use.<sup>545</sup> VAGO also published a summary of government land holdings.

Although the Victorian Government provides information on surplus land being considered for rezoning,<sup>546</sup> land being prepared for sale,<sup>547</sup> and land currently for sale,<sup>548</sup> this does not provide a full picture of surplus or underused land to the public. GovMap, an online list of government owned land, has been released across the Victorian Government, but is not available to the public.<sup>549</sup> The Victorian Government has not produced plans identifying likely future governments assets, except broadly in growth area precinct structure plans.<sup>550</sup>

The Victorian Government released the *Open Space for Everyone: Open Space Strategy for Metropolitan Melbourne* in April 2021.<sup>551</sup> The strategy includes two relevant actions for government, including the better use of school grounds for shared community use and a strategic review of underutilised government land. The implementation of these actions will support the intention of this recommendation.

#### Assessment: in progress

Infrastructure Victoria continues to recommend the better use of government land and a strategic and more interconnected approach to open space in metropolitan areas, particularly rapidly growing areas of Melbourne. This is reflected in recommendation 37 - 'Develop an interconnected open space network'.

## Public transport accessibility (6.1.3, PTV)

**Improve the accessibility of public transport within 0-5 years by accelerating the retrofitting of assets, as required by the *Disability Discrimination Act 1992*. The first steps will be to review the status of the transport network to prioritise low cost and high benefit upgrades. Any revised action plan should consider prioritising access and integrating transport modes around key destinations and precincts, such as the hospitals in Parkville.**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports this recommendation to improve the accessibility of the public transport network. We will continue to implement improvements, focusing on investments with big, network-wide impact and maximising improved disability access. Planning processes have been streamlined to facilitate more accessible tram stops.

The Victorian Government has taken steps since 2016 to improve the accessibility of public transport infrastructure in line with the *Disability Discrimination Act 1992*<sup>552</sup> and the *Disabilities Standards for Accessible Transport 2002*.<sup>553</sup> Improvements have been made in the form of better transport information systems, access ramps, tactile paving, lighting and raised platforms for upgraded tram stops, accessibility upgrades to bus shelters, and accessibility upgrades to urban and regional train stations (including car parks).<sup>554</sup> However, progress in some areas continues to be slow.

The *Victorian State Disability Plan (2017-2020)* included commitments to accessibility upgrades across bus and coach stops and regional rail stations.<sup>555</sup> Additionally, the *Accessible Public Transport Action Plan (2019-2022)* and *V/Line Accessibility Action Plan (2013-17)* recognised the need to improve accessibility in transport services.<sup>556</sup> Infrastructure initiatives within these plans included; better passenger information displays (PIDs); tactile surfacing at public stops; accessible features within tram and train carriages; universal design improvements to tram and train stops. Public Transport Victoria have also established a Public Transport Action Committee<sup>557</sup> to enable a cross-section of members from the disability community to directly advise the Minister for Public Transport of emerging, current and potential transport accessibility issues.

Twenty years since the introduction of low floor trams in Victoria, less than 35% have such floors and under a quarter of tram stops met the *DDA*.<sup>558</sup> Replacement with newer and more accessible trams is slow, with older trams continuing to operate until the end of their operating lives.<sup>559</sup> Only about 7% of tram services are considered fully accessible, with low floor trams and level-access stops, and progress on upgrading stops has actually slowed since 2017.<sup>560</sup>

In 2019-20, \$68.5 million was allocated for the acquisition of an additional 10 E-Class trams, the largest, safest and most accessible trams on the network, bringing the number of these trams in the fleet to 100.<sup>561</sup> It also included a relatively modest \$3.1 million for a *Tram Stop Accessibility Strategy*.<sup>562</sup> The Victorian Government allocated an extra \$1.48 billion in 2020-21 to purchase 100 next generation trams.<sup>563</sup> While these initiatives are welcome, there is a long way to go. In 2021-22, the Victorian Government allocated over \$15 million for the preparation of a public transport accessibility strategy, and accessibility, amenity and safety improvements across the public transport network. The public transport accessibility strategy is intended to set out a pathway for realising universal accessibility across the public transport network.<sup>564</sup>

The *Regional Network Development Plan*, released in 2016, included a commitment to upgrade bus and coach stops, as well as regional train stations, to provide greater access to public transport for the elderly and other groups with access challenges.<sup>565</sup> Significant improvements to bus services have occurred through fleet upgrades, with more than 80% of Melbourne's bus services now wheelchair accessible on weekdays.<sup>566</sup> Regional train stock is being modernised across the regional V/Line train network with \$340 million allocated in 2019-20 for new VLocity trains.<sup>567</sup>

The Victorian Auditor-General's Office (VAGO) delivered their audit on tram services in October 2020. VAGO concluded the needs of passengers with mobility restrictions are not being met, and made recommendations to improve legislative compliance.<sup>568</sup> Disability advocates have suggested a more robust yearly reporting mechanism<sup>569</sup> to improve transparency and the tracking of progress against the requirements of the *Disability Discrimination Act* and *Disabilities Standards for Accessible Transport*.<sup>570</sup>

In October 2020, the Victorian Government released an *Accessible Public Transport in Victoria Action Plan 2020-2024*. The Action Plan includes opportunities to improve the whole of journey experience. This includes providing people with disability the ability to plan their journey and access information when travelling, in addition to getting physical access to transport. Action 3.3 of the Action Plan commits to a Stop Rollout Strategy within the next two years to 'investigate options to streamline the design and construction of accessible tram stops and to prioritise the construction of tram stop upgrades across the network'.<sup>571</sup>

**Assessment: in progress**

Infrastructure Victoria continues to recommend that accessibility is improved across public transport modes, and this is reflected in recommendation 44 - 'Plan for and fund public transport accessibility, including tram stop upgrades'.

## Public transport real-time information (10.4.1, TNI)

**Expand the availability of open-source, real-time public transport information, including passenger loading data, across the metropolitan and regional networks covering all modes within 0-5 years. This will enable private developers to create applications that allow people to more confidently use public transport and will attract increased patronage.**

**Victorian Infrastructure Plan 2017:** Supported in principle.

Government supports the release of real-time information where it is available and meets appropriate standards. All metropolitan information is already released and regional rail real-time information is now available. Regional bus information is available in some areas and more will be progressively released. Under current technologies, it is not intended to release passenger loading data.

The Victorian Government has funded some improvements to the provision to real-time public transport information. The 2019-20 Victorian Budget committed \$3.5 million for a new Tram Automatic Vehicle Monitoring system to support access to real-time information on tram services.<sup>572</sup> The 2019-20 Victorian Budget provided \$1 million for expanding mobile myki.<sup>573</sup> Agencies also make real-time travel information and planned disruption information available to apps. In October 2020, the Victorian Government launched a new Public Transport Victoria app with increased functionality, and began a trial to test providing real-time public transport crowding information. The trial displays four levels of capacity for trains: Very Quiet, Quiet, Busy and Very Busy. The app estimates how busy individual stations, platforms and trains are to help passengers decide which service to catch.<sup>574</sup> The Ridespace online tool<sup>575</sup> was launched in January 2021<sup>576</sup> and provides real time passenger crowding information for metropolitan trains, funding of \$9.4 million over two year was provided to deliver this program.<sup>577</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend better use integration with other mobility services, and this is reflected in recommendation 22 - 'Facilitate integration of public transport with new mobility services'.

## Public transport resilience (19.1.3, PTN)

**Upgrade critical public transport infrastructure over 0-30 years to improve resilience to all hazards, including all weather conditions, subject to transparent identification of priorities and taking an asset management planning approach.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. The implementation of the Critical Infrastructure Resilience Strategy focuses on public transport as one of the key providers of essential services to Victorians. Government and industry continue to work collaboratively on risk management to reduce the impact of disruptions. Transport For Victoria is developing an Asset Management Plan that will help assets meet service requirements and be resilient to future change. The Asset Management Plan will address priorities, and future budgets will give consideration to ongoing implementation over 30 years.

While the 2019-20 Victorian Budget allocated \$59.6 million for public transport network safety and resilience.<sup>578</sup> Infrastructure Victoria is not aware of publicly-available information regarding specific actions to improve public transport resilience. However, the 2019 merging of the Department of Transport with Public Transport Victoria and VicRoads presents greater opportunities to take a more integrated, efficient and effective approach to managing transport resilience.

#### Assessment: not commenced

Infrastructure Victoria continues to recommend action to improve the resilience of transport infrastructure. This is reflected in recommendation 33 - 'Publish Victoria's transport plan', as good transport planning considers the resilience of the network, as well as in recommendation 12 - 'Strategically review climate consequences for infrastructure'.

## Recycled materials in construction (15.1.1, RMU)

**Remove barriers in public sector procurement processes that limit use of recycled materials that meet technical specifications in the building and construction market within 0-5 years.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports the recommendation and will commence work on this over the next two years.

The Victorian Government has taken steps towards removing barriers in public sector procurement processes which limit the use of recycled materials.

In 2020, Infrastructure Victoria delivered advice on waste and resource recovery infrastructure at the request of the Victorian Government. This included 13 recommendations which are reflected in the strategic priorities of this strategy.<sup>579</sup> The advice recommends the Victorian Government use multiple approaches to develop end markets for recycled materials, including updating the Sustainable Procurement Objectives in the Victorian Government's *Social Procurement Framework* to include more explicit requirements about the use of recycled content.<sup>580</sup> The advice noted a number of barriers to the procurement of recycled materials, including a lack of consumer confidence in materials and procurement processes that specific particular products.

Although the barriers still exist, several actions and initiatives by the Victorian Government can be seen to have reduced the barriers. For example, Sustainability Victoria is facilitating research and development that has resulted in changes to the specification and standards in areas such as road construction.<sup>581</sup> Further, the *Recycled First* policy, announced in 2020, aims to boost the use of recycled and reused materials in construction projects.<sup>582</sup> The policy notes objectives of building new requirements, requiring prioritisation of recycled and reused materials, into future projects under the Major Transport Infrastructure Authority.

The Victorian Government's *Recycling Victoria* policy released in 2020 also stated that the government will seek new opportunities to buy products containing recycled materials and use recycled materials to build roads, railways and other public infrastructure.<sup>583</sup>

**Assessment: in progress**

Infrastructure Victoria continues to recommend strengthening markets for recycled materials, and this is reflected in recommendation 29 - 'Strengthen end markets for recycled materials'.

## Recycled water (non-potable use) (14.2.1, RTH)

**Introduce a targeted incentive fund within 0-10 years to increase uptake of recycled water delivered through reticulated systems (third-pipe schemes) where this can significantly supplement demand from storages and contribute to delaying the need for major water supply augmentation projects. Uptake of readily available recycled water treated to a quality suitable for delivery through third-pipe schemes is limited by infrastructure costs. In liaison with water businesses, government investment in strategic projects can reduce reliance on storages and build local resilience to climatic variability.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government supports the intent of this recommendation and the use of recycled water for non-potable purposes aligns with the objectives of Water for Victoria; however the mechanism of a targeted incentive fund is not supported.

The Victorian Government did not support or make commitments to a targeted incentive fund, but is pursuing the development of integrated water management planning, an approach to water management that takes into consideration the entire water cycle. This approach includes consideration of ways to reuse water and can identify traditional costs that are avoided or deferred if an integrated solution is delivered.<sup>584</sup> In 2018-19, the Victorian Government committed \$4 million to support 18 integrated water management projects in Melbourne and 50 projects in regional Victoria.<sup>585</sup>

The Victorian Government completed the first phase of a review into the use of recycled water, with the aim of streamlining approvals processes and increasing the uptake of recycled water where the risks to the environment and human health are acceptable.<sup>586</sup> In March 2021, the Environment Protection Authority (EPA) Victoria released two new guidelines for the safe and sustainable use of recycled water in Victoria, *Victorian guideline for water recycling* and *Technical information for the Victorian guideline for water recycling*.<sup>587</sup> Further templates and guides will be developed to support the preparation and submission of applications.

The Victorian Government has begun the second phase of the review into the use of recycled water. This will include a review of the EPA Victoria Publication 168: *Guidelines for Wastewater Irrigation*<sup>588</sup> and a project to better understand emerging contaminants in recycled water.<sup>589</sup>

**Assessment: in progress**

Infrastructure Victoria recognises the importance of integrated water cycle management and this is reflected in recommendation 14 - 'Progress integrated water cycle management'.

## Regional city local buses (12.2.7, RBU)

**Provide new and expanded local bus routes within regional Victorian cities over 0-10 years. This requires the transparent identification and prioritisation of routes, which could include Ballarat and Wodonga, using the review methodology recently conducted on the Bendigo bus network. It would likely involve the provision of new buses, services and routes.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the expansion of bus services across regional Victoria to improve local mobility. Existing work and new funding partly address this recommendation. As this recommendation is over 10 years, full implementation will be considered as part of future budgets.

In 2018, the Victorian Government committed \$22 million for extra buses and services across the regional bus network,<sup>590</sup> including service improvements in Bellarine, Lara, Gisborne, Trentham, Junortoun, Ballan, Ararat/Horsham, and Donnybrook.<sup>591</sup> In 2019, it allocated approximately another \$50 million for the Ballarat Bus Interchange.<sup>592</sup> While these investments are welcome, they have been ad hoc and do not reflect a transparent identification of priority locations requiring improved connections.

**Assessment: in progress**

Infrastructure Victoria continues to recommend reform of local bus services to better meet the needs of regional communities, and this is reflected in recommendation 83 - 'Redesign regional public transport to meet local needs'.

## Regional coaches (2.1.2, 12.2.8, RCU)

**Provide new and expanded coach services between regional towns and cities over 0-10 years to provide greater opportunity for communities to access jobs and services in their regions. This requires the transparent identification of priority locations to improve connections with neighbouring centres and rail stations, which could include St Arnaud, Heathcote and Orbost. It would likely involve the provision of new coaches, routes and services.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the expansion of coach (or similar) services between regional towns and cities to support demand. The Shepparton/Seymour shuttle will partly address this recommendation and implementation over 10 years will be considered as part of future budgets.

The Victorian Government has taken some steps to provide new and expanded bus services in regional areas. In 2017, it committed \$43.5 million to improve transport connectivity between Seymour and Shepparton, with additional coach services and infrastructure to increase train services. A further \$4.4 million was also committed to expand and upgrade bus services in the Bellarine Peninsula, Ballarat and Wallan, to improve network coverage and provide additional options for public transport users in these areas.<sup>593</sup> In 2018, the Victorian Government committed \$22.2 million for extra regional bus services and infrastructure works, including service improvements in Bellarine, Lara, Gisborne, Trentham, Junortoun, Ballan, Ararat/Horsham and Donnybrook.<sup>594</sup> Another \$10 million was allocated in 2019, including to connect to trains in Romsey and Lancefield, and a new bus service from Alexandra to Eildon.<sup>595</sup>

While these investments are welcome, they have been ad hoc and do not reflect a transparent identification of priority locations requiring improved connections.

#### Assessment: in progress

Infrastructure Victoria continues to recommend improving coach services and facilities in regional areas within the context of planning that considers the roles of different travel modes. This is reflected in recommendation 33 - 'Publish Victoria's transport plan' and recommendation 83 - 'Redesign regional public transport to meet local needs'.

## Regional highways (2.1.1, 12.2.5, 13.4.1, RHU)

**Establish a transparent and evidence-based process for prioritising, at a state level, regional highway upgrades that will increase productivity and safety for road users within 0-5 years. This should involve the application of strategic criteria and draw on local knowledge and assessment of region-specific priorities. High-priority projects that will improve the level of service for commercial vehicles and improve safety and capacity for all road users could include highway duplications (for example, on the Western Highway from Ararat to Stawell), road widenings with centre safety barriers (for example, on the Goulburn Valley Highway), town bypasses (for example, Shepparton and Traralgon), upgraded river crossings (for example, at Swan Hill), and upgrades to improve traffic flow such as overtaking lanes.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government supports evidence-based processes for prioritisation. This recommendation is partly addressed through the current assessment and prioritisation of road upgrades. A complex set of factors are considered in the identification and prioritisation of projects, including opportunities for Commonwealth co-funding.

In 2018, Regional Roads Victoria (RRV) was established as a specialised division of VicRoads to plan and deliver improvements to the regional road network.<sup>596</sup> Its creation is a product of the *Country Roads – Your Insights, Our Actions* report which responded to community engagement completed in the early part of 2017. The report outlined the need for more transparent reporting on country roads, committing to publish an annual State of the Road Network Report. However, no such report has been made publicly available to date.<sup>597</sup>

Regional Roads Victoria publishes a map illustrating all regional road projects, but there is no information on their website which clarifies how highway projects are prioritised across Victoria.<sup>598</sup> In 2020, the Victorian Government provided over \$300 million to upgrade regional roads and highways, including freight routes for farmers and processors in Victoria's south-west dairy supply chain.<sup>599</sup> Joint Australian and Victorian government funding of \$97.2 million was also allocated to the targeted road safety works program for new infrastructure projects and to continue road safety improvements.<sup>600</sup> In 2021, the Victorian Government provided a further \$265 million to plan, upgrade and maintain regional roads.

Since 2016, the Australian Government has provided funding for many high-priority freight roads under the Roads of Strategic Importance Initiative, using defined investment principles.<sup>601</sup> This includes the Western Highway duplication from Ballarat to Stawell,<sup>602</sup> Shepparton Bypass,<sup>603</sup> and Swan Hill Bridge.<sup>604</sup>

#### Assessment: not commenced

Infrastructure Victoria continues to recommend improvements to regional roads, using a transparent process, reflected in recommendation 78 - 'Deliver long-term funding certainty for regional road maintenance and upgrades'.

## Regional rail eastern corridor (12.3.3, 13.5.5, RRE1)

**Identify trigger points that would require a major uplift in capacity on the Dandenong rail corridor and develop a long-term plan for the Cranbourne, Pakenham and Gippsland lines within 0-5 years. It is likely this extra capacity will be required in the latter part of the 15-30 year period or potentially beyond 30 years. One solution could involve the construction of additional tracks along the corridor to support demand for increased rail services from the south-east of Melbourne and Gippsland. However, this is a particularly high cost solution and further network planning is required, considering how to maximise the benefits of such an investment as well as all available options to better use existing infrastructure first. A number of factors will need to be considered in the future capacity planning for this corridor, such as demand for additional metropolitan and regional passenger services, the potential growth in the freight task from Gippsland and the location and timing of a second port.**



**Victorian Infrastructure Plan 2017:** Supported.

Government supports this initiative and is investing \$435 million to upgrade the Gippsland line, to deliver critical enabling works for more frequent and reliable services. Future rail upgrades and trigger points will be identified through integrated transport planning. Any future build components will require future budget consideration.

Under the 'Regional Rail Revival Program', the Victorian and Australian governments have committed more than \$4 billion for upgrades to every regional line. Planned infrastructure improvements include upgrades to tracks, stations and signalling to run more trains, more often and more reliably.<sup>605</sup>

The Gippsland line is being upgraded as part of the Regional Rail Revival program, which sits in the regional rail eastern corridor. The scope of work of the upgrade includes building a new rail bridge over the Avon River in Stratford, second platforms and station amenity works at Bunyip, Longwarry, Morwell and Traralgon stations, track duplication between Bunyip and Longwarry, extension of Morwell crossing loop, level crossing upgrades, signalling upgrades and building a larger train stabling facility at or near Traralgon.<sup>606</sup>

In addition, the Victorian Government is duplicating track from Dandenong to Cranbourne to support trains every 10 minutes on the Cranbourne line, allocating the first high capacity trains to the Cranbourne and Pakenham lines, and removing level crossings.<sup>607</sup>

In 2017, Infrastructure Victoria provided advice to the Victorian Government on when to invest in container port capacity and whether a second container port should be located at the existing Port of Hastings, or a new Bay West location. We found Bay West to be the preferred location for a second port, and that this would likely not be required until the Port of Melbourne reaches capacity of approximately 8 million 20-foot equivalent units (TEU) around 2055.<sup>608</sup>

This investment in the Gippsland and Cranbourne lines, together with the identification of Bay West as the preferred location of a second port, means that rail capacity to and beyond Melbourne's south-east is likely to be under less pressure than anticipated in 2016. However, a need remains to improve services to south-east metropolitan Melbourne.

**Assessment: substantially complete**

Infrastructure Victoria continues to recommend increases to rail capacity on Melbourne's suburban rail corridors. This is reflected in recommendation 59 - 'Increase off-peak service frequencies and suburban rail corridor capacity'.

## Regional rail gauge standardisation (13.4.2, RRG)

**Standardise the rail gauge in north-east Victoria within 5-10 years and continue planning for the remainder of the broad gauge regional rail network to determine other priority areas for standardisation. The lines for gauge standardisation in the north-east include the Deniliquin-Echuca-Toolamba line and the Tocumwal-Shepparton-Mangalore line, which will complete the standardisation of all operational freight-only lines in Victoria. The standardisation of the regional freight network will increase accessibility of rolling stock from across Australia, open up competition between Victoria's ports, and reduce the transportation costs of freight rail.**

**Victorian Infrastructure Plan 2017:** Partly supported.

Government supports standardisation where there is a strong economic case, but does not support blanket standardisation of the entire regional rail network. Standardisation is already underway through the Murray Basin Rail project and other freight lines.

In May 2020, the Victorian Department of Transport published the revised business case and provided it to the Australian Government.<sup>609</sup>

The Australian and Victorian governments have also agreed to a modified scope for the Murray Basin Rail Project, along with revising the project cost to \$689 million. The scope of works included re-rail of track between Ararat and Maryborough, construction of passing loops and other works designed to improve the network's capacity and travel times.<sup>610</sup>

V/Line was allocated \$613 million in 2021 for regional passenger and freight network maintenance and reliability; however, there were no details available as at June 2021 on how this is proposed to be invested.<sup>611</sup>

Currently, there are no commitments to standardise the Deniliquin-Echuca-Toolamba line and the Tocumwal-Shepparton-Mangalore line.

**Assessment: in progress**

Infrastructure Victoria continues to recommend improving freight efficiency and support for regional exports. This is reflected in recommendation 79 - 'Fund and plan for ongoing regional rail freight network development and maintenance'.

## Regional rail upgrades (12.2.4, RRC)

**Further develop Victoria's regional network development plan within 0-5 years to transparently identify and prioritise the upgrades and enhancements required to remove physical and operational constraints on the existing regional rail network. High-priority projects that will increase the reliability of passenger services, reduce ongoing maintenance costs,**

support the delivery of additional services and improve the viability and productivity of freight could include track duplications (for example, between Geelong and Warrn Ponds), replace ageing bridge assets (for example, the Avon River bridge at Stratford) and upgrade signalling systems (for example, on sections of the line north of Bendigo).

**Victorian Infrastructure Plan 2017:** Supported.

Government supports improving all forms of regional transport and will continue to implement the initiatives identified with regional communities. Regional rail upgrades are a component of the broader rail network and will be considered as part of integrated transport planning.

The *Regional Network Development Plan* was released in May 2016. It outlines a vision to provide increased frequency on the Geelong, Bendigo, Ballarat, Seymour and Traralgon lines, including 20-minute ‘commuter style’ frequency during peak times and increased frequency for the outer regional lines.<sup>612</sup>

Building on this, the Victorian Government launched the Regional Rail Revival program in 2017, which is now jointly funded with the Australian Government at more than \$4 billion.<sup>613</sup> The Regional Rail Revival program includes upgrades to every regional line, including the duplication of the rail line from South Geelong to Warrn Ponds,<sup>614</sup> currently in planning stages, construction of a new Avon River bridge at Stratford,<sup>615</sup> and a modern signalling system on sections of the line north of Bendigo.<sup>616</sup> Upgrades to the regional rail network include track duplications, second platforms, crossing loops, new rail bridges, station enhancements and level crossing upgrades.<sup>617</sup>

In 2020, the Australian Government increased its commitments to Victoria for upgrades to the Shepparton and Warrnambool rail lines, and for further upgrades between South Geelong and Warrn Ponds.<sup>618</sup>

The Victorian Government also invested \$100 million in the Western Rail Plan, which also received \$30 million from the Australian Government in 2020.<sup>619</sup> The Western Rail Plan sets out further investments beyond the current program to create a fast, high-capacity rail network servicing growing suburbs and regional cities. Planning is still needed for the following three major connected projects:

- ∨ Two new electrified metro rail lines through to growth areas in Melton and Wyndham Vale
- ∨ Increased capacity between Sunshine and the CBD to cater for faster and more frequent metro and regional trains
- ∨ Major investment in the Geelong and Ballarat lines to run trains faster than 160 kilometres an hour, and to explore electrification of these lines and new, fast electric regional trains.<sup>620</sup>

**Assessment: substantially complete**

Infrastructure Victoria notes the progress made to date but continues to recommend investment in regional rail, focused on freight, reflected in recommendation 79 - ‘Fund and plan for ongoing regional rail freight network development and maintenance’.

## Regional road maintenance (2.1.4, 12.2.10, 13.4.4, RRU)

Provide support for road maintenance and upgrades in regional Victoria over 5-30 years, following further scoping of works and monitoring of outcomes of currently committed investment programs. This program will provide extra support for regional local governments to maintain and upgrade local roads, as well as increased funding for the maintenance and upgrade of state roads in regional areas. This will enhance access to jobs and services, improve travel times and road safety, and meet the needs of first and last-mile freight in regional areas. A transparent framework to distribute funds should be developed, which relies on local government knowledge of priorities given its role as asset owners and managers. The longer-term planning should identify and prioritise the need for regional road investment across the state.

**Victorian Infrastructure Plan 2017:** Partly supported.

Government supports the intent of this recommendation and considerable work is already underway in relation to road maintenance and upgrades. Potential extra support for regional local governments will need further investigation to understand current funding issues and potential long-term solutions. As this recommendation covers 30 years, future budget consideration will be required to address the full scope.

Since 2016, the Victorian Government has made funding commitments to regional roads, including for maintenance and upgrades. Major investments include \$260 million to repair and upgrade unsafe and deteriorating roads across regional Victoria in 2016,<sup>621</sup> \$260.3 million for maintenance and upgrades to regional roads in 2017,<sup>622</sup> and \$433 million for regional road restoration in 2018, including \$100 million for the Fixing Country Roads fund.<sup>623</sup> In 2019, the Victorian Government allocated \$425 million for maintenance works, \$121 million for road safety works and \$52.9 million for smaller scale improvements.<sup>624</sup> In 2020, the Australian Government allocated substantial extra funds for road safety upgrades and regional road maintenance and upgrades, and the Victorian Government provided over \$300 million for road maintenance.<sup>625</sup> In 2021 the Australian Government allocated \$3 billion to Victorian road and rail projects<sup>626</sup> and the state allocated \$616.9 million to road asset management.<sup>627</sup> More than \$330 million was also allocated to deliver initiatives under the new road safety strategy 2021-2030.<sup>628</sup> However, the Victorian Government has not yet developed a transparent framework to distribute funds to the local governments that own and manage local roads, nor has it set out a longer-term plan for statewide regional road investment.

In 2017, the Victorian Auditor-General’s Office (VAGO) found VicRoads lacked an outcomes-focused strategy for investment in regional roads.<sup>629</sup> Submissions to a 2018 parliamentary enquiry into VicRoads management of regional roads echoed VAGO’s findings, highlighting the poor quality of roads in regional areas,

the lack of funding for VicRoads and councils to adequately maintain regional roads, and the need for better community and stakeholder consultation.<sup>630</sup> VicRoads is still to implement a long-term asset management strategy.

In 2018, the Victorian Government established Regional Roads Victoria to bring a more coordinated, consistent and integrated approach to the management of the regional road network.<sup>631</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend longer-term funding certainty for regional roads. This is reflected in recommendation 78 - 'Deliver long-term funding certainty for regional road maintenance and upgrades'.

## Regional rolling stock (12.2.3, RRS)

**Institute an asset management-based approach to a long-term program of regional rolling stock procurement within 0-5 years, building on the 2015 *Victorian rolling stock strategy*. This program should implement a cycle for the continuous build of new regional rolling stock, incorporating the next generation regional train, that avoids the stop-start procurement of recent decades. This will enable the timely retirement of older rolling stock, meet the demands of increased commuter patronage across the network and support additional long distance services (see recommendation 12.2.9).**

#### Victorian Infrastructure Plan 2017: Supported.

Government supports this recommendation. Transport For Victoria is developing a forward plan of rolling stock orders and improvements to provide greater certainty for industry and ensure smoother provision of trains to meet Victoria's needs.

The Victorian Government committed to a 10-year pipeline of new locally manufactured trains and trams as part of Victoria's rolling stock strategy, *Trains, Trams and Jobs 2015-2025*. The strategy was released in 2015 and stated 160 new regional carriages would be needed over the next decade to meet forecast growth. Victoria's regional locomotives are typically 30 years old and some carriages are nearly 60 years old, failing to meet customer expectations for comfort and reliability, and requiring significantly more investment in ongoing maintenance. New trains will cater for growing patronage and the replacement of vehicles at the end of their life.<sup>632</sup>

Since 2016, the Victorian Government has allocated significant additional funding to upgrade tram and train rolling stock procurement, including nearly \$300 million to redesign VLocity carriages and build 39 new carriages for long-haul services.<sup>633</sup> In 2019-20, an additional \$340 million was provided to replace ageing fleet on the busiest regional lines.<sup>634</sup>

#### Assessment: substantially complete

While the Victorian Government has made significant investments, Infrastructure Victoria continues to recommend improved planning and asset management of enabling infrastructure, reflected in recommendation 33 - 'Publish Victoria's transport plan'.

## Relocatable community infrastructure (1.4.3, 5.4.1, 19.2.3, RCI)

**Increase the provision of temporary or interim community infrastructure, such as relocatable buildings, over 0-10 years, to respond to rapidly changing community needs. Temporary infrastructure is of particular use in areas of high population growth where permanent infrastructure cannot be provided in a timely way and after emergencies, such as bushfires, where existing infrastructure is destroyed.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government partly supports this recommendation and has several funding programs, which can support increased funding. As this recommendation is over 0-10 years, future budget consideration is required for ongoing funding.

Since 2016, the Victorian Government has launched two grants programs to assist local governments with the provision of temporary relocatable facilities.

The Growing Suburbs Fund supports grants to accelerate the provision of critical local community infrastructure for fast-growing outer suburbs and peri-urban communities.<sup>635</sup> It targets high-priority projects which help meet the needs of rapidly growing communities; create local employment; improve local economic conditions; improve capacity for councils to respond to changing community needs and demands; and deliver innovative models of integrated or shared infrastructure.<sup>636</sup> In 2021, the Victorian Government announced \$50 million in funding for the Growing Suburbs Fund to continue to support the infrastructure needs of interface and peri-urban communities.

The Building Block Grants program uses a range of grant categories to improve access to, and the quality of early childhood learning. It seeks to expand access to kindergarten by funding initiatives which: integrate services by collocating professional services such as education, care, and health in new community hubs; deliver new early learning facilities, including kindergarten programs for three and four year-olds; expand the capacity of existing facilities; and which deploy high-quality modular kindergarten buildings to new locations where there is urgent demand for kindergarten facilities.<sup>637</sup>

#### Assessment: substantially complete

Infrastructure Victoria notes progress to date on this recommendation, the remaining elements of which should continue to be delivered through the normal business of government.

## Riparian fencing (17.1.2, RFI)

**Expand fencing of riparian areas in priority waterways over 10-30 years to minimise damage resulting from livestock access to these areas, while monitoring development of approved and innovative alternatives, such as fenceless farming, and removing regulatory barriers preventing uptake of these technologies.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation as part of its consideration of various waterway management practices. As this recommendation is over 10-30 years, implementation will be considered as part of future budgets.

The Victorian Government has made commitments to expand fencing of riparian areas, primarily through its *Regional Riparian Action Plan*. The Action Plan has been incorporated into the broader *Water for Victoria Strategy*, a \$222 million commitment by the Victorian Government which aims to improve the health of Victorian waterways and catchments.<sup>638</sup>

The Victorian Government has committed \$30 million from 2016-17 to 2019-20 towards additional riparian works, and has indicated ongoing investment in riparian programs as a future direction.<sup>639</sup> It is also investing \$1 million into partnerships between catchment management authorities and recreational anglers to deliver riparian improvement works in areas of local priority for recreational fishing.<sup>640</sup>

### Assessment: in progress

Infrastructure Victoria notes progress to date on this recommendation, the remaining elements of which should continue to be delivered through the normal business of government.

## Road asset management (10.6.1, 11.3.1, 12.2.1, RMF)

**Implement a performance based asset management framework for state roads within 0-5 years that sets a priority order of users to determine the required condition of these roads, including identifying roads that are surplus to needs. This work should be supported by a review of responsibility for roads between the state and local governments to ensure these responsibilities are consistent with the purpose of the road. This would include removing anomalies where state government is responsible for roads with a local transport function and where local government is responsible for roads that provide an arterial road function. This would enable the development of well-targeted increases in road maintenance and greater transparency around proposed changes in road classifications.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, and work is already underway to categorise maintenance regimes that meet service levels through Whole-of-Life-Asset Management Planning. Further budget consideration will be required to address the full scope of this recommendation. VicRoads also undertakes regular reviews of the arterial road network, consistent with the Road Management Act.

Although the Victorian Government has made no public commitment to implement a performance-based asset management framework for state roads, there has been considerable investment in road works.

In Melbourne, the Western Roads Upgrade (WRU), which is taking place under the Suburban Road Upgrade program, will transform the arterial road network in the city's western suburbs. The WRU is a public-private partnership agreement overseen by Major Road Projects Victoria which includes capital works, and road maintenance for 260 kilometres of arterial roads over the coming 20 years.<sup>641</sup> These works have been supported with significant investment. Building on an original allocation of \$82.9 million in 2017 for suburban road maintenance and resurfacing, the Victorian Government budgeted an additional \$116 million to repair roads and improve road safety in 2018 and \$229 million for improved road maintenance across Melbourne in 2019.<sup>642</sup>

In 2018, the Victorian Government established Regional Roads Victoria within VicRoads to manage more than 19,000 kilometres of highways and main roads in regional areas. In 2018-19, Regional Roads Victoria oversaw investment of \$333 million in road maintenance and \$608 million for other upgrades and repairs, including the rebuilding and resurfacing of more than 1500 kilometres of road. Another \$425 million was allocated for regional roads through Regional Roads Victoria in 2019-20.<sup>643</sup> Regional Roads Victoria also oversees the \$100 million Fixing Country Roads Program, which provides grants to rural and regional councils to undertake local roads projects.<sup>644</sup>

In the 2020-21 Victorian Budget, the Victorian Government allocated \$450 million towards road maintenance.<sup>645</sup> This is on top of \$124 million for road maintenance announced in May 2020 as part of its Building Works package, which aimed to support the economic recovery from the effects of the COVID-19 pandemic.<sup>646</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend a more strategic approach to the funding of road management and maintenance statewide. This is reflected in recommendation 33 - 'Publish Victoria's transport plan', recommendation 76 - 'Expand and upgrade Melbourne's outer suburban road and bus networks', and recommendation 78 - 'Deliver long-term funding certainty for regional road maintenance and upgrades'.



## Road space allocation (10.6.3, 11.3.5, RSA)

Accelerate the roll-out of changes to road space allocation, whether physical changes or alterations to road signals, to improve throughput of people, particularly in areas of high congestion, over 0-15 years. Key locations for prioritising higher capacity public transport and active transport modes include the Hoddle Street/Punt Road bus corridor, SmartBus corridors, tram routes in the northern suburbs, untreated sections of the CBD and access routes to major employment centres. Road space allocation decisions should factor in the projected transport network benefits and the local urban outcomes. Longer-term planning should consider how the allocation of road space may need to be adapted in light of new vehicle technologies, particularly driverless vehicles.

### Victorian Infrastructure Plan 2017: Supported in principle.

Government supports the intent of this recommendation and the progressive roll-out of on-road prioritisation for public transport at key sites. Road space allocation improvements are being progressively introduced at key locations. Full implementation over 0-15 years will be considered as part of integrated transport planning and future budgets.

Since the 2016 30-year infrastructure strategy was published, the Department of Transport has developed and published a Movement and Place Framework. This framework outlines plans for the road and transport network, and identifies network priorities.<sup>647</sup> The framework is a first step to reallocating road space, but the framework stops short of reallocating road space or identifying locations for potential road space reallocation initiatives, and it does not include a timetable in which these activities are to be undertaken.

In 2017, the Victorian Government allocated \$35.8 million to optimising transport network performance and productivity. This includes installing tram and bus priority infrastructure along high patronage routes such as High Street at Kew; Smith Street at Fitzroy, and Pascoe Vale Road at Broadmeadows.<sup>648</sup> In these cases, tram track renewals and stop upgrades can result in road space reallocations taking place. However, these have not followed a strategic, network-wide approach. The North East Link project will see a dedicated busway built between Doncaster and Melbourne's CBD, with park and ride facilities at Doncaster and Bulleen.<sup>649</sup>

A policy commitment or budget allocation is required for the recommendation to be fully accepted and implemented.

### Assessment: in progress

While some progress has been made to progress changes to road space allocation, there is still more to do. Infrastructure Victoria continues to recommend improving road space allocation and prioritisation, and this is reflected in recommendation 41 - 'Reallocate road space to priority transport modes'.

## School investment pipeline (9.3.1, SIF)

**Publish, on an annual basis, five-year investment priorities for new and upgraded government schools, alongside the planning data that shows demonstrated need, within 0-5 years. This transparency will communicate to communities how priorities are made, provide greater certainty and lead times to enable co-investment to occur and reduce the need for community advocacy.**

### Victorian Infrastructure Plan 2017: Supported.

Government supports publishing demand and condition information annually to provide transparency about how investment priorities are made for new and existing schools. This will be supported by a new process for the ongoing evaluation of the condition of school facilities, which will have implications for school infrastructure programs in the future.

The Victorian Government has made several commitments to publish five-year investment priorities for government schools. The *Victorian Infrastructure Plan* includes an ongoing commitment update to 'completing' a school investment pipeline on government's five-year investment program in new and upgraded facilities to allow for planning certainty'.<sup>650</sup>

In 2017, the Victorian Auditor General's Office (VAGO) conducted an audit into the management and maintenance of school assets, *Managing School Infrastructure*.<sup>651</sup> In alignment with Infrastructure Victoria's recommendation, VAGO noted the Department of Education and Training (DET) does have a 'new school pipeline' – specifically, a 'refined five-year pipeline of priorities'.<sup>652</sup> In 2020, the Victorian Parliament announced a follow-up inquiry to the VAGO audit that would include consideration of DET's progress in publishing annual demand and condition information.<sup>653</sup>

In 2016, the Victoria School Building Authority (VSBA) was established to oversee the design and construction of new and upgraded schools and kindergartens.<sup>654</sup> The VSBA developed and maintains a website that, for the first time, shares with the community, schools and kindergartens information on capital upgrades in the planning and construction stages in their local areas. This information assisted the community to understand when new and upgraded schools and kindergartens would be delivered. Providing certainty about the pipeline of the planned new and upgraded schools may also help reduce ad hoc decision-making and help to prioritise funding allocation to areas of most need.

While this progress is welcome, there remains room for improvement. In particular, early engagement between the Victorian Government and local councils on infrastructure pipeline could deliver better community outcomes on school sites. Local governments face ongoing challenges in co-investing in school sites because the master planning for sites commences only when land has been acquired or funding allocated,<sup>655</sup> and local government budget and planning cycles are not aligned with the Victorian Government's.<sup>656</sup>



### Assessment: substantially complete

Infrastructure Victoria notes the intention of this recommendation is being met. Infrastructure Victoria would encourage the Department of Education and Training to publish a list of proposed new and upgraded education facilities to inform the education sector infrastructure plan. This would support recommendation 32 - 'Produce public plans for priority infrastructure sectors'.

## School maintenance (9.3.2, SRM1)

**Pilot a new regional maintenance model for schools within 0-5 years. This should demonstrate whether or not economies of scale could be derived at a regional level and tighter control over costs maintained.**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports piloting a new regional maintenance model for schools. The new maintenance model pilot program underway will ensure this recommendation is implemented in the first five years.

In 2017, the Victorian Auditor General's Office (VAGO) released its *Managing School Infrastructure* audit,<sup>657</sup> and noted that Department of Education and Training (DET) was piloting a model that involves outsourcing maintenance planning and delivery functions to a supplier at a regional or subregional level.<sup>658</sup> This pilot involved 50 schools having their assets managed by an external supplier over a period of five years, and aimed to test the costs and benefits of an outsourced model for asset maintenance. The Australian Education Union's Victorian branch noted its support for Infrastructure Victoria's recommendation and DET's pilot program in its submission to a parliamentary inquiry into the VAGO report.<sup>659</sup> In 2020, VAGO prepared a submission to the Public Accounts and Estimates Committee's *Inquiry into the Victorian Auditor-General's report no.253: Managing School Infrastructure*<sup>660</sup> noting that the outcomes of the pilot were unclear. VAGO also noted that DET has developed a *School Asset Management Roles and Responsibilities Framework* to enable DET to better support principals and school council members to maintain school assets.

### Assessment: substantially complete

Infrastructure Victoria notes progress to date on this recommendation, noting continued improvements should continue to be delivered through the normal business of government.

## School Network Planning (9.1.1, SOO)

**Improve demand management for schools and better use existing schools before new adjacent schools are approved for funding within 0-5 years. This would require a review of existing network planning mechanisms with a view to improving perceptions and/or addressing the causal factors of why some schools are considered less desirable. This would also consider mechanisms for a network of schools to work together to lift the performance of the entire network. These mechanisms could include taking a hub and spoke approach where high-performing schools assist lower-performing schools, as well as sharing school facilities, resources and teachers.**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports effective management of school demand to provide Victoria's students with the facilities they need, and will continue to review enrolment placement policy to address any underlying issues regarding school utilisation.

The Victorian Government committed in the *Victorian Infrastructure Plan* to improving demand management for schools through more effective school network planning in metropolitan and regional Victoria.<sup>661</sup> It has since taken a number of practical steps to improve school network planning.

The Victorian Government has funded several independent projects, often run as pilot programs with a small group of schools to improve school performance and improve community perception of schools. In 2017, the Professional Learning Communities program was expanded across Victoria,<sup>662</sup> using high-impact teaching practices to improve student outcomes. The same year, \$50.7 million was allocated for 'Turnaround Teams' – consisting of an executive principal and two leading teachers – to be deployed in underperforming schools to help lift results.<sup>663</sup> This should help to address perceptions that some schools are not as good as others, which can lead to assets at preferred schools coming under pressure while facilities at other schools are underutilised.

In 2019, the Victorian Government, through DET, revised its Education Department rules and reviewed school zoning boundaries to better balance the growth of large, popular schools with that of smaller and less popular ones. The new 'Find my school'<sup>664</sup> website assists families to find their school zone and explains DET policy about how and why the placement policy occurs. The same year, DET published a fact sheet that outlines its policy for allocation of relocatable buildings and their role in addressing demand for school facilities.<sup>665</sup> In allocating relocatable buildings, the department noted it would consider projected enrolments and enrolment management, including the percentage of enrolments from the local designated neighbourhood zone and the effect on, and capacity at, surrounding schools.<sup>666</sup>

### Assessment: substantially complete

Infrastructure Victoria notes the intent of the recommendation has been met.

## Schools as community facilities (1.4.7, 2.3.3, 5.3.1, 9.3.3. SCF)

**Transform state schools into community facilities over 5-30 years. This could involve integrating kindergartens, long day care and other family services, providing spaces for community education, and sharing arts facilities, sports facilities and libraries, depending on the needs of the local community. The focus would be on designing all new schools as community facilities and progressively transitioning existing schools during major scheduled upgrades. As a first step, funding, governance and planning arrangements for these facilities would need to be reformed. This would include an increased role for local government and other co-investors in schools as partners in the management of these shared assets.**

### **Victorian Infrastructure Plan 2017:** Supported.

Government supports the transformation of schools into community facilities and is already implementing a number of programs, such as the Shared Facilities Fund and Joint Use Agreements.

In 2017, the Victorian Government committed \$10 million to the construction of early childhood facilities on school sites.<sup>667,668</sup> In 2019, it significantly expanded the scope of its planned investment in early childhood, announcing it would fund access to two years of kindergarten programs for all Victorian children before starting school, at a cost of almost \$5 billion over the coming decade. Every new primary school set to open from 2021 will have a kindergarten on-site or next door. Four new schools will be delivered with or next door to new kindergartens in 2020, another 10 in 2021, and a further six are planned for 2022.<sup>669</sup> Six existing government schools will also have kindergartens built on site.<sup>670</sup> The new kindergartens will be funded under the Victorian Government's Building Blocks program, which funds early childhood infrastructure,<sup>671</sup> with grants also supporting facility upgrades, refurbishments and expansions.<sup>672</sup>

Since 2016 the Victorian Government has built competition-grade gyms on new school sites. These facilities are designed to be shared with broader community and schools are encouraged to enter into joint use agreements to facilitate the sharing of these facilities.<sup>673</sup> There is a current government commitment to deliver 100 new schools across Victoria by 2026.<sup>674</sup> This will mean there should be many more school sites that provide the wider community with either a new kindergarten and/or shared competition-sized gymnasiums.

These steps are welcome but there is scope to improve. The Victorian Auditor General's Office has noted that a significant hurdle to delivering schools as community facilities is the Victorian Government's ability to provide funding certainty beyond its annual budget funding allocation, and the different planning and budgeting cycles of local government.<sup>675</sup>

### **Assessment: in progress**

Infrastructure Victoria continues to recommend flexible, integrated and shared use of public facilities where appropriate to provide greatest benefit for local communities. This is reflected in recommendation 32 – 'Produce public plans for priority infrastructure sectors' and recommendation 88 – 'Deliver multipurpose shared social service facilities in the regions'. Recommendation 87 – 'Use rural schools for children's specialist and allied telehealth services' proposes to leverage existing school technology infrastructure and facilities to encourage the uptake of telehealth in regional areas.

## Small scale solar (18.2.3, SSE)

**Update guidance on the installation of solar PV on buildings within 0-5 years to ensure that installations are made in a technically appropriate and effective manner with increasing uptake of this technology.**

### **Victorian Infrastructure Plan 2017:** Partly supported.

Government partly supports this recommendation and is committed to supporting solar installations at commercial and community scales.

In April 2019, the Clean Energy Council updated its guidelines on rooftop solar installation. These set the requirements for Clean Energy Council-accredited installers. As part of its Solar Homes initiative, the Victorian Government requires installers to be accredited by the Clean Energy Council. This effectively implements up-to-date guidance that must be followed for installations receiving support under the Solar Homes program.

In addition, firms participating in the Solar Homes program are required to sign up to the Clean Energy Council's Solar Retailer Code of Conduct.<sup>676</sup> Requiring solar retailers to commit to service and consumer protection aligns with the existing requirement for solar installers to be accredited by the Clean Energy Council.<sup>677</sup>

The Victorian Government is currently considering expanding the activities under the Victorian Energy Upgrades program to include solar photovoltaic systems larger than 100 kilowatts and solar optimisation upgrades likely to appeal to commercial and industrial customers.<sup>678</sup>

### **Assessment: substantially complete**

Infrastructure Victoria notes progress to date on this recommendation, the remaining elements of which should continue to be delivered through the normal business of government.

## SmartBus network (1.3.3, 11.5.3, SNE)

Expand the SmartBus network and provide service enhancements over 0-15 years to support cross-town travel, subject to transparent assessment to determine priorities. This should include consideration of how the SmartBus network could complement or form part of the mass transit networks for major employment centres (see recommendation 11.5.4) to provide a trunk access network supported by local bus networks. Key areas of priority are in the western suburbs and around the inner city.

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. As this recommendation is over 0-15 years, implementation will be considered as part of future budgets.

Since 2016, the focus of Victorian Government action on bus planning has been improving the performance of existing routes operators. In 2017, the Victorian Government announced it would renegotiate new contracts with the 12 metropolitan bus operators which together operated 70% of the city's bus network. The new contracts aimed to provide better services and expand services.<sup>679</sup> In 2018, the Victorian Government announced that it would not be extending the existing contract of major bus operator, Transdev, past January 2021, due to poor performance.<sup>680</sup>

In 2017, the Victorian Government allocated funding for a number of route extensions, upgrades and new services to improve bus network coverage. In 2019, it allocated an additional \$7.9 million over the forward estimates to improve bus services and access to these services through a new 'Better Buses Fund'. Initiatives identified under the new fund included the creation of new bus services linking Mernda and Craigieburn Station, and Donnybrook to Craigieburn.<sup>681</sup> However, these initiatives were not accompanied by a transparent identification of priority locations, nor how new connections would link to the trunk network.

The Victorian Government is yet to commit to funding expansion of the SmartBus network or undertaking a transparent assessment to determine priorities or how this network could complement heavy rail.

### Assessment: not commenced

Infrastructure Victoria continues to recommend the expansion and reform of bus services to provide increased frequency and faster travel times, as well as better access to major employment centres. This is reflected in recommendation 57 - 'Reshape the metropolitan bus network and introduce 'next generation' bus services', and recommendation 58 - 'Connect suburban jobs through 'next generation' buses and road upgrades'.

## Stormwater harvesting (14.2.2, 17.2.1, SRH)

More comprehensively and consistently invest in stormwater harvesting projects at greenfield sites over 5-30 years to maximise the use of this readily available water resource in a manner that reduces pressure on water storages and delays the need for major water supply augmentation projects. The first step to achieving this is to formally incorporate stormwater as a water resource in statutory instruments and water resource planning frameworks. In addition to boosting water supply, this measure provides environmental benefits as harvesting slows the rate at which storm water drains into waterways, thereby minimising erosion and pollutant loading while also assisting to mitigate flood impacts.

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. Implementation is subject to future budget processes or other investment sources, particularly as future capital works may not involve state funding.

The Victorian Government has made progress on this recommendation by formally incorporating stormwater into land use planning statutory instruments.

As part of *Water for Victoria*, the Victorian Government appointed the Improving Stormwater Management Advisory Committee to assess current policy surrounding stormwater management strategies and outcomes. The aim of the committee was to advise which types of developments should be required to manage their stormwater impacts and how this could be achieved.<sup>682</sup> The committee recommended the introduction of Integrated Water Management and stormwater management provisions into the Victoria Planning Provisions (VPPs).<sup>683</sup>

This has resulted in the development of Amendment VC154 to introduce stormwater management principles into the VPPs. The amendment extends stormwater management requirements to all commercial and industrial subdivisions and developments, public developments and residential multi-dwelling apartments.<sup>684</sup> The Victorian Government has also inserted a new integrated water management clause in the Planning Policy Framework.<sup>685</sup>

In March 2021, The Victorian Government in partnership with Clearwater launched an online tool to assist local government and planning permit applicants to identify what statewide stormwater planning provisions apply to subdivision or buildings and works developments within Victoria.<sup>686</sup>

### Assessment: in progress

Infrastructure Victoria recognises the importance of further enabling stormwater investments and this is reflected in recommendation 14 - 'Progress integrated water cycle management'.

## Stormwater quality (17.1.1, SRQ)

**Integrate good practice stormwater quality management measures in regulatory and policy frameworks within the next 0-5 years to consistently address stormwater quality management under all types of development and better enable integrated water cycle management in metropolitan and regional urban areas.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government supports this recommendation in part, but to implement over the next five years and to be consistent with *Water for Victoria*, its scope has been changed to focus on stormwater management rather than quality.

The Victorian Government has made progress on this recommendation by formally incorporating stormwater into land use planning statutory instruments and reviewing guidelines.

As part of *Water for Victoria*, the Victorian Government appointed the Improving Stormwater Management Advisory Committee to assess current policy surrounding stormwater management strategies and outcomes. The aim of the committee was to advise which types of developments should be required to manage their stormwater impacts and how this could be achieved.<sup>687</sup> The committee recommended the introduction of Integrated Water Management and stormwater management provisions into the Victoria Planning Provisions (VPPs).<sup>688</sup>

This has resulted in the development of Amendment VC154 to introduce stormwater management principles into the VPPs. The amendment extends stormwater management requirements to all commercial and industrial subdivisions and developments, public developments and residential multi-dwelling apartments.<sup>689</sup> The Victorian Government has also inserted a new integrated water management clause in the Planning Policy Framework.<sup>690</sup>

The Environment Protection Authority (EPA) Victoria is developing new urban stormwater management guidelines to replace the *Urban Stormwater Best Practice Environmental Management Guidelines (1999)*. The new guidelines will support better stormwater design, planning and development to improve stormwater quality and minimise risks.<sup>691</sup>

Melbourne Water has also incorporated stormwater harvesting into its strategy with its focus on water sensitive urban design. The aim of this approach is to employ urban planning and design to reuse stormwater, stopping it from reaching Victoria's waterways by mimicking the natural water cycle as closely as possible.<sup>692</sup>

### Assessment: substantially complete

Infrastructure Victoria notes progress to date on this recommendation, the remaining elements of which should continue to be delivered through the normal business of government.

## Tertiary education/VET in schools (9.4.1, STE)

**Investigate and work to resolve any regulatory or workforce barriers that prevent tertiary education courses being offered on school sites, particularly in rural and regional areas where access to vocational training is a significant issue, within 0-5 years.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports the increased opportunity for Victorians to access tertiary education and vocational education and training courses, particularly in rural and regional areas. We already have work underway in developing Trade Training Centres and the implementation of Tech Schools onto TAFE sites.

Since 2016, the Victorian Government has established 10 'Tech Schools' in Ballarat, Banyule Nillumbik, Bendigo, Casey, Geelong, Gippsland, Monash, Whittlesea, Wyndham and the Yarra Ranges. These aim to provide innovative, problem-based education programs that give students practical experience with access to the latest technology and equipment.<sup>693</sup> Tech Schools are built on land belonging to Technical and Further Education (TAFE) institutions or university campuses to introduce school students to tertiary education, demonstrating a sharing of TAFE assets with nearby schools to offer subjects that would be otherwise unavailable at school.<sup>694</sup>

While these infrastructure initiatives are welcome, the Victorian Government will need to continue to progress reforms to ensure adult learners have access to tertiary education and TAFE training close to where they live, particularly in regional areas.

### Assessment: in progress

Infrastructure Victoria continues to recommend flexible, integrated and shared use of public infrastructure where appropriate, including in schools, to benefit local communities, particularly in regional areas. This is reflected in recommendation 88 - 'Deliver multipurpose shared social service facilities in the regions'. Continued progress in addressing regulatory and workforce barriers to the delivery of tertiary education courses on school sites should be delivered through the normal business of government.

## Torquay transport links (12.3.2, TRE)

**Complete planning and investigation work within 0-5 years to reserve a public transport corridor linking Torquay to Geelong. In the short to medium term, the growth in transport demand in this area can be met with regional bus upgrades (see recommendation 12.2.7). As the population and transport demand continues to grow, this corridor is likely to require a higher-capacity bus or rail link within 15-30 years. This link would provide a viable alternative to private vehicles for local trips and commuting to the central city from these high growth areas.**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports this recommendation with funding announced under the Regional Rail Revival for the corridor reservation. Detailed planning to support Torquay to Geelong movements is underway including for the spur line, noted in the Regional Rail Revival.

Under the Regional Rail Revival program jointly funded by the Victorian and Australian governments, more than \$1 billion has been allocated to upgrade the Geelong line. This investment is to deliver upgrades to Waurin Ponds railway station and an additional track at the station, as well as planning and development for track duplication between South Geelong and Waurin Ponds, and planning for the Armstrong Creek transit corridor to Torquay.<sup>695</sup> Construction on the Waurin Ponds station upgrade is underway (due to be completed in late 2021) and planning and development work is being done to support the rain duplication between South Geelong and Waurin Ponds.<sup>696</sup>

In 2017, the Victorian Government announced \$110 million for work towards track duplication at Waurin Ponds and to reserve land for a new spur line to Torquay.<sup>697</sup> The feasibility and timing of the spur line is yet to be established, but the Department of Transport has stated that any initial public transport link to Torquay will be via a high quality rapid bus service.<sup>698</sup>

**Assessment: substantially complete**

Infrastructure Victoria notes progress to date on this recommendation, the remaining elements of which should continue to be delivered through the normal business of government.

## Traffic management systems (10.6.2, 13.2.1, ATM)

**Upgrade and expand advanced traffic management systems to manage flows on metropolitan motorways, employing tools such as lane use management, access ramp signalling, CCTV and variable message signs, over 0-10 years. This will improve the efficiency and reliability of the motorway network and could potentially apply to some key arterial routes, such as the Hoddle Street/Punt Road corridor, with benefits to freight reliability and traffic flows.**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports the roll-out of advanced traffic management systems on selected key routes. VicRoads Managed Motorways program is successfully operating on key routes, including the M1. Deployment of these systems is continuing across the road network.

The Victorian Government has committed to the delivery of an advanced traffic management system to improve the capacity of Melbourne's freeways. This system will be rolled out to key sections of the road network through the Optimising Transport Network Performance and Productivity initiative.<sup>699</sup>

In 2019, the Victorian Government allocated \$4.6 million in funding for development of an Intelligent Transport System.<sup>700</sup> It also completed a project to streamline traffic along Hoddle Street, which included: upgrades to major intersections; additional clearways on Swan Street; extending clearway times on Swan Street between Punt Road and Botherambo Street to 24 hours a day, seven days a week; and improvements to walking access at Brunton Avenue.<sup>701</sup>

In June 2020, the Victorian Government announced a further \$340 million for upgrades and modernised road operations. This package aimed to increase the numbers of response crews and traffic engineers, improve data collection, and review and adjust the timing of a number of traffic lights to optimise traffic flow.<sup>702</sup>

The University of Melbourne brought together PeakHour Urban Technologies, the Victorian Department of Transport and Telstra to create a large-scale artificial intelligence (AI) application to predict traffic congestion up to three hours ahead. The application, launched in May 2021, can also optimise traffic signals for on-road vehicles, freight, and public transport such as buses and trams.<sup>703</sup>

**Assessment: in progress**

Infrastructure Victoria continues to recommend road network operations improvements, reflected in recommendation 24 - 'Introduce new road network demand management technology'.

## Train timetabling (10.4.2, PTT)

**Implement the required timetable changes on the metropolitan train network to deliver the peak period service uplifts enabled by the completion of the Regional Rail Link within 0-5 years. This should be done as soon as possible as it will significantly increase capacity on overcrowded lines in the west of Melbourne, particularly the Werribee line.**

**Victorian Infrastructure Plan 2017:** Supported.

Government supports this recommendation to deliver service uplifts, particularly lines in the west of Melbourne. Schedule changes will continue to be progressively introduced to increase the number of services. Service increases and corresponding changes to timetables will be sequenced to build on and take advantage of new infrastructure as it is introduced on the network.



In 2017, the Victorian Government committed to eight additional train services for the shoulder peak period on the Werribee line.<sup>704</sup> These were to be made available by capacity upgrades following the diversion of regional trains to the Regional Rail Link.

The January 2021 timetable changes coincided with the removal of Frankston services from the City Loop and cross town services between Frankston and Werribee on weekends. The timetable also introduced 30 new services each week to the Craigieburn line, 90 to the Cranbourne and Pakenham lines, 45 to the Frankston line, 10 off peak services to the Sandringham line, 15 to the Sunbury line, 15 to the Upfield line, 60 to the Werribee line and 15 new off-peak services each week to the Williamstown line. All V/Line services that operate within the Myki ticket area also received additional services.<sup>705</sup>

#### Assessment: substantially complete

Infrastructure Victoria continues to recommend train timetabling improvements, and this is reflected in recommendation 59 - 'Increase off-peak service frequencies and suburban rail corridor capacity' and recommendation 76 - 'Expand and upgrade Melbourne's outer suburban road and bus networks'.

## Transport contingency planning (19.2.2, CRR1)

**Develop a multi-modal transport contingency plan, building on existing modal plans, within 0-5 years to maintain access on key transport corridors in the event of disruption.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this initiative. Transport For Victoria is developing a Network Impact Management Plan to better manage network disruptions during infrastructure builds such as Metro Tunnel. The Network Impact Management Plan will start to address this recommendation, and will be expanded to cover other major disruptions.

Since 2016, the Victorian Government has centralised disruption information on its Big Build website.<sup>706</sup> The Big Build website provides information on disruptions across the public transport and road networks to maintain access, with a map and calendar highlighting the timing and location of disruptions on the network.<sup>707</sup>

The 2019 merging of the Department of Transport with Public Transport Victoria and VicRoads presents greater opportunities to take a more integrated, efficient and effective approach to planning for disruptions and other contingencies.

#### Assessment: in progress

Infrastructure Victoria continues to recommend action to improve planning for, and the transport network's ability to respond to, disruptions. This is reflected in recommendation 24 - 'Introduce new road network demand management technology' and recommendation 33 - 'Publish Victoria's transport plan'.

## Transport control centres (19.2.4, ITC, CRR2)

**Establish fully integrated transport control centres to enable better management of the system across transport modes over 15-30 years. This should occur progressively as and when existing separate control centres become due for major renewal. Integration with relevant operational management centres in other sectors should also be considered.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation, but notes that it requires consideration of the benefits and risks of consolidated or aggregated control centres. Transport For Victoria is improving system-wide operational coordination and integration of transport management. Any potential capital works associated with this recommendation will be considered as part of future budgets.

In 2019, a new Department of Transport was formed, incorporating VicRoads and Public Transport Victoria to create an integrated transport department. This is in step with other global cities. An integrated transport department provides a significant opportunity to make better use of existing road and rail infrastructure and to respond much quicker to innovation and new transport technologies.<sup>708</sup>

This integration also creates an opportunity to integrate transport operations for all modes. The Victorian Government has made no commitment to physically integrate transport control centres to date. There are other ways to integrate transport operations other than physically co-locating transport control centres. Transport operations could be integrated through streamlining processes and aligning operating systems.

In 2021, VicRoads commenced a \$340 investment into road management systems called 'smarter roads'. This initiative involves investing in more frontline staff and technology to improve operational road management. Transport operations could be further integrated through streamlining processes and aligning operating systems.<sup>709</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend better management of the transport system, reflected in recommendation 24 - 'Introduce new road network demand management technology'.

## Transport interchanges (6.1.2, 10.4.3, 11.3.2, MII)

**Develop a transparent prioritisation process within 0-5 years for upgrading transport interchanges beyond current commitments. This framework should focus on identifying upgrades that facilitate faster and easier passenger transfers, including for people with mobility challenges, and support a multi-modal network. Priority interchanges for upgrade are expected to include those that serve the Monash, Dandenong and La Trobe National Employment and Innovation Clusters (NEICs) and the Box Hill and Broadmeadows Metropolitan Activity Centres (MACs), but consideration should also be given to high volume or end-of-line stations in regional areas.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation. This initiative is consistent with *Plan Melbourne*, and aligns with the anticipated future increased role of transport interchanges in a 'metro-style' rail system. Identification of key interchanges, functionality and scope of potential improvements will be developed within 0-5 years.

Since 2016, the Victorian Government has made several commitments to improve transport interchanges, including under the auspices of larger projects such as Level Crossing Removal Projects and Regional Rail Revival. In 2017, the government allocated \$8.7 million to improve Melbourne's busiest train stations – Richmond, Flinders Street and Southern Cross – to better manage passenger movement and improve amenity.<sup>710</sup> In 2018, the government funded: Stage Two of the Flinders Street Station Upgrade Project; train station accessibility improvements at Essendon and Watergardens stations; the development of business cases for upgrades at Broadmeadows, Pakenham, Seaford and Kananook stations; additional station access points; and improved cycling facilities.<sup>711</sup> The 2020-2021 Victorian Budget allocated funding for bus interchanges at Southern Cross station, Sunbury station and the former General Motors Holden site, as well as amenity and safety upgrades at metropolitan train stations, including at Aspendale, Burnley, North Richmond and Ruthven.<sup>712</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend improvements to transport infrastructure that supports *Disability Discrimination Act 1992* compliant design to multiple modes of travel, including to activity centres and in regional Victoria. In an overarching sense, this is reflected in recommendation 33 - 'Publish Victoria's transport plan', recommendation 44 - 'Plan for and fund public transport accessibility, including tram stop upgrades', and recommendation 83 - 'Redesign regional public transport to meet local needs'.

## Transport modelling (10.2.1, 11.2.1, 13.1.1, ABM)

**Improve transport modelling tools within 0-5 years to better assist long-term strategic transport planning, particularly to support the operation of driverless vehicles and the impact of transport network pricing on freight and people movements.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation. Transport for Victoria is preparing a 10-year model development plan. This will consider the capabilities necessary to understand network performance and the relative costs and benefits. Ongoing review and development of strategic transport models will ensure that they provide accurate assistance in future planning.

Since 2016, Infrastructure Victoria has developed new modelling capabilities to provide the Victorian Government with more sophisticated and integrated tools for strategic transport planning. We have used these tools to inform the strategy (and its draft) as well as our ongoing transport research program, and continue to work with government departments and agencies, universities and other stakeholders to promote continued improvement.

The Melbourne Activity Based Model (MABM), developed in collaboration with KPMG, tests the impacts of transport policy and infrastructure proposals on the behaviour of transport system users. As it differs from traditional models by testing the response of individuals to change, MABM is particularly suited to understanding: the needs and preferences of transport users; how different user cohorts may respond to policy or infrastructure changes; the fairness and equity impacts of new transport policies or investments; and behavioural responses to complex changes to transport likely to occur in the future, like new technologies such as automated vehicles.<sup>713</sup>

The Victorian Land Use and Transport Integration (VLUTI) model, developed by Infrastructure Victoria in partnership with Victoria University and Arup, is an improved tool for examining the land use effects of infrastructure investments or policy interventions. VLUTI is useful in providing insights into how infrastructure investments might change land use in the future – for example, how it might shift the location of populations or employment growth. The VLUTI model also allows for more accurate estimates of the land use benefits of transport infrastructure investments.

Infrastructure Victoria used MABM and VLUTI to inform this strategy, applying the models to a range of scenarios to consider alternative futures and their effects on transport demand. VLUTI was used to model six major transport programs and two alternative future scenarios. This modelling informed economic assessments of the transport programs and underpinned recommendations included in the strategy. The full details of our modelling for the strategy are available on our website as supplementary reports. Initial modelling to support the draft strategy was also undertaken using VLUTI for a range of different future scenarios examining the effects of differing population growth, population distribution, transport infrastructure investment, and land use.

We have also used scenario testing and innovative modelling to inform several detailed research projects on transport challenges and opportunities for the Victorian Government. In 2018, and at the request of the Victorian Government, we conducted extensive scenario testing to inform our *Advice on Zero Emissions and Automated Vehicles*. The seven scenarios we used deliberately tested extremes to better illustrate the impact of different variables, rather than forecast the future per se (which is most likely to reflect a combination of the scenarios).<sup>714</sup> We applied MABM to three illustrative scenarios to see how Victoria's future transport network would work with and without transport network pricing, setting out the findings in our report, *Good move: fixing transport congestion*.<sup>715</sup> We also used MABM to model the impact of public transport fare reforms on the transport network and public transport users, setting out the findings in our *Fair move: better public transport fares for Melbourne* report.<sup>716</sup> More recently, MABM was used to assess the short-term impacts on the transport network from the COVID-19 pandemic in *Transporting Melbourne's recovery: immediate policy actions to get Melbourne moving*.<sup>717</sup>

#### Assessment: in progress

Infrastructure Victoria will continue to work with government agencies and other stakeholders to integrate and improve innovative transport modelling tools that assist long-term strategic transport planning.

## Transport network pricing (10.2.2, 11.2.2, 13.1.2, TNP)

**Introduce a transport network pricing regime within 5-15 years that will reduce congestion and crowding and enable faster travel times for high-value trips, considering all modes and with a focus on addressing equity concerns. This reform will fundamentally change the way the transport network is used and will play an important role in preparing for the arrival of driverless vehicles and improving freight productivity.**

**Victorian Infrastructure Plan 2017:** Not supported. The Victorian Government will not introduce new tolls to existing roads. However, options for demand management will be considered as part of long-term integrated transport planning.

Infrastructure Victoria has undertaken extensive research, modelling, and public consultation (including the use of community panels) to improve the Victorian Government's understanding of transport network pricing and the opportunities and challenges likely to be associated with its implementation. In early 2020, we released the detail of this work in *Good move: fixing transport congestion*, which found that comprehensive transport network pricing reform could result in a more efficient and fair system for all Victorians.<sup>718</sup> We also released complementary research into the impact of public transport fare reforms in our *Fair move: better public transport fares for Melbourne* report.<sup>719</sup>

Fresh calls from local government and peak bodies readdressing road pricing are also contributing to a stronger coalition of support for transport network pricing – far greater than when Infrastructure Victoria first introduced the concept in 2016. Recent releases include the City of Melbourne's *Transport Strategy 2030*,<sup>720</sup> two reports on road pricing from the Grattan Institute,<sup>721</sup> New South Wales Productivity Commission,<sup>722</sup> and Road User Charging for Electric Vehicles<sup>723</sup> by Infrastructure Partnerships Australia. In August 2020, the New South Wales Treasury recommended road pricing reform in its final report of the NSW Review of Federal Financial Relations, including trialling a congestion cordon around the Sydney CBD and a pilot scheme for electric vehicles.<sup>724</sup>

The Victorian Government is currently trialling discounted public transport fares. From 31 January 2021 to Friday 2 July 2021, passengers travelling outside peak times receive a 30% discount on their trips.<sup>725</sup>

In the 2020-21 Victorian Budget, the government announced the introduction of a distance-based charge for zero and low emissions vehicles to commence in July 2021. The government subsequently announced a three-month reduction in metropolitan transport fares during off-peak times. The introduction of distance-based road charges and, if made permanent, off-peak metropolitan public transport fares, are both significant moves. In combination, they are important first steps in implementing transport network pricing.

#### Assessment: in progress

Infrastructure Victoria continues to recommend transport network pricing to improve the efficiency of the transport network and equity for users. This is reflected in a suite of recommendations in the strategy; section 2.3 – 'Steer changes in travel behaviour'.

## Universal design (6.1.1, CIM)

**Embed universal design principles across state government within 0-5 years to increase the proportion of state infrastructure that is accessible to people of all abilities. If they have not already done so, departments and agencies should use these principles to prepare clear universal design guidelines appropriate to their function that can apply to all new and upgraded infrastructure.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports the recommendation and will implement over the next five years.

Universal design is the design of buildings, products or environments to make them accessible to most people, regardless of age, disability, background or any other factor.<sup>726</sup> Since 2016, Victorian Government departments have embedded universal design principles into their work. This includes the Department of Education and Training through its Inclusive Schools Fund<sup>727</sup>; the Department of Health and Human Services through initiatives by Sport and Recreation Victoria<sup>728</sup>, the Victorian Health and Human Services Building Authority,<sup>729</sup> and the Office

of Disability<sup>730</sup>; and the Department of Transport through its Accessible Public Transport Plan.<sup>731</sup> Notably, departments have largely prioritised the application of universal design in new construction rather than retrofits.

In the *State Disability Plan*<sup>732</sup> released in 2017, the Victorian Government committed to promoting accessible communities and housing for people with disability and mobility challenges.<sup>733</sup> Examples of accessibility-driven design in departmental building guidelines have included: the 'Changing Places' program, which delivered accessible toilets in major public spaces<sup>734</sup>; and the 'Inclusive Kindergarten Facilities Program', which funded small accessibility upgrades to early learning facilities.<sup>735</sup> The Victorian Government has also made significant investments in public infrastructure that required accessible designs, including upgrades to schools and TAFE facilities, and redevelopments of theatres and libraries. These included an investment of \$40 million in 2019 for the 'Inclusive Schools' program<sup>736</sup> and over \$200 million of other school upgrades since 2017.<sup>737</sup>

Accountability for progress in implementing improved accessibility can be hard to establish. The Victorian Building Authority does not regulate buildings on accessibility standards. Similarly, while Victoria references the Australian Disability (Access to Premises – Buildings) Standards 2010 in its legislation, the first review of the standards in 2016 found the Victorian Government had not conducted audits of its buildings to confirm compliance since the standards were released in 2010.<sup>738</sup>

#### Assessment: in progress

Infrastructure Victoria continues to recommend public buildings – including existing ones – are made accessible to those with disabilities or mobility challenges. This is reflected in recommendation 54 - 'Require accessible buildings for public services'.

## Wallan rail electrification (1.3.8, 10.8.5, WRE1)

**Extend the electrified rail network to Wallan, including additional stations in growth areas, within the early part of 15-30 years to support the northern growth corridor and improve services on the Seymour line. Part of the scope of this recommendation, the reinstatement of the Somerton Link between the Craigieburn and Upfield lines, could be accelerated to support additional regional and Craigieburn services in the short term. This electrification is critical to meeting the significant projected patronage growth on this line for access to the central city and requires the support of the City Loop reconfiguration (see recommendation 10.10.1) to provide capacity for the additional services.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. As implementation is over 15-30 years, investment will need to be considered as part of future budgets.

The Victorian Government has implemented some improvements to the North East line as part of its Regional Rail Revival program, which were announced in 2019. The Victorian and Australian governments have invested more than \$4 billion in the Regional Rail Program to date to improve regional tracks, stations and signalling to support more reliable and frequent train services. Among other improvements to the North East line, Wallan and Donnybrook stations have been upgraded, and design work completed for standard gauge VLocity trains.<sup>739</sup> However, the Victorian Government has not begun planning for the electrification of rail to Wallan or brought forward the Somerton Link to support V/Line and Craigieburn services.

#### Assessment: not commenced

Infrastructure Victoria continues to recommend rail upgrades to improve services in and to Melbourne's outer north, as well as other rapidly-growing areas in the west and south-east. This is reflected in recommendation 59 - 'Increase off-peak service frequencies and suburban rail corridor capacity', recommendation 60 - 'Reconfigure the City Loop for more frequent and reliable services', and recommendation 76 - 'Expand and upgrade Melbourne's outer suburban road and bus networks'.

## Waste management sites (15.2.2, FWL)

**Minimise barriers to long-term investment and community engagement in future waste management infrastructure requirements by ensuring that decision-making processes and planning provisions for future waste management and landfill sites are clear, transparent and easy for agencies, industry and the community to understand within 0-5 years. The first steps to achieving this would be to establish a mechanism for planning authorities to consider the requirement for new waste management and processing facilities.**

**Victorian Infrastructure Plan 2017:** Supported. Government supports this recommendation and priority actions have been identified as part of Victoria's Regional Waste and Resource Recovery Implementation Plans.

The Victorian Government has made several commitments to minimising barriers to long-term investment in waste management infrastructure.

In 2018, the Victorian Government released the *Statewide Waste and Resource Recovery Infrastructure Plan*<sup>740</sup> (now known as the *Victorian Recycling Infrastructure Plan* (VRIP),<sup>741</sup> following the publication of the Regional Waste and Resource Recovery Implementation Plans in 2017.<sup>742</sup> The VRIP aims to provide Victoria with a roadmap to guide planning and investment in waste and resource recovery infrastructure over the next 30 years.

In 2020, Infrastructure Victoria delivered advice on waste and resource recovery infrastructure at the request of the Victorian Government. This included 13 recommendations which are reflected in the strategic priorities of this strategy.<sup>743</sup> The advice recommends strengthening the processes and status of the VRIP to better facilitate the delivery of the required resource recovery infrastructure and the achievement of the government's objectives. Our advice included detailed capacity and capability analysis of existing resource recovery infrastructure and recommended new or upgraded infrastructure based on current and projected generation rates for recyclable materials. Government agencies are now using Infrastructure Victoria's work to update the VRIP, conduct more targeted infrastructure facilitation (including through grants and collective procurement of waste processing services) and improve long-term land use planning for these sites.

In 2020, the Victorian Government also released the *Recycling Victoria* policy,<sup>744</sup> which identified and funded actions to improve infrastructure planning in the waste and resource recovery sector. As part of transforming Victoria's recycling sector, the Victorian Government contributed \$1.3 million in January 2021 towards a new recycling facility in Dandenong to clean solvents, inks and paints and turn them into products that can be reused.<sup>745</sup> In addition, a \$20 million announcement was made in February 2021 to support the work of rural and regional councils in upgrading recycling transfer stations and drop off points for the recycled material.<sup>746</sup>

The Victorian and Australian governments have also partnered to invest \$46 million in recycling projects in Victoria. In January 2021, seven infrastructure projects were awarded \$8.1 million to increase Victoria's ability to process and recycle glass and plastic waste. These projects are expected to be completed in early 2024 – prior to the national waste export ban.<sup>747</sup> In addition, the Victorian Government has released separate funding of \$13.3 million<sup>748</sup> to improve the recovery of materials, including organic waste.

#### Assessment: in progress

Infrastructure Victoria continues to recommend improvements to waste management infrastructure to support the transition to a more circular economy. This is reflected in recommendation 28 - 'Facilitate improved recycling infrastructure for priority materials' and recommendation 31 - 'Minimise waste and improve residual waste infrastructure planning'.

## Waste pricing (15.1.3, HWD)

**Review waste disposal charges to landfill and investigate different pricing mechanisms within 0-5 years. It is anticipated the system will need to be reformed within 15-30 years to better reflect the true cost of waste disposal to landfill. Investigation should include research and community engagement on the roles of different pricing mechanisms, including household waste disposal fees.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports measures to reduce waste generation. While there are no current plans to change waste pricing, further research on waste management systems will occur over the longer term.

In 2020, the Victorian Government released its *Recycling Victoria* policy, which included an aim to progressively increase the landfill levy to bring it in line with other states. From its implementation in July 2021,<sup>749</sup> the landfill levy will be increased for metropolitan household and business waste to \$125.90 per tonne over three years, with proportional increases reflected at regional landfills.<sup>750</sup>

This pricing mechanism will have significance for the future of waste-to-energy. The Department of Environmental, Land, Water and Planning has recognised that for waste-to-energy facilities to be competitive, the landfill levy needs to be set to an appropriate level,<sup>751</sup> and this issue was also considered in Infrastructure Victoria's 2020 advice on waste and resource recovery infrastructure.<sup>752</sup> Our advice recognised that increases to the landfill levy could make alternatives to landfill more cost competitive, including energy recovery through waste-to-energy. Given energy recovery is preferable to disposal, setting the right price is consistent with existing Victorian Government policy and can help transition toward a circular economy.<sup>753</sup>

A major review of waste governance is also underway. This includes work by the Essential Services Commission to examine service regulation and pricing principles for household waste services.<sup>754</sup> A revised waste governance model, a new waste and recycling Act and a new waste authority are expected to be announced in 2021.<sup>755</sup>

#### Assessment: substantially complete

Infrastructure Victoria continues to recommend waste pricing as having a role within broader efforts to reduce waste and improve recycling. This is reflected in recommendation 30 - 'Address barriers to recycling and reducing waste' and recommendation 31 - 'Minimise waste and improve residual waste infrastructure planning'.



## Water governance (14.1.1, WI02)

**Clarify roles, responsibilities and governance structures in the water sector within 0-5 years to enable efficient long-term planning and investment in the interest of customers. This means more transparency in the decision-making authority of water businesses and agencies, and providing appropriate regulatory oversight on aspects ranging from public health impacts to monitoring and pricing. In addition to increased efficiency in planning and investment, governance reform will enable innovative solutions to source and use water, accounting for all types of water use in a consistent manner, including water for firefighting and water for recreational use, and optimal use of existing infrastructure.**

**Victorian Infrastructure Plan 2017:** Partly supported. Government partly supports this recommendation, with implementation of Water for Victoria to focus on priority areas. These include integrated water management to promote initiatives like water recycling and stormwater harvesting, emergency management and entitlement frameworks, and compliance regimes.

The Victorian Government has made commitments to undertake a range of initiatives to enhance transparency and integrated planning.

In 2017, the Victorian Government released the *Integrated Water Management (IWM) Framework*,<sup>756</sup> which established Integrated Water Management Forums across Victoria. These forums facilitate collaboration between all parties with an interest in water cycle management, including identifying and prioritising projects at a defined geographical scale, and coordinating and overseeing delivery of those projects.<sup>757</sup>

The Victorian Government, along with the Municipal Association of Victoria, Melbourne Water and 38 local councils, is also reviewing stormwater institutional arrangements to clarify stormwater and flood risk management roles and responsibilities.<sup>758</sup> The review is expected to be completed in 2021.

The Victorian Government reviewed the use of recycled water, with the aim of streamlining approvals processes to facilitate an increased uptake.<sup>759</sup> The review is examined existing Environment Protection Authority (EPA) Victoria guidelines.<sup>760</sup> In March 2021, the EPA Victoria released two new guidelines for the safe and sustainable use of recycled water in Victoria, *Victorian guideline for water recycling* and *Technical information for the Victorian guideline for water recycling*.<sup>761</sup> The Victorian Government has begun the second phase of the review into the use of recycled water for irrigation and a project to better understand emerging contaminants in recycled water.<sup>762</sup>

The Victorian Government also examined options to increase transparency in water markets to improve confidence in their fairness and efficiency.<sup>763</sup> It has committed to publishing information on large water market participants, and to additional monitoring.<sup>764</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend roles, responsibilities and governance structures within the water sector be clarified, and this is reflected in recommendation 14 - 'Progress integrated water cycle management' and recommendation 15 - 'Improve decision-making for urban water investment'.

## Water trading (14.1.2, WME)

**Introduce more sophisticated water trading that better represents existing and emerging water uses across the state, as well as the emergence of new water products, over 0-10 years. This will assist, particularly during dry periods, in allowing distribution of water across competing demands through the use of price signals. Further research on the policy and technological settings required to maximise the potential of the water market will be needed.**

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. As this recommendation is over 0-10 years, implementation will be considered as part of future budgets.

The Victorian Government made several commitments in its *Water for Victoria* policy to improve water trading rules and develop markets. The 2017 *Victorian Water Market Effectiveness Report* was the first statewide market effectiveness review of the current vitality and competitiveness of Victorian water markets.<sup>765</sup> The report found that markets are effective overall, but there is a need to ensure they continue to develop to match the level of demand and sophistication in the market.<sup>766</sup> The report also recommended the review process be repeated every three to five years, with the next review to be undertaken in 2022.

The Victorian Government committed to improving existing water trading frameworks through enhancing compliance, communication and monitoring.<sup>767</sup> In 2021-22, the government provided \$28 million to monitor the water entitlement framework to improve certainty of rights and increase the reliability of entitlements and access to water.<sup>768</sup>

### Assessment: in progress

Infrastructure Victoria notes progress to date on this recommendation, the remaining elements of which should continue to be delivered through the normal business of government.

## Webb Dock rail access (13.3.4, WDF)

Prepare a port rail access policy for Webb Dock within 0-5 years, with a view to delivery within 10-30 years. This will enable the preparation of a timely response to the first rail access strategy, which will be delivered by the new Port of Melbourne operator within three years of the signing of the port lease, as required under the *Delivering Victorian Infrastructure (Port of Melbourne Lease Transaction) Act 2016* and assist in assessing potential corridor reservation for Webb Dock freight rail access. This project will increase the capacity of the port by providing an alternative access route for the movement of freight in and out of the port and reduce truck visits and congestion around the port area.

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation. The Assessment of the Port Access Strategy, being produced by the Port of Melbourne operator, will determine how government is best placed to respond and assist. Rail access to Webb Dock will be volume driven.

In 2017, we provided advice to the Victorian Government on when to invest in container port capacity and whether a second container port should be located at the existing Port of Hastings, or a new Bay West location. We advised that a second major container port will not be required until the Port of Melbourne reaches its capacity of approximately 8 million 20-foot equivalent units (TEU), which is likely to be around 2055.<sup>769</sup> While some investment in transport upgrades around the Port of Melbourne will be required before then, our new analysis found that this should stop short of a dedicated road and rail Freight Link through Fishermans Bend to Webb Dock.<sup>770</sup>

The Port of Melbourne has identified an option for a rail-only connection using the current Lorimer Street easement to connect Webb Dock with the current rail assets that service Swanson Dock. This is a different, more limited rail access option to the large-scale, road and rail Freight Link option through Fishermans Bend.<sup>771</sup>

In 2018, the Victorian Government released the Victorian Freight Plan, *Delivering the Goods*.<sup>772</sup> The plan identifies the need to protect Webb Dock and the existing and new transport corridor connections to the port in the short term, with the need to develop new road and rail (or electrified driverless road) access to Webb Dock in 5-10 years.<sup>773</sup> The Port of Melbourne's *2050 Port Development Strategy* advocates the rail link be built by 2030. It also identifies a need for port rail shuttles that would enable the efficient movement of containers, including at Webb Dock.<sup>774</sup> The Australian Government has provided funding to prepare a business case for solutions that improve connectivity at the Port of Melbourne.<sup>775</sup> Further funding and intervention will be needed to deliver much needed capacity improvements at the port.

### Assessment: in progress

Infrastructure Victoria continues to recommend optimising port capacity, reflected in recommendation 63 - 'Optimise capacity at the Port of Melbourne'.

## Western Interstate Freight Terminal (13.3.3, WIF)

Identify trigger points for the construction of the Western Interstate Freight Terminal and undertake detailed planning for the terminal within 0-5 years. Within this timeframe it is recommended the location is finalised and that land is reserved, as the new facility may be required within 5-15 years. Factors affecting the timing of the operation of the new terminal include the capacity of the current Dynon interstate terminal, potential for urban renewal projects in the Dynon precinct, the proposed delivery of the Inland Rail project (see recommendation 13.5.1), further port expansion and road congestion around the port entrance. This project has the potential to relocate the terminal closer to customers in the west of Melbourne and reduce the volume of truck movements in inner Melbourne.

**Victorian Infrastructure Plan 2017:** Supported in principle. Government supports the intent of this recommendation to be considered as part of ongoing work on the state's freight strategy that will determine triggers and further planning requirements. Further budget consideration is required in future years to address the full scope of this recommendation.

In 2018, the Victorian Government released the Victorian Freight Plan, *Delivering the Goods*.<sup>776</sup> The plan identifies the need to reserve land for the Western Interstate Freight Terminal (WIFT) at Truganina and connecting transport corridors in 1-5 years. It also flags an intention to deliver the WIFT in 5-10 years, subject to the assessment of a business case.<sup>777</sup>

The Australian and Victorian governments are developing a joint business case for precinct development that will help ensure the WIFT and other freight precincts support the Inland Rail project from the commencement of rail freight services.<sup>778</sup> The combination of the joint commitment to Inland Rail and the project being planned for delivery by 2025 underlines the urgent need to finalise detailed planning for the WIFT.

The WIFT, along with the Beveridge Interstate Freight Terminal and connecting transport infrastructure, could supplement and potentially replace the existing terminal at Dynon. Both precincts will be planned and developed in consultation with industry with a focus on maximising opportunities for private sector investment and job creation.<sup>779</sup>

### Assessment: in progress

Infrastructure Victoria continues to recommend the development of the Western Interstate Freight Terminal, reflected in recommendation 65 - 'Deliver a new intermodal freight terminal for Inland Rail'.

## Wollert transport links (1.3.9, 10.8.6, WRE2)

**Complete a feasibility study within 0-5 years for creating a high capacity transport link (rail or bus) connecting growth areas around Wollert to the rail network and on to central Melbourne. This link is likely to be required within 15-30 years and would provide a viable alternative to private vehicles for local trips and commuting to the central city from this high growth area in Melbourne's north.**

Victorian Infrastructure Plan 2017: Supported. Government supports this recommendation and will commence a feasibility study within five years.

In the *Victorian Infrastructure Plan*, released in 2017, the Victorian Government committed to undertaking a feasibility study into extending a rail link to growth areas around Wollert within five years. Infrastructure Victoria cannot confirm from public documentation whether this has been completed. The Australian Labor Party committed to funding the feasibility as part of its 2019 Victorian election platform, and stakeholders continue to call for its delivery as a priority.<sup>780</sup>

Since agreeing to commence a feasibility study in the 2017 *Victorian Infrastructure Plan*, the Victorian Government has taken no action to fund or begin work on this study.

### Assessment: not commenced

Infrastructure Victoria continues to recommend increases to rail capacity and connecting bus services to support services to Melbourne's outer north, as well as other rapidly growing areas in the west and southeast. This is reflected in recommendation 59 - 'Increase off-peak service frequencies and suburban rail corridor capacity' and recommendation 75 - 'Link outer suburbs to rail with 'next generation' buses'.

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## Appendix G

# State of infrastructure

Under the *Infrastructure Victoria Act 2015*, the 30-year infrastructure strategy must include an assessment of the current state of infrastructure in Victoria.



## Introduction

In 2016, Infrastructure Victoria undertook a comprehensive assessment of each infrastructure sector, known as Infrastructure Capability Assessments. The assessment covered the following sectors:

01. Culture, civic, sport, recreation and tourism<sup>1</sup>
02. Education and training<sup>2</sup>
03. Energy<sup>3</sup>
04. Health and human services<sup>4</sup>
05. Information and communication technology<sup>5</sup>
06. Justice and emergency services<sup>6</sup>
07. Agriculture, science and environment<sup>7</sup>
08. Transport<sup>8</sup>
09. Water and waste<sup>9</sup>

A summary report was also prepared.<sup>10</sup>

In this updated 30-year infrastructure strategy, we provide an updated summary of each infrastructure sector's current key challenges and opportunities, which build upon and complement the Infrastructure Capability Assessments. These state of infrastructure assessments are based on the Victorian Government's categorisation of infrastructure sectors from the *Victorian Infrastructure Plan*,<sup>11</sup> namely:

01. Transport
02. Culture, sport and community
03. Digital connectivity
04. Education and training
05. Energy
06. Environment
07. Health and human services
08. Justice and emergency services
09. Water

Managing uncertainty is a key challenge across all infrastructure. The sources of uncertainty include the impact of and recovery from the COVID-19 pandemic, climate change and technological change. Managing existing assets is also a challenge across all infrastructure.

The COVID-19 pandemic introduced extra uncertainty in future population, demographic and economic projections, which underline most public infrastructure needs. The pandemic also changed people's behaviour. We do not know if these changes will be sustained in the long term. This adds further complexity for infrastructure use and future needs.

Climate change has major implications for Victoria's infrastructure, from a mitigation as well as adaptation perspective. Victoria has committed to net zero emissions by 2050. Global greenhouse gas emissions from human activities must fall to net zero by 2050 to have a 50% chance of keeping warming below 2°C.<sup>12</sup> Current infrastructure is a major emitter of greenhouse gases from the materials used in its construction, from its direct operations, and from the activities it enables.<sup>13</sup> Infrastructure built today will also need to function in a warmer, drier climate and face more extreme weather over coming decades, affecting its operation and the demand for the services it provides.<sup>14</sup>

Technology changes rapidly and can alter how Victorians use infrastructure and how governments deliver services, affecting the need for infrastructure. It can also assist governments to better manage infrastructure. Technology changes present a challenge as well as opportunity for infrastructure.

Lastly, asset management presents a significant opportunity across all sectors to secure full value from existing infrastructure, and upgrade and renew infrastructure to continue meeting the changing needs of Victorians over time. Given that most of the infrastructure Victorians will use in 30 years' time is already in place today, and in recognition of the growing pressures related to climate change to adapt infrastructure, it is critical that asset management improves so that infrastructure lasts the distance.

## 01. Transport

### Overview

Victoria's transport network facilitates the movement of people and goods through an interconnected system, encompassing roads (including private and commercial transport, buses and cycling), paths (walking and cycling), heavy rail (passenger and freight), light rail (trams), ports and airports.<sup>15</sup>

Around 19 million trips are made each day in Victoria and this could increase to 30 million by 2050.<sup>16</sup> Freight volumes from Melbourne are expected to nearly triple by 2050, and to nearly double from regional Victoria.<sup>17</sup>

The *Transport Integration Act 2010* (the Act) sets the authorising environment to provide an integrated and sustainable transport system that contributes to an inclusive, prosperous and environmentally responsible state.<sup>18</sup> The Act also sets the objectives of the transport system. The objectives encompass social and economic inclusion, economic prosperity, environmental sustainability, integration of transport and land use, efficiency, coordination and reliability and safety, and health and wellbeing.<sup>19</sup>

### Governance

The Australian Government is responsible for national roads, rail, maritime and aviation transport. It also funds nationally significant transport projects. The National Transport Commission is responsible for developing, monitoring and maintaining uniform or nationally consistent regulatory and operational reforms relating to road, rail and intermodal transport.<sup>20</sup>

The Victorian Government is responsible for overseeing the management, development and operation of arterial roads, freeways and public transport network. The government has established an integrated Department of Transport which incorporates the previously separate agencies of Public Transport Victoria and VicRoads.<sup>21</sup>

The Major Transport Infrastructure Authority oversees the development and construction of major transport projects.<sup>22</sup>



Victoria's road network includes 25,000 carriageway kilometres of arterial roads and freeways, over 3180 bridges, 3500 other structures, and more than 3400 sets of traffic signals and other electrical systems. The total estimated asset pavement replacement value is \$12.9 billion plus \$8 billion for earthworks (30 June 2016).<sup>23</sup>

Several of Melbourne's arterial roads and freeways are maintained and operated by private consortiums:

#### \ CityLink

Transurban operates and maintain the tolled Citylink, which connects the Monash, West Gate and the Tullamarine freeways, and the city centre with Melbourne's major airport and port

#### \ EastLink

ConnectEast operates and maintain EastLink, a 39-kilometre tollway connecting the Eastern, Monash, Frankston and the Peninsula Link freeways

#### \ Peninsula Link

Southern Way operates and manages Peninsula Link, a toll-free 27kilometre road link between EastLink at Carrum Downs and Mornington Peninsula Freeway at Mount Martha

#### \ Netflow

Operates and manages more than 260 kilometres of arterial roads in the western suburbs.

Local transport infrastructure includes local roads, bridges, footpaths and cycle paths. Local roads maintained by local government make up 85% of Victoria's road network.<sup>24</sup> Many community transport services, parking spaces and signage are also planned and delivered by local government.

The Victorian Government's *Victoria's zero emissions vehicle roadmap* aims to achieve faster adoption of zero emissions vehicles.<sup>25</sup> The government has also announced the appointment of an Expert Advisory Panel to advise on further policies, programs and investments to ensure Victoria meets its ambitious emissions reduction targets. The Expert Advisory Panel will undertake a program of research before delivering a final report in December 2021.<sup>26</sup>

VicTrack is an independent statutory authority that owns Victoria's transport land, assets and infrastructure. Its core functions include providing telecommunications infrastructure and services, developing land no longer required for transport purposes, generating income for the transport system through land sales and commercial leases, providing engineering and construction services for transport projects, and managing transport facilities and assets.<sup>27</sup>

The responsibility for operating metropolitan Melbourne's trains and trams is contracted to private operators under franchise agreements:

#### \ Metro Trains

Operates Melbourne's train network, 15 lines, 222 stations and 226 six-carriage trains across 998 kilometres of track, transporting 450,000 customers each day.<sup>28</sup>

#### \ Keolis Downer

Operates Yarra Trams, with more than 475 trams across 250 kilometres of double track.<sup>29</sup>

Melbourne's buses are privately operated. Around 350 regular bus routes service Melbourne.<sup>30</sup> V/Line is responsible for providing regional coach services, as well as rail services. Regional urban buses operate in 40 regional cities under contract to the Department of Transport.

Four major commercial ports operate in Victoria at Melbourne, Geelong, Hastings and Portland. The Victorian Ports Corporation Melbourne manages commercial navigation of the channels in Melbourne port waters, waterside emergency and marine pollution response, and Station Pier. The Victorian Regional Channels Authority manages commercial navigation of the channels in port waters at Geelong and Hastings, and oversees channel management for the Port of Portland.<sup>31</sup>

In 2021, the Victorian Government established Ports Victoria, a new statewide ports body that will work alongside the Department of Transport. Ports Victoria brings together the Victorian Regional Channels Authority and Victorian Ports Corporation to lead the strategic management and operation of Victorian commercial ports and waterways.<sup>32</sup>

## Challenges and opportunities

### Challenges

A growing population creates extra transport demand, which can lead to a more congested transport network. Congestion creates challenges for the Victorian Government to manage. Victoria's population and economy have grown rapidly in recent years, putting pressure on land use and transport infrastructure. The COVID-19 pandemic has introduced extra uncertainty in future projections.

Road congestion worsens as COVID-19 restrictions are lifted. Public transport use is likely to remain down in the short to medium term to support social distancing and feedback effects from changing transport demand and available road space. In the longer term, public transport patronage is more uncertain, particularly if more people choose to work and study from home, and walking and cycling become more popular.

Our initial modelling scenarios gave us insights into some potential changes, such as lower population growth than previous projections. The COVID-19 pandemic is expected to lead to lower than projected population growth in the short to medium term, yet there is a need to plan and deliver transport infrastructure that will be able to meet Victoria's transport needs now and into the future.

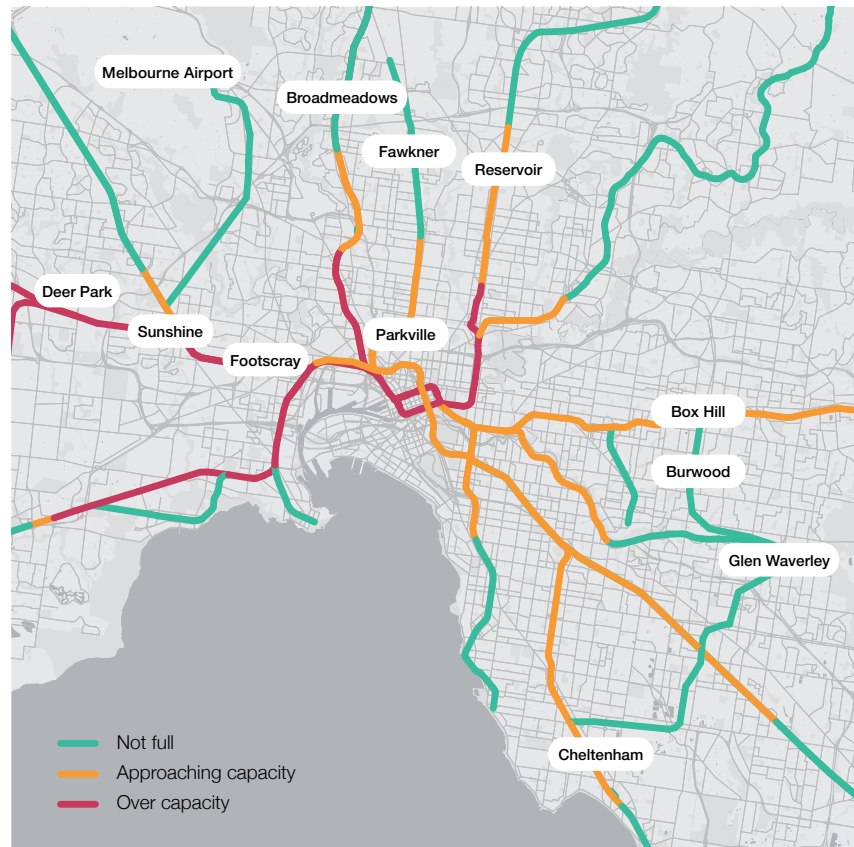
Transport infrastructure provides access to opportunities, including employment. While Melbourne's inner suburbs have the highest concentration of jobs, most of the population growth is expected in outer areas. Some outer areas of Melbourne have underdeveloped networks, which could reduce access to employment opportunities. Inadequate transport infrastructure can contribute to poor outcomes for people. The mismatch between employment and population growth could also exacerbate social inequality across metropolitan Melbourne. Transport network improvements, including demand management and upgrading existing traffic management technology, could provide part of the response to address this.

In regional Victoria, transport challenges manifest very differently to metropolitan areas. Regional Victoria is home to relatively dispersed populations with large distances between them. Transport infrastructure and services are important to harness the economic strengths of regional areas, such as agriculture and better connect people to jobs, goods, services and each other. Projected population and freight growth will also create the need to deliver new and upgraded roads, bridges and freeways in parts of regional Victoria.

Across Victoria, freight volumes are predicted to increase from around 360 million tonnes in 2014 to nearly 900 million tonnes in 2051.<sup>33</sup> An efficient freight network helps keep the economy going, moving goods between places such as from farms to consumers. It also allows Victoria to engage in international trade, importing and exporting via ports and airports. An efficient freight network keeps transport costs down, maintaining Victoria's competitiveness and supporting productivity. Freight terminals and port capacity are necessary to meet the growing freight demand and are vital for an efficient freight network. The Port of Melbourne is Victoria's only container port.<sup>34</sup> A second major container port will not be required until the Port of Melbourne reaches approximately capacity at 8 million 20-foot equivalent units, which, based on Infrastructure Victoria's 2017 analysis, will likely be around 2055.<sup>35</sup> Once the Port of Melbourne reaches capacity, building a second container port at Bay West becomes economically competitive with further expansion.<sup>36</sup>

Key challenges for growing freight volumes include increasing urbanisation, particularly around the Port of Melbourne and the inner west. As ports take a long time to develop, and are a key node in an efficient freight network, port planning now is important. This planning includes reserving land, and planning for the location of freight terminals and supporting road and rail infrastructure. A significant opportunity exists to coordinate and integrate investments across governments, particularly for freight by inland rail.

**Figure 6: The train network is projected to become crowded without further investment beyond current government commitments by 2036**



Source: Arup and Aecom, *Strategy Update Problem Definition Modelling Outcomes*, report for Infrastructure Victoria, November 2020.

Transport emissions are growing<sup>37</sup> and climate change impacts will likely increasingly impact infrastructure and services. Transport was responsible for over 20% of Victoria's emissions in 2018,<sup>38</sup> with road transport emitting nearly 90% of transport's share.<sup>39</sup> From 1990 to 2018, Victoria's transport emissions grew by over 45%, the largest growth of any sector.<sup>40</sup> Transport will need to significantly contribute to Victoria's net zero emissions target by 2050, and future infrastructure will need to operate in a world with higher temperatures and more frequent extreme weather events.<sup>41</sup>

### Opportunities

Victoria is currently experiencing a transport infrastructure boom, with delivery of \$80 billion of transport projects underway.<sup>42</sup> Over the next 30 years, significant transport infrastructure investment will be needed across Victoria beyond the current committed program. This also brings significant opportunity to better manage demand for transport infrastructure, make better use of transport assets and to do things differently so that Victoria remains an attractive place to live and do business.



The current approach to addressing Victoria's transport challenges is largely to build more infrastructure. However, modelling has shown that just building more infrastructure will not be enough to adequately address declining network performance and transport user experience. This makes it even more important to look at policies that better use existing infrastructure and manage demand in the first instance, including induced demand.<sup>43</sup> In some cases, building new infrastructure may be necessary, such as in growth areas with underdeveloped transport networks, in significant urban renewal areas, or to support walking and cycling. In other areas, where physical space to build is more limited such as in Melbourne's established suburbs, building becomes more challenging and costly.

Many solutions exist beyond building more infrastructure. For instance, significant network capacity exists outside peak times, particularly on the public transport network. Shifting or spreading demand more evenly throughout the day better utilises existing infrastructure.<sup>44</sup> It can also support social distancing measures. Reassessing road space for other needs can provide for better movement of private vehicles, public transport, cyclists or pedestrians, or create better places for activities with more limited traffic. Managing the transport network as an integrated network through advances in ICT-enabled real-time technology can also help optimise existing infrastructure. Reprioritising and reforming bus networks present an opportunity to deliver a better quality, more fit for purpose service based on the different needs and opportunities across the network.

Automated and zero emissions vehicles could fundamentally alter the way governments plan, deliver and manage transport infrastructure. This technological change creates an opportunity for unprecedented benefits for the economy, community and the environment if the right conditions exist. For instance, energy sector decarbonisation offers an opportunity to decarbonise the transport sector, Victoria's second highest source of greenhouse gas emissions,<sup>45</sup> through electric and other zero emissions vehicles.

Automated vehicles have great potential, but how the technology evolves and how Victorians will use automated vehicles remains to be seen. In our advice to the Victorian Government in 2018, we examined four scenarios for automated vehicles to test the potential extreme impacts of four scenarios:

- \ Driverless vehicles with private ownership
- \ Driverless vehicles with a major commercial shift towards shared vehicles and on-demand services
- \ Slow uptake of on-demand driverless vehicles which share the road with privately owned, non-driverless vehicles
- \ Rapid uptake of on-demand driverless vehicles.<sup>46</sup>

Automated vehicle technology could deliver significant benefits. For instance, it could significantly reduce road congestion<sup>47</sup> and road accidents,<sup>48</sup> and improve people's access to education, services, and social connections. A fully automated vehicle fleet could create up to 11,000 new jobs and boost the economy by nearly \$15 billion (in real terms) in 2046.<sup>49</sup> However, the scale of these potential benefits is heavily contingent on the ownership and business model associated with automated vehicles, whether they actually realise assumed efficiencies, and their fuel source. Victoria has an opportunity to be ready for automated and zero emissions vehicles. The public and private sectors will need to invest to fully maximise the potential of automated and zero emissions vehicles, including spending:

- \ Up to \$1.7 billion to upgrade mobile networks
- \ Around \$250 million for improved line markings on roads
- \ At least \$2.2 billion for energy network upgrades.<sup>50</sup>

New transport services and a public transport system that can be used by more people present a significant opportunity to support a more inclusive Victoria. Emerging technologies and new business models, such as ridesharing, can provide Victorians with more and better choices.

A transport network that meets the requirements set through the *Disability Discrimination Act 1992* and the *Disability Standards for Accessible Public Transport 2002* means it is able to be used by all Victorians. These standards set requirements around ramps, boardings, allocated space, doorways and doors, signs and alarms. Not all of Victoria's public transport network complies with this requirement. For example, only 27% of tram stops are level access. Combined with 38% of the tram fleet being low floor, only 15% of tram services are meaningfully accessible for passenger with mobility restrictions.<sup>51</sup> With a growing, ageing, more diverse population, accessibility needs will grow too.

Addressing challenges and harnessing opportunities for the transport sector can support a safer, more inclusive, liveable and prosperous Victoria.

## Current key investments

Figure 7 summarises the construction timelines for a number of major transport projects.

Each major project is expected to deliver multiple benefits to Victorians. These are summarised below.

### \ Melbourne Metro Tunnel

The Melbourne Metro Tunnel will allow more trains to run more often across Melbourne, creating capacity for more than half a million extra passengers per week in peak periods. It will create a new Sunbury to Cranbourne/Pakenham line, with high capacity trains and five new underground stations.<sup>53</sup>

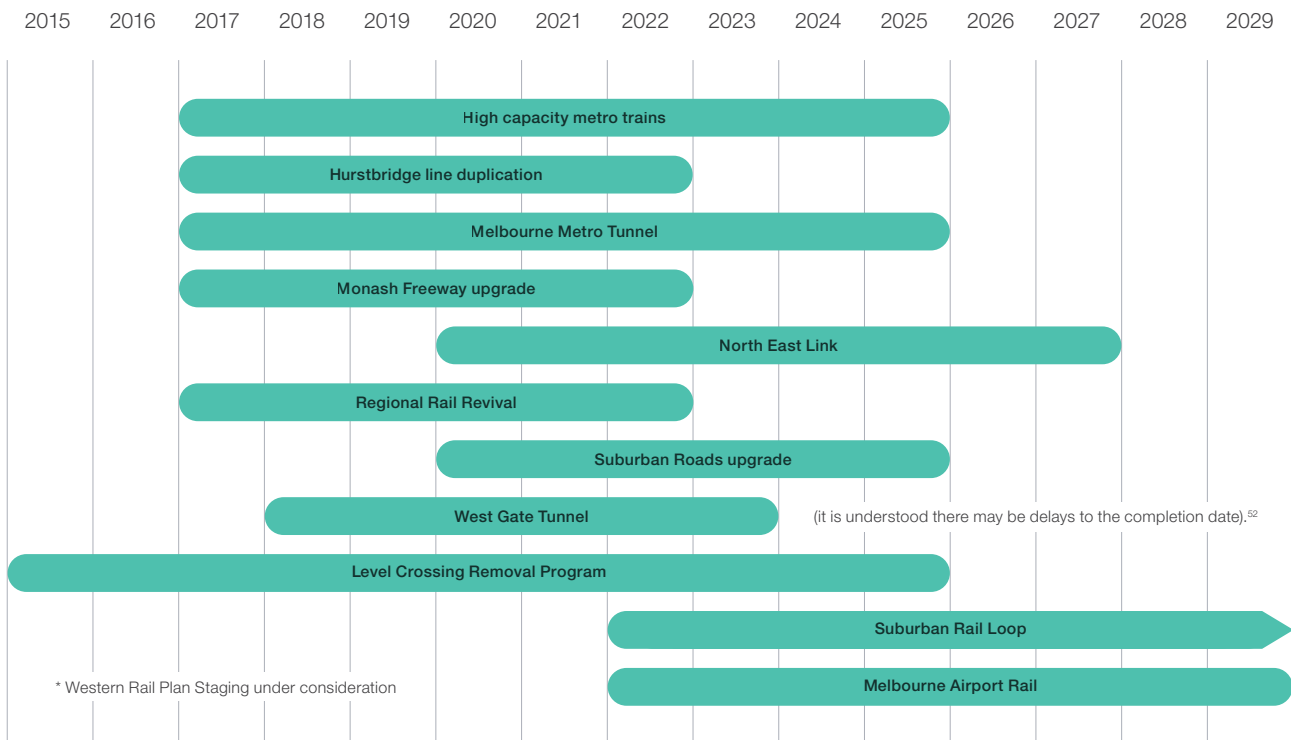
### \ High capacity metro trains

High capacity trains are expected to carry more people, improve rail network efficiency and improve user experience. The investment for high capacity trains also includes a new train maintenance facility in Pakenham East and a light service facility in Calder Park.<sup>54</sup>

### \ Hurstbridge line upgrade

Upgrading the Hurstbridge line will allow more trains, more seats and reduce delays.<sup>55</sup>

Figure 7: Construction timelines



Source: Based on Major Transport Infrastructure Authority, 'Improving our infrastructure' (website), <https://bigbuild.vic.gov.au/projects>; Department of Transport, Our projects, (website) <https://transport.vic.gov.au/our-transport-future/our-projects>; Level Crossing Removal Project, Hurstbridge Line Duplication community update – February 2021 <https://levelcrossings.vic.gov.au/projects/hurstbridge-line-duplication>

#### Monash Freeway upgrade

Upgrading Monash Freeway is expected to provide faster and more reliable journey times and help lower crash rates, with a significant stated benefit-cost ratio of 4.6.<sup>56</sup>

#### North East Link

North East Link will connect the M80 with an upgraded Eastern Freeway. It is expected to accommodate up to 135,000 vehicles a day and link key growth areas in the north and south-east. The new freeway connection is expected to cut travel times up to 35 minutes, take 15,000 trucks off local roads a day, and deliver more than 25 kilometres of new and upgraded walking and cycling paths.<sup>57</sup>

#### Regional Rail Revival

The Regional Rail Revival program is a joint initiative of the Australian and Victorian governments to upgrade stations, signalling and rail tracks across regional Victoria. Regional Rail Revival will improve the reliability of the regional public transport network, enhance the passenger experience and support local economies.<sup>58</sup>

#### Suburban Roads upgrade

The \$2.2 billion Suburban Roads upgrade program includes 12 priority projects which will generate multiple benefits for communities and motorists.<sup>59</sup>

#### West Gate Tunnel

The West Gate Tunnel Project will provide a new tunnel and new links to the Port of Melbourne, CityLink and central Melbourne.<sup>60</sup>

#### Western Rail Plan

The Western Rail Plan is investigating high-capacity rail network servicing growing suburbs and regional cities. Developing the rail network in the growing west will need staged investments across the medium and long term. Complex and interrelated investments will need to be planned and sequenced carefully to achieve the best network and passenger outcomes. Current commitments from the Victorian and Australian governments include the Melbourne Airport Rail and the first stage of Geelong fast rail.<sup>61</sup>

#### Suburban Rail Loop

Currently in planning with construction to start in 2022, the Suburban Rail Loop is a 90-kilometre train line which will connect Melbourne's major railway lines, creating travel connections to employment, health, education and retail centres in the middle suburbs. It will also include three transport super hubs at Clayton, Broadmeadows and Sunshine to connect with regional services.<sup>62</sup>

#### Level Crossing Removal Program

This program is removing 75 level crossings across metropolitan Melbourne to improve safety for road users and pedestrians, and provide more reliable travel on all modes.<sup>63</sup>

#### Melbourne Airport Rail

The Melbourne Airport Rail Link will connect travellers to the airport, running through the Melbourne Metro Tunnel. Construction is expected to begin in 2022 with a targeted 2029 completion date. Melbourne Airport Rail will provide a 10-minute turn-up-and-go service from the airport, transporting passengers to Melbourne's CBD in less than 30 minutes.<sup>64</sup>

## 02. Culture, sport and community

### Overview

Cultural, sport and community infrastructure are venues for the community and visitors to come together, to participate in activities that contribute to their health and wellbeing, foster social inclusion and help to celebrate diversity and culture. Together, these activities make a significant contribution to the liveability of the places where this infrastructure is located and help to build Victoria's human, social and economic capital. The types of infrastructure are diverse.

More than nine million people visited Victoria's state-owned arts and cultural institutions in 2019-20, which are valued at \$7 billion.<sup>65</sup> This includes the Arts Centre Melbourne, Australian Centre for the Moving Image, Docklands Studios Melbourne, Film Victoria, Geelong Arts Centre, Melbourne Recital Centre, Museums Victoria, National Gallery of Victoria and State Library Victoria. Local governments also provide significant cultural infrastructure and also deliver a diversity of local festivals and events.

There are thousands of sports facilities, parks and playgrounds across Victoria. This includes facilities for elite sports, such as the Melbourne Cricket Ground, Melbourne Park, Melbourne Sports and Aquatic Centre, and the State Netball and Hockey Centre. Council owned facilities include swimming pools, indoor and outdoor sports courts, sports grounds, as well as parks, walking and cycling trails.

Community infrastructure also includes extensive civic buildings and places such as Federation Square and Parliament House. Across Victoria, there are many town halls and community spaces. Major tourism assets include the Melbourne Convention and Exhibition Centre, Melbourne Zoo, Werribee Open Range Zoo, Healesville Sanctuary, Phillip Island Penguin Park, and four major alpine resorts.

### Governance

Cultural, sport and community infrastructure is diverse and provided for at different scales – from major state-significant heritage buildings to local playgrounds. Cultural, sport and community infrastructure is funded and managed by all levels of government as well as by elite and community-based organisations, philanthropic groups, trusts and corporations.<sup>66</sup> Multiple Victorian Government Ministers have responsibilities with cultural, sport and community infrastructure, including the:

- \ Minister for Creative Industries
- \ Minister for Regional Development
- \ Minister for Local Government
- \ Minister for Suburban Development
- \ Minister for Tourism, Sport and Major Events
- \ Minister for Community Sport
- \ Minister for Industry Support and Recovery.

Key Victorian Government agencies include Creative Victoria, and Sport and Recreation Victoria:

- \ Under the *Creative Victoria Act 2017*, Creative Victoria prepares a strategy for the arts and creative industries every four years. Creative Victoria has launched a new four-year strategy, *Creative State 2021-25*, and has published the *Victoria's Screen Industry Strategy 2025*.<sup>67</sup> Creative Victoria invests in creative industries and oversees Victoria's major creative and cultural organisations, collections and facilities.
- \ Sport and Recreation Victoria is an agency dedicated to supporting a strong, vibrant and interconnected sport and recreation system. It promotes access and opportunities to participate in sport and recreation in multiple ways, including by developing and improving community sport and recreation facilities and investing in major sport facilities.<sup>68</sup>

The Victorian Government provides full or part funding for cultural, sport and community infrastructure. Revenue from ticket sales to events at the infrastructure also contributes some funding. Governance of some institutions includes councils of trustees, boards, committees of management and philanthropic organisations which play major roles in the management of and programming for state-owned assets.

Local government has a significant role in providing cultural, sport and community infrastructure. The Australian and Victorian governments contribute funding towards local infrastructure, usually through grants. Victorian councils are responsible for around 277 public library branches, 39 art galleries, 47 performing arts centres, numerous sites of Aboriginal heritage, museums, and creative spaces including town halls, community centres, rehearsal rooms, artist studios, and business hubs.<sup>69</sup>

The Victorian Government also provides grants to cultural, sport and community organisations to support community infrastructure.

### Challenges and opportunities

#### Challenges

The economic and social recovery from the COVID-19 pandemic will be the key challenge for cultural, sport and community infrastructure. This infrastructure brings together people to enrich lives, promote health and wellbeing and foster social cohesion. Many cultural, sport and community facilities were closed during 2020 and parts of 2021. This has negatively impacted Victoria's diverse creative industries which rely on spaces for gatherings of people, such as performing arts spaces, music venues and galleries.<sup>70</sup> Sport has also been impacted. Surveys suggest that one in four community sports clubs fear insolvency following the effects of COVID-19.<sup>71</sup> The International Visitors Survey (December 2020) shows a fall of more than 2.5 million visitors to Victoria compared with the same time in 2019.<sup>72</sup> The short, medium and longer-term impacts of reduced cultural, sports and community physical participation on existing and future facilities will need to be monitored, particularly underutilisation and deterioration.

Meeting the demands for ongoing maintenance and renewal of government-owned major cultural and community infrastructure will continue as a key challenge, compounded by reduced visitation and programming affecting revenues in the near term. Creating scale to support national and global competitiveness may also require new infrastructure investment that can be significant.

Balancing investments between large and small infrastructure, such as major stadia for elite sports and local facilities for community sports and recreation, and between areas of Victoria with differing levels of existing investment will be a key challenge. For local governments, such as Melbourne's seven growth area councils experiencing high levels of growth, there will likely be an increasing need for new facilities over time. For areas undergoing renewal, older infrastructure will need to be upgraded to remain fit for purpose. For rural areas experiencing low population growth or decline, a combination of a declining rate base alongside ageing facilities will present a different type of challenge.

Strategies could include co-locating uses and sharing spaces to get better use from existing infrastructure, potentially improving funding mechanisms and examining ways to provide infrastructure that encourages participation. A stronger focus on providing resilient cultural, sport and community infrastructure that meets the needs of changing demographics and climate will also be needed.

### Opportunities

Sport and recreation infrastructure can play a role in supporting increased participation. For instance, 17% of males participate in formal sports and only 10% of women, and Melbourne's growth areas have significantly lower sport participation rates overall.<sup>73</sup> Victorians participate in almost 775 million hours of exercise, recreation and sporting activities each year, with 80% of this time spent

undertaking individual exercise and not in organised sport.<sup>74</sup> Opportunities exist to consider diverse sports facilities for organised sport, and other infrastructure that supports active recreation, such as paths for walking, running and cycling, to remove participation barriers. The COVID-19 pandemic has emphasised the value the community places on open space, walking and cycling infrastructure. Streets and the public realm are also important spaces for cultural and community events.

Cultural, sport and community infrastructure also provides regional economic development opportunities. Supporting environmental assets, such as parks and forests, with programming activities such as food and wine experiences, large sporting events, cultural festivals, local museums and galleries can support regional Victoria. The Victorian Government is investing in regional tourism infrastructure to support the regions with managing the dual impacts of the 2019 bushfires and the COVID-19 pandemic.<sup>75</sup>

### Current key investments

The Victorian Government has made many investments across the diverse cultural, sport and community infrastructure portfolio. Significant infrastructure investments include:

- \ Over \$1.4 billion to transform Melbourne's Arts Precinct<sup>76</sup>
- \ \$128 million towards the redevelopment of the Geelong Performing Arts Centre<sup>77</sup>
- \ \$103 million for the Regional Tourism Infrastructure Fund, including \$48.2 million for the Phillip Island Nature Park upgrade and \$9.8 million towards the Shipwreck Coast Masterplan<sup>78</sup>
- \ \$141.1 million towards the final stage of the Kardinia Park Stadium Redevelopment<sup>79</sup>
- \ \$95.1 million to redevelop the State Library of Victoria<sup>80</sup>

- \ \$34.7 million for regional creative infrastructure projects<sup>81</sup>
- \ \$39.8 million for the Australian Centre for the Moving Image redevelopment<sup>82</sup>
- \ \$22 million for the Local Sports Infrastructure Fund, providing grants to local governments for aquatic centres and indoor stadia, strategic facilities, female friendly facilities, community facilities and planning<sup>83</sup>
- \ \$22 million in 2020-21 and \$55 million in 2021-22 for the redevelopment of the State Basketball Centre<sup>84</sup>
- \ \$15 million maintenance funding for government-owned arts and cultural facilities<sup>85</sup>
- \ \$13 million towards upgrading Melbourne Arena.<sup>86</sup>

The Victorian Government is also providing extra funding to support the cultural, sport and community sector from the impacts of the COVID-19 pandemic. This includes:

- \ \$382 million for upgrades, maintenance and new experiences at tourism destinations as part of the COVID-19 Building Works package, combined with the \$485 million Victorian Tourism Recovery Package announced in the 2020-21 Budget<sup>87</sup>
- \ \$110 million for the second tranche of Community Sports Infrastructure Stimulus Program for local governments, alpine resort boards and sporting clubs and organisations<sup>88</sup>
- \ \$26.3 million in viability support for the Arts Centre Melbourne, National Gallery of Victoria, Museums Victoria, Melbourne Recital Centre and Geelong Performing Arts Centre,<sup>89</sup> with additional funding provided in the 2020-21 Budget.
- \ \$17 million to uplift the Melbourne Museum's operations<sup>90</sup>
- \ \$84.5 million for the La Trobe University Sports Park.<sup>91</sup>

## 03. Digital connectivity

### Overview

Victoria's digital infrastructure network enables the exchange of personal and professional communications. As the backbone of the digital economy, telecommunication fibres, towers, poles and cables support these exchanges which are critical to economic growth and prosperity.

Continued growth in demand for digital connectivity has encouraged significant investment from the private sector, as well as State and Commonwealth governments. The COVID-19 pandemic necessitated accelerated technology use for businesses and homes, particularly for online services and as more people worked, studied and spent more time at home. While digital services and infrastructure responded rapidly to changes in demand, the pandemic highlighted some weaknesses in the network for suburban and regional areas. It also underlined the importance of affordable digital connectivity, as students in households without internet access were unable to access online learning.<sup>92</sup>

### Governance

The Australian Government is responsible for telecommunications regulation,<sup>93</sup> with governance of the internet, television, phone, radio, post and spectrum overseen by the federal Department of Infrastructure, Transport, Regional Development and Communications.<sup>94</sup>

The telecommunications sector was largely deregulated in the 1990s,<sup>95</sup> and telecommunications infrastructure is now a mix of public and private assets.<sup>96</sup> Mobile networks, for instance, are owned by Telstra, Optus and Vodafone covering 99%, 97%, and 94% of the national population respectively.<sup>97</sup> The Australian Government also invests in digital infrastructure, such as the National Broadband Network which reaches over 11 million premises across Australia, including three million premises in Victoria.<sup>98</sup>

Despite the fragmented nature of infrastructure ownership, operation and regulation, the Victorian Government plays an important role in working with the Australian Government and private sector telecommunications providers to prioritise investment locations most in need.<sup>99</sup> By identifying gaps, seeking to address disadvantage and encouraging early adoption and innovation, the Victorian Government can promote the equitable development of Victoria's digital economy.

The Victorian government-owned body, VicTrack, is also a licensed telecommunications provider with network infrastructure. This network is the backbone to public transport customer information, myki ticketing, driver communications and other network critical systems such as signalling.<sup>100</sup>

### Challenges and opportunities

Digital connectivity is critical to Victoria's success over the coming decades. It will enable the uptake of technological developments in different sectors and industries, including Victorian Government infrastructure. Technology will radically transform how services are delivered and infrastructure is used over the next 30 years, though exactly how is not known.

#### Challenges

Digital connectivity is a tale of contrasts. For instance, the difference between mobile and fixed-line data performance is stark. Australia ranks fifth in the world for mobile broadband speeds,<sup>101</sup> and is well placed to be a leader in the development and implementation of 5G technology.<sup>102</sup> In contrast, while fixed network broadband is the source of almost 90% of data consumption in Australia,<sup>103</sup> it is well down the international list of fixed broadband speeds.<sup>104</sup> While mobile coverage reaches 99% of Australians, it extends only one-third of the total land mass. This means there are significant mobile coverage gaps for agricultural land and along transport corridors.<sup>105</sup>

As digital connectivity becomes essential for business, work, education and government service delivery, barriers to connection can leave some Victorians behind. All levels of government and private providers will need to develop strategies for equitable access. The challenges will vary. For instance, affordability is an issue with low income households spending up to 6% of income on telecommunications,<sup>106</sup> and Aboriginal Australians are similarly likely to spend a larger share of their income on internet connectivity.<sup>107</sup> Regional Victorians face a mix of digital experiences, with limited mobile coverage in some areas which can cause public safety issues and restrict economic and social opportunities.<sup>108</sup> People aged over 65 years or living with a disability also have a lower level of digital inclusion compared with other Victorians.<sup>109</sup>

Maintaining resilience and preparedness for emergencies requires ongoing efforts, particularly with the increasing frequency of natural disasters in densely populated and remote areas. Telecommunications infrastructure is critical infrastructure, relied upon by emergency management and communities during emergencies. Bushfire experiences highlight that people are at greater risk without access to critical personal communications and emergency management information through telecommunications infrastructure and digital connectivity.<sup>110</sup> This includes emergency workers, volunteers, local residents and travellers.

Growing use of digital services also means that cybersecurity risks are increasing. Almost 80% of Australians are concerned about the use of personal data by companies they interact with online.<sup>111</sup> Australia is well-equipped in digital security and governance, but the challenge will remain as cybercriminal techniques improve, and the number of internet-connected household devices increases in coming decades.<sup>112</sup>



Infrastructure provision to take advantage of rapidly evolving technologies presents considerable cost, planning and security challenges. For instance, the NBN was originally planned as Fibre to the Premises, fixed wireless and satellite. The NBN has grown to include Fibre to the Node and Hybrid Fibre Coaxial.<sup>113</sup> The result is a mix of technological solutions, with Fibre to the Premises installed at only 16% of connected premises.<sup>114</sup> This creates a number of inconsistencies, process and performance issues which need to be overcome as the NBN roll-out continues.

In addition, deployment of 5G mobile networks requires more physical infrastructure than previous generations of mobile technology, resulting in more towers and cells.<sup>115</sup> Collaboration between governments and the private sector will be needed to support affordable, widespread and equitable deployment of 5G technology.

### Opportunities

As government, commercial services and social activity migrate online, the Victorian Government can help to include all Victorians. This is essential for future productivity improvements and fostering healthy, safe and inclusive communities. A key opportunity exists to continue identifying connectivity gaps and black spots within the existing networks, to address gaps and support trials and pilots to assess the benefits to business and consumers from deploying new and emerging technologies.

As business, services, education and entertainment increasingly take place online, there are ever more opportunities and efficiencies to be gained.<sup>116</sup> Harnessing technological disruptions can also present opportunities to open up new ways of doing things. For instance, education is one of Victoria's top exports and digital connectivity can revolutionise the sector by supporting online and distance learning models. In the food and fibre industry, adopting Internet of Things technology could enhance Victoria's exports. Development of artificial intelligence, robotics and virtual reality

pose similar possibilities. In the transport sector, digital connectivity can deliver considerable benefits, including potentially reducing road deaths, reducing transport costs and improving accessibility.<sup>117</sup> Telehealth can promote better access to health services, particularly for parts of regional Victoria, and allow easier and potentially earlier interventions. To take advantage of these technological opportunities, regulatory changes may be needed.

### Current key investments

The Victorian Government is making a significant investment in digital infrastructure via the \$626 million Digital Future Now initiative. This includes:

- \ \$250 million to co-fund business-grade broadband connectivity for selected Victorian suburbs and regional towns, in conjunction with industry partners.
- \ \$300 million for a six-year program to eradicate mobile black spots in populated areas of regional Victoria (subject to a co-contribution from the Australian Government). This follows previous co-investments which have secured 230 new mobile towers across Victoria.<sup>118</sup>

Additional investments to improve the digital experience for Victorians include:

- \ \$50.8 million over four years to continue Victoria's program to protect public services from cyber-attacks.<sup>119</sup>
- \ \$31.7 million to pilot enhanced broadband demonstration projects in selected regional towns, and free public Wi-Fi in central Melbourne, Ballarat, Bendigo, Shepparton and Geelong,<sup>120,121</sup> as well as Moe, Morwell, Traralgon and Ararat.<sup>122</sup> An additional \$3.6 million was allocated in 2021 to fund free Wi-Fi in Ballarat and Bendigo for a further seven years.<sup>123</sup>
- \ \$12 million for four Internet of Things (IoT) trials to assess the benefits of IoT for farm performance and productivity. The trials focus on the key industries of dairy, grains, sheep and horticulture in four Victorian regions.<sup>124</sup>

- \ \$7 million to increase the competitiveness of regional industries through innovation, including the development of localised digital plans for each of the nine Regional Partnerships.<sup>125</sup>

- \ \$3.8 million for technology support for rural councils to upgrade ICT facilities and equipment, and for training.<sup>126</sup>

VicTrack is also investing \$69 million in the Transport and Government Secure Network project. The project will deliver a safer, more secure, efficient and reliable network, and improve Victoria's transport network signalling capability, passenger information displays and myki ticketing. The project also provides opportunities for other government agencies to use the network, reducing network duplication and costs.<sup>127</sup>

The Australian Government's 2021-22 Budget included a \$1.2 billion investment in a Digital Economy Strategy to support Australia's digital future. The investment includes funding to provide initiatives to enhance digital access to government services and improve cyber security in government, data centres and future telecommunications networks.<sup>128</sup> Other investments included \$84.4 million for the Regional Connectivity Program and \$16.4 million to establish a Peri-Urban Mobile Program to improve mobile phone reception in bushfire-prone peri-urban fringe areas.<sup>129</sup> This follows significant commitments in the Australian Government's previous 2020-21 Budget for digital connectivity, which included approving the NBN \$4.5 billion Network Investment Plan.<sup>130</sup>

## 04. Education and training

### Overview

Victoria aims to deliver world-class education. Access to quality education can maximise life choices for every Victorian at all stages and ages of life. Victoria's education infrastructure supports lifelong learning. It includes early years facilities such as kindergartens, primary and secondary schools, and Technical and Further Education (TAFE) institutes.

Victoria has more than 4500 approved early childhood education and care services, over 2200 schools including more than 1500 government schools, eight public universities, 12 TAFE institutes, 321 government-contracted private registered training organisations (RTOs), and 266 community-owned and managed not-for-profit organisations registered with the Adult Community and Further Education (ACFE) Board as Learn Local organisations eligible to deliver pre-accredited training.<sup>131</sup>

### Governance

The Victorian Government is responsible for ensuring that all Victorian students can access pre-school education, primary and secondary education, and tertiary and further education. Some of this learning is accessed in government-owned facilities.

The Department of Education and Training is the primary body that oversees Victoria's education and training system. The Victorian School Building Authority oversees the design and construction of new schools and early childhood centres, as well as the modernisation and upgrade of existing facilities.<sup>132</sup>

Victoria has one of the most devolved models for the government school sector in Australia.<sup>133</sup> Principals are responsible for overseeing the maintenance of school buildings and grounds, as well as monitoring contracts. School councils exercise general oversight of school buildings and grounds to ensure they are

kept in good condition and order. School councils are also responsible for entering into contracts for building and grounds improvements, as well as making decisions about the hiring and shared use of school facilities in accordance with departmental policy.<sup>134</sup>

The early childhood education system features partnerships between all three levels of government and many service providers. The Australian and Victorian governments largely fund service provision, with infrastructure the responsibility of service providers, including local government and private provider facilities.

The Australian and Victorian governments currently co-fund one year of kindergarten education for each four-year-old before a child starts primary school. The Victorian Government is also funding an extra 15 hours per week for three-year-old kindergarten so that all children have access to two years of pre-school education.

This reform has started, with 21 regional local government areas now receiving funding to provide up to 15 hours of three-year-old kindergarten program/week. The first rollout is occurring in areas with capacity to offer the program. From 2022, three year-olds from the rest of the state will have access to 5 hours of a funded program each week, which will increase to 15 hours each week by 2029. Vulnerable children will have access to 15 hours of free kindergarten throughout the roll out period.<sup>135</sup>

The Victorian Government has a limited role in the delivery, management and ownership of kindergarten facilities. The government provides grants for capital works to local government, not-for-profit community organisations and to government and non-government schools (where they provide kindergarten on school sites).<sup>136</sup> Privately provided long day care childcare centres also provide government funded kindergarten programs, but are not eligible for government-funded capital works grants.

Victoria's 12 TAFE institutes are established under the *Education and Training Reform Act 2006*. Each TAFE has its own board, appointed by the Minister.<sup>137</sup> Functions of the boards include overseeing and efficiently managing the institute, and developing and implementing strategic plans and other operational plans.<sup>138</sup>

The Victorian Government regulates registered training organisations delivering private and subsidised training, but it is not involved with the infrastructure of privately operated registered training organisations.

Victorian legislation also governs public universities, which are multi-jurisdictionally funded. Universities are required to gain Ministerial approval on any land disposal transactions in excess of \$5 million and leases with a tenure over 21 years.<sup>139</sup>

### Challenges and opportunities

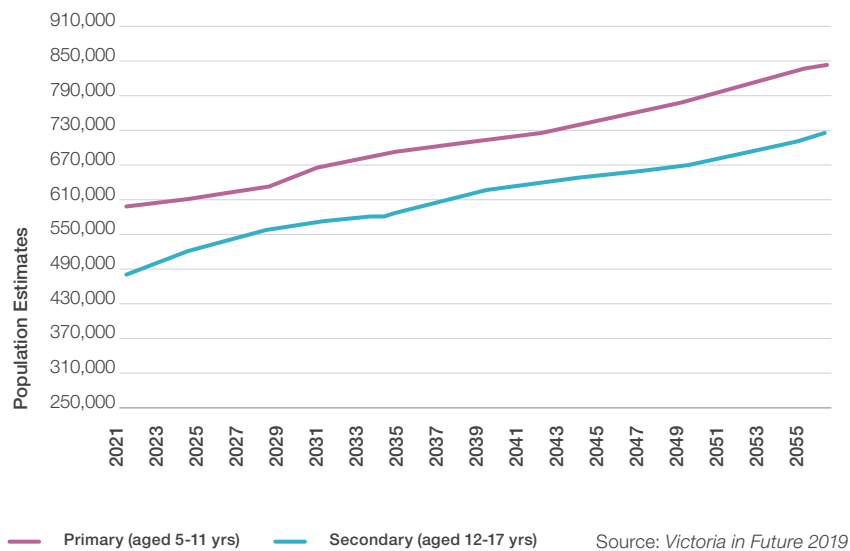
Education and training infrastructure will need to keep pace with population growth and change, with attention to key demographic growth. While the COVID-19 pandemic may have temporarily slowed population growth, it is likely to return. Keeping pace with population growth and change would require new facilities, as well as ongoing upgrades and maintenance.

### Schools

Managing increasing and decreasing demand for schools will be a key challenge. Based on growth figures before the COVID-19 pandemic, around 70,000 more students are anticipated to enter the Victorian school system over the next four years. Two-thirds of these will attend a government school.<sup>140</sup> By 2056, Victoria could have up to an extra 560,000 school-aged children.<sup>141</sup>

School populations change over time within an area, and infrastructure may need to adapt. For instance, some schools in regional areas have slower or declining student number growth. Maintaining school assets where there are declining student populations will be an ongoing issue in some of Victoria's rural and regional schools.

Figure 8: Projected growth in Victorian school-aged population



Melbourne's growth areas are under pressure from growth. The Victorian Government has a large school building commitment underway. Twenty-five new schools have already opened in Melbourne's growth areas with many more in the pipeline.<sup>142</sup> Infrastructure will also need to respond to changing needs of the community. For instance, schools need to be fit for purpose to meet the needs of students with disabilities who currently represent 4% of the government school cohort.<sup>143</sup>

Demand for schools in particular areas can also be influenced through policy changes, such as enrolment management through school placement policy which can prioritise student enrolments to a designated neighbourhood school.<sup>144</sup> Adaptable infrastructure, such as relocatable classrooms and modular buildings, can help respond with growth and change, and maintaining existing schools keeps them useful for longer.

Education and training makes up around 16% of the value of Victoria's government-owned assets, one of the largest government-owned asset portfolios in Victoria.<sup>145</sup> Working within a devolved asset management structure, ongoing maintenance will require focus and funding

commitment to overcome any challenges, such as those identified in the Victorian Auditor-General's Office 2017 report, *Managing School Infrastructure*. The Parliament of Victoria conducted a follow-up inquiry, with public hearings commencing in December 2020.<sup>146</sup>

#### Early childhood education

While the Victorian Government has a limited role in kindergarten infrastructure, its policy to extend kindergarten services so that children can have two years of pre-schooling will have significant infrastructure implications. This is on top of an already growing cohort, with a 78% increase in children four years and under projected in Melbourne's growth areas from 2011 to 2031, and a 21% increase in all other areas.<sup>147</sup>

Many existing kindergartens are likely to require modification and expansion to meet future enrolment demand from three-year-old and four-year-old kindergarten requirements. The Victorian Government and the early childhood sector are co-investing nearly \$1.7 billion for the modifications and expansions.<sup>148</sup> Kindergarten Infrastructure and Service Planning between the Victorian Government and local governments is underway.<sup>149</sup>

#### Technical and Further Education

TAFE institutes deliver vocational education and training throughout Victoria, some of which is free for eligible students undertaking priority courses, or subsidised. TAFE institutes deliver around 70% of all apprenticeships, and offer education and training opportunities to train, upskill or re-skill and support Victorians re-entering the workforce.<sup>150</sup> They play an important role in providing access to learning for everyone. Around 40% of students enrolled in TAFE are from low socio-economic backgrounds, compared with 33% enrolled in other registered training organisations and 14% in universities.<sup>151</sup> Encouragingly, these TAFE students also complete their qualifications at a higher than average rate.<sup>152</sup>

Victorian TAFE assets are worth around \$2.6 billion.<sup>153</sup> The impact of COVID-19 has been profound for the tertiary education sector, due to the significant loss in international fee revenue. It is too early to understand the risk this poses of tertiary education infrastructure. Tertiary education providers are investing in online programs. Cost saving measures such as winding back of infrastructure upgrades and major capital works, reductions on the number of campuses will all be options to manage these financial impacts.<sup>154</sup> These infrastructure implications will need to be monitored.

#### Current key investments

Significant investment is underway for education and training in Victoria. In 2020, the Victorian Government announced \$3.1 billion and in 2021 a further \$1.4 billion for new and upgraded schools.<sup>155</sup> The funding includes \$388.8 million towards improving facilities at 39 specialist schools.<sup>156</sup> Other key investments announced in the 2020-21 and 2021-22 Budgets included:

- \ \$72 million to redevelop and upgrade TAFE facilities<sup>157</sup>
- \ \$112 million to provide grants to local government and other eligible providers to build, expand and upgrade kinder and early childhood facilities.<sup>158</sup>

## 05. Energy

### Overview

Victoria's energy infrastructure delivers energy from various sources to homes, businesses and industries. It does this through interconnected systems such as energy generation and production, and transmission and distribution networks for electricity and gas. Energy generation and production includes power plants, gas processing facilities, large-scale renewables such as wind and solar farms, storage, and distributed energy resources such as rooftop solar.

Victoria has over 150,000 kilometres of electricity network infrastructure, valued at over \$27 billion.<sup>159</sup> In 2019-20, Victoria used over 41 terawatt hours of electricity from the grid.<sup>160</sup> This could increase to over 47 terawatt hours by 2050 under a central scenario.<sup>161</sup>

Victoria's gas network infrastructure is over 30,000 kilometres, valued at nearly \$6 billion.<sup>162</sup> Victoria consumed 220 petajoules of natural gas in 2020.<sup>163</sup> Victoria's natural gas demand is projected to decline to around 192 petajoules by 2025.<sup>164</sup> Even with this decline, production from existing facilities are expected to also decline which could create peak winter shortfalls by 2023 without extra gas supply and infrastructure.<sup>165</sup>

### Governance

The Victorian energy sector is almost entirely under private ownership with different market arrangements. Transmission and distribution network infrastructure, as monopolies, are regulated by the Australian Energy Regulator. Victoria's retail energy market is an open market with full competition.

Victoria is part of the National Electricity Market, which consists of Victoria, New South Wales, South Australia, Tasmania, Queensland and the Australian Capital Territory. Electricity generators operate within this national trading environment. Victoria's electricity transmission network is owned by a single company, with five distribution companies, one for each of Victoria's five electricity distribution areas.

**Table 1: Victoria's electricity and gas networks in numbers**

Network	Type	Length(km)	Asset base (\$ million)
<b>Electricity networks</b>			
Ausnet Services / AEMO	Transmission	6628	3300
Murraylink Victoria to South Australia	Transmission (Stand-alone interconnector. An interconnector links the Victorian network with another state's network.)	180	117
Basslink Victoria to Tasmania	Transmission (stand-alone interconnector)	375	Not available
AusNet Services	Distribution	45,494	5793
CitiPower	Distribution	4558	5562
Jemena	Distribution	6628	4154
Powercor	Distribution	75,815	4866
United Energy	Distribution	13,408	3373
<b>Total</b>		<b>153,086</b>	<b>27,165</b>
<b>Gas networks</b>			
APA Victorian Transmission System	Transmission	1992	1074
AusNet Services	Distribution	11,650	1727
Multinet	Distribution	9866	1321
Australian Gas Networks	Distribution	10,447	1811
<b>Total</b>		<b>33,955</b>	<b>5933</b>

Source: *Australian Energy Regulator, State of the Energy Market 2020*, pp.120-121, 135, 220, <https://www.aer.gov.au/publications/state-of-the-energy-market-reports>

Victoria has a Declared Wholesale Gas Market. Victoria's gas networks comprise a transmission network owned by a single market participant, and three distribution businesses, also based on geographic regions.

The National Energy Market began in 1998, with the current governance structure established over time by the Council of Australian Governments. Three key market bodies exist:

\ **Australian Electricity Market Commission** – responsible for making the energy market rules and advising on proposed rule changes

\ **Australian Energy Regulator** – responsible for economic regulatory functions, enforcement and market monitoring for electricity and gas

\ **Australian Energy Market Operator (AEMO)** – responsible for operating the electricity and gas systems, markets and future planning. AEMO is also the transmission planner for Victoria.

The Australian Government plays a role in national energy and climate change policy, and has established the Australian Renewable Energy Agency and the Clean Energy Finance Corporation to improve competitiveness and increase investment in renewable technologies. It also makes

discrete investments in energy infrastructure, such as Snowy Hydro, and underwriting some new generation and transmission projects.<sup>166</sup> The Australian Government also released a Technology Investment Roadmap in 2020, focusing on technology priorities including clean hydrogen, energy storage, low carbon steel and aluminium, carbon capture and storage, and soil carbon.<sup>167</sup>

The Energy Security Board was created in 2017 as a new energy market body, with responsibility to implement the accepted recommendations from the *Independent Review into the Future Security of the National Electricity Market*. The Energy Security Board will remain in place until the end of December 2021. Australian Energy Ministers will consider governance options for future energy reforms.<sup>168</sup>

The Minister for Energy, Environment and Climate Change, with the Department of Environment, Land, Water and Planning, is responsible for energy policy in Victoria, including through national arrangements. Key legislation in Victoria includes the *National Electricity (Victoria) Act 2005*, the *National Gas (Victoria) Act 2008*, the *Electricity Industry Act 2000* and the *Gas Industry Act 2001*. Other Acts relate to safety, prohibition of uranium mining and certain nuclear facilities, and the energy efficiency certificate market.<sup>169</sup>

The Victorian Government has created a new energy body called VicGrid, tasked with the overarching planning and development of Victorian Renewable Energy Zones. At the time of writing, its precise form, functions and powers are under consideration.<sup>170</sup>

The Essential Services Commission is responsible for licensing businesses involved in supplying electricity and gas in Victoria, and establishing and maintaining energy codes and guidelines that outline the rules for distribution, as well as retail energy sale in Victoria. The Essential Services Commission also promotes and enforces compliance with the codes, and reports on the performance of energy businesses and energy prices in general.<sup>171</sup> The Essential Services Commission does not set energy prices, but it does set the minimum feed-in tariff and the Victorian Default Offer.<sup>172</sup> The Essential Services Commission also regulates the Victorian Energy Upgrades Program.<sup>173</sup>

## Challenges and opportunities

Victoria has legislated for net zero greenhouse gas emissions by 2050, in line with global climate change goals. The Victorian Government also released *Victoria's Climate Change Strategy*, interim reduction targets and sector pledges in May 2021,<sup>174</sup> and allocated \$20 million over four years to accelerate Victoria's agriculture sector response to a changing climate.<sup>175</sup> Electricity makes up just over 45% of Victoria's greenhouse gas emissions, and direct combustion and fugitive emissions (those due to leaks and other unintended or irregular releases, mostly from industrial activities) make up around 21% of Victoria's emissions, mainly from natural gas use.<sup>176</sup> This makes electricity and gas transitions a key focus for achieving a net zero emissions target by 2050. Both will need a massive transformation, which presents different challenges and opportunities for each sector.

### Electricity

The National Electricity Market is in the middle of a significant transition. Energy market bodies have been developing reforms largely based on the *Independent Review into the Future Security of the National Electricity Market*.<sup>177</sup> The Energy Security Board is developing advice on the long-term market framework, known as the post-2025 market design project, to reform the electricity market to meet the changing needs of the system and customers.<sup>178</sup>

For the electricity sector to be sustainable, affordable and reliable, the energy generation mix needs to change from emissions-intensive generators to renewables. In Victoria, current plans for brown coal generator retirements are from 2028 to 2048:

- \ Yallourn (1450 megawatts) by 2028
- \ Loy Yang B (1160 megawatts) by 2047
- \ Loy Yang A (2225 megawatts) by 2048.<sup>179</sup>

The energy system needs to evolve from a centralised coal-fired generation system to a more diversified generation system with more variable renewable electricity, such as wind and solar generation, and more electricity from distributed resources, such as rooftop solar.

For instance, to accommodate more wind and solar, the transmission network needs to change. In Victoria, renewables are locating in parts of the grid that were not originally designed to carry large amounts of electricity nor withstand the technical characteristics of the technology, such as the intermittent nature of renewables.<sup>180</sup> For instance, renewable generation is connecting in Western Victoria where current transmission infrastructure is insufficient, contributing to reduced network stability and creating network congestion.<sup>181</sup>

In addition, increasing adoption of distributed energy resources, such as solar panels on homes and buildings, and the potential uptake of batteries, could be optimised through upgrading infrastructure and allowing two-way flows on the network to better manage the system.

For the power system to continue reliably meeting demand, it will need to be supported by enough dispatchable resources, such as pumped hydro, battery storage or low-emission gas-fired power. The system will also need to be supported by adequate transmission investment and improving connections with other states to better share resources. The need for power system services such as voltage control, system strength, frequency control and inertia, ramping and dispatchability, will also grow in importance.<sup>182</sup> These services are critical to the secure operation of the power system.

The Victorian Government has developed Regional Renewable Energy Roadmaps for Barwon South West, Grampians, Loddon Mallee, Gippsland, and Hume.<sup>183</sup> Each strategy is tailored to identify supply chain opportunities, skills, infrastructure, manufacturing and transmission opportunities for businesses, industry and communities to establish or expand new energy projects. In addition, the Victorian Government has consulted on a *Victorian Renewable Energy Zones Development Plan* which identifies potential supporting transmission investments, and the creation of VicGrid established to coordinate new investments in electricity grid development.<sup>184</sup>



Peak demand largely drives investment in electricity network infrastructure. Peak demand in Victoria typically occurs from 4pm to 7pm during a weekday,<sup>185</sup> and is more pronounced in the summer than the winter. Residential air conditioning use is a large driver, and electric vehicle charging could become a significant driver in the future with falling prices and lower running costs. Some forecasts suggest that electric vehicles could reach cost parity with conventional vehicles in the mid-2020s.<sup>186</sup>

The prospect of widespread electric vehicle ownership poses a significant challenge to Victoria's electricity networks, which were not designed to cater to the levels of demand projected.<sup>187</sup> Electric vehicles could compound existing electricity peaks. If electric vehicles are widely adopted in coming years, they could be among a growing list of appliances consumers connect to the grid when they return home in the evening. This would exacerbate stresses on the system during significant peak periods and on days of extreme demand. KPMG estimates that extra demand from charging electric vehicles without incentivised pricing structures could require a doubling of existing energy generation in Victoria, requiring some \$2.5 billion in new infrastructure.<sup>188</sup>

Rooftop solar growth is reducing electricity needs from the grid, but creating new minimum demand levels. Minimum demand may cause system security risks if not well-managed.<sup>189</sup> Previously, minimum demand was during the middle of the night, whereas now it is increasingly likely to occur during the daytime. In 2018-19, Victorian minimum demand was in the early afternoon rather than overnight for the first time.<sup>190</sup>

Reducing the likelihood of blackouts to an acceptable level requires adequate investment in generation and networks. This acceptable level is generally set by balancing the costs it imposes on consumers. AEMO can also deploy different measures to manage rare events, including buying emergency reserves for extra capacity to be on standby at a premium.<sup>191</sup>

In Victoria, these measures were used on two days and cost over \$11 million in 2019-20, which is recovered from consumers.<sup>192</sup> AEMO can also issue directions for generators to turn on, or for large energy users to reduce their consumption. As a last resort, AEMO will directly control load shedding to avoid system-wide blackout.<sup>193</sup>

### Natural gas

Natural gas is a fossil fuel, comprised mainly of methane. Victoria has a significant natural gas distribution network, as well as storage facilities to help meet demand peaks, and significant interconnections with other states. In 2016, Victorian gas networks had a remaining life of around 30 to 37 years.<sup>194</sup>

Over 80% of Victorian households are connected to the gas network.<sup>195</sup> Victoria is the only state where the majority of gas demand is from residential and small commercial customers, who mainly use gas for heating and cooking.

Victorian network investment is rising to meet demand for new gas connections and to undertake substantial mains replacement to maintain safety, reliability and security.<sup>196</sup> Gas consumption varies by area in Victoria, with electric appliance installation in high density developments increasing, and continuing gas connections in low density growth areas on the fringe of Melbourne.<sup>197</sup> Continuing new gas connections and extending the network will embed fossil fuel use unless a viable alternative is found.

The environmental case for natural gas is becoming more complex. New gas infrastructure locks in use and emissions for a long time. Most gas assets have an economic life of 30- to 50 years. In pursuing a net zero emissions future, a net economic life for asset payback could be reduced to 10 to 20 years, or have flexibility planned into the asset to adapt it to another zero emissions fuel. If this is not considered, there is a risk of a stranded asset or a failure to achieve climate change-related goals.

The natural gas network can be complementary to electricity grids from an energy security perspective, and provide near-term benefits when replacing

more polluting fuels.<sup>198</sup> However, the longer-term question remains whether the natural gas network can deliver low or zero carbon energy sources, such as hydrogen and biomethane.<sup>199</sup> Hydrogen could offer an opportunity to retain a dual fuel system in Victoria, using existing natural gas distribution networks, but further demonstration and testing is needed.

Pilots are underway to test hydrogen blending in natural gas networks. Early investigations have not found any significant impacts or implications on gas quality, safety and risk aspects of adding 10% hydrogen into natural gas distribution networks.<sup>200</sup> However, the National Hydrogen Strategy Working Group concluded that it is too early to commit to 100% hydrogen in gas networks and did not consider hydrogen in the natural gas transmission network due to known embrittlement issues.<sup>201</sup> The Working Group acknowledged that any decision to move towards 100% hydrogen in gas distribution networks needs further analysis of the costs, infrastructure readiness, user needs and competitiveness of other technologies.<sup>202</sup> The natural gas network is not the only method of distribution for hydrogen. Hydrogen could also be transported by truck or rail.

Hydrogen has several potential uses in addition to pipeline gas. For instance, it could be used as a transport fuel, in chemical feed stock, steel making, industrial heating and to generate electricity.<sup>203</sup>

In addition to network infrastructure, there are some immediate challenges for natural gas supply with declining Victorian production capacities. Risks of winter peak shortfalls could arise should construction and commissioning of new supply projects be delayed.<sup>204</sup> Lower international LNG prices are also affecting domestic supply and the investment environment.<sup>205</sup>

After the release of the *draft 30-year infrastructure strategy*, the Victorian Government requested specific advice from Infrastructure Victoria on the future of gas infrastructure.<sup>206</sup> This advice is due in December 2021 after the release of this final strategy, along with the Victorian Government's gas transition roadmap.

### Other energy

Victoria also has liquid fuel infrastructure, such as jet fuel supply lines and diesel feed lines. These are also under private ownership and are subject to commercial decisions. Strategically important pipelines include the Westernport–Altona–Geelong (WAG) oil pipeline, and the Joint User Hydrant Installation providing jet fuel to Melbourne Airport.<sup>207</sup>

### Current key investments

Energy networks are largely under economic regulation, which means the cost of infrastructure investment is recovered through energy customer bills. Significant new electricity network projects include:

- \ Western Victoria Renewable Integration project<sup>208</sup>
- \ Victorian Reactive Power Support project<sup>209</sup>
- \ Victoria to New South Wales Interconnector upgrade<sup>210</sup>
- \ Project Energy Connect – while this will provide an interconnector between South Australia and New South Wales, the project has implications for energy infrastructure in Victoria’s west<sup>211</sup>
- \ Marinus Link interconnector between Victoria and Tasmania<sup>212</sup>
- \ Victoria to New South Wales Interconnector West (VNI-West),<sup>213</sup> with the Victorian and Australian governments jointly underwriting early works to progress a preferred KerangLink route.<sup>214</sup>

Similarly, significant new natural gas network projects include:

- \ Western Outer Ring Main<sup>215</sup>
- \ South West Pipeline expansion.<sup>216</sup>

Significant non-network investment is also proposed such as the following potential supply projects:

- \ Various private sector gas field exploration, development and supply projects across Victoria<sup>217</sup>
- \ LNG import terminals at Geelong (Viva project) and Avalon (Vopak)<sup>218</sup>

- \ Hydrogen Energy Supply Chain pilot project<sup>219</sup>
- \ Hydrogen Park Murray Valley project, proposed to supply renewable hydrogen blended with natural gas to customers on the existing Albury-Wodonga gas distribution network.<sup>220</sup>

In addition, the Victorian Government leads several energy projects and programs such as:

- \ \$1.3 billion Solar Homes program, which was expanded further in the 2020-21 Victorian Budget including \$335 million to provide efficient, low cost heating and cooling for 250,000 low income households<sup>221</sup>
- \ \$682 million to develop Renewable Energy Zones,<sup>222</sup> including \$540 million to invest in network infrastructure solutions<sup>223</sup>
- \ \$19 million towards the rollout of electric vehicle charging infrastructure across Victoria, including installation of fast-charging stations at popular destinations and regional centres<sup>224</sup>
- \ \$30 million to extend the Agriculture Energy Investment Plan<sup>225</sup>
- \ \$664,000 towards electric vehicle charging stations in rural centres as well as smaller towns and key tourist sites, in addition to the \$3 million already committed across Victoria<sup>226</sup>
- \ System Integrity Protection Scheme battery storage services procured by the Australian Energy Market Operator at the request of the Victorian Government<sup>227</sup>
- \ Market testing through the Victorian Hydrogen Investment Program<sup>228</sup>
- \ Market sounding for a second Victorian Renewable Energy Target auction<sup>229</sup>
- \ \$10 million to support the delivery of the Climate Change Strategy and seize the economic opportunities of the transition to net zero emissions.<sup>230</sup>

## 06. Environment

### Overview

Environmental and waste management infrastructure contribute to a sustainable and healthy Victoria by preserving natural assets, protecting environmental systems (including those that improve water quality, air purification and carbon storage), minimising waste, and recovering valuable resources for recycling and re-use. This is so that current and future Victorians can enjoy and connect with the natural environment and the vital services it provides. This state of infrastructure covers parks, forests and waste management.

### Parks and forests

Victoria’s parks and forests are vital infrastructure with many environmental, social and economic benefits. Built infrastructure can also be found within parks and forests.

Victoria has 3000 land and marine parks, and reserves managed by Parks Victoria.<sup>231</sup> These parks cover more than 4 million hectares and are visited over 100 million times each year.<sup>232</sup> Tourists spend \$1.4 billion on park-related visits each year, adding 14,000 jobs to the Victorian economy.<sup>233</sup> Providing quality infrastructure is key to supporting park visitation.<sup>234</sup> Parks and reserves create even more significant value through carbon storage and flood protection, to honey production and recreation and health.<sup>235</sup> There are also thousands of Aboriginal and post-European cultural and heritage sites, historic gardens, several local ports and major rivers, many piers, and around 70% of Victoria’s coastline.<sup>236</sup>

Victoria also has around 3.2 million hectares of state forests and 550,000 hectares of public land reserves with many different purposes.<sup>237</sup>

Built infrastructure in parks and forests includes visitor buildings, shelters, toilets, viewing lookouts, playgrounds, roads, pedestrian and vehicle bridges, sporting facilities, navigation aids, local ports, jetties and other coastal infrastructure.<sup>238</sup>

## Waste, recycling and resource recovery

Victoria's waste can impact negatively on the environment if not managed sustainably. If not minimised or recovered, recycled and re-used, waste ends up in landfill and places greater pressure on finite natural resources.

Waste, recycling and resource recovery infrastructure includes collection infrastructure, recovery facilities, reprocessing facilities and landfills.<sup>239</sup> In addition, the sewage is wastewater is produced as a result of residential and non-residential uses of water that needs to be collected for treatment.<sup>240</sup> Victoria's sewerage systems treats wastewater,<sup>241</sup> protecting public health and the environment.<sup>242</sup>

## Governance

### Parks and forests

Parks Victoria is a statutory authority acting in accordance with the *Parks Victoria Act 2018*.<sup>243</sup> It manages Victoria's national and other conservation parks. Parks Victoria aims to conserve and protect parks and reserves, while connecting visitors with the environment.<sup>244</sup> Parks Victoria operates with a Board reporting to the Minister for Energy, Environment and Climate Change.<sup>245</sup>

Parks Victoria partners with other government and non-government organisations, Traditional Owners, community groups, catchment management authorities, private landowners, friends groups, volunteers, licensed tour operators, lessees, research institutes and the broader community to keep parks healthy and resilient for current and future generations.<sup>246</sup>

State forests are managed by the Department of Environment, Land, Water and Planning, including planned burning to manage fire risk.<sup>247</sup> A government-owned business, VicForests, is responsible for overseeing the harvest, commercial sale and re-growing of timber on behalf of the Victorian Government.<sup>248</sup>

### Waste, recycling and resource recovery

Responsibility for the waste management sector is divided between Australian, state and local governments. The Australian Government provides national leadership and coordination, and is responsible for national environmental and waste policies, as well as packaging and product design standards. The Australian Government is also responsible for external affairs, including international treaties and trade policy. This is relevant as China announced its National Sword Policy in 2018 and began to enforce restrictions on the importation of recycling materials.

Victoria's recycling industries exported large quantities of recycling to China, and came under immediate pressure to find alternative solutions.

Waste and resource recovery governance is undergoing a major review. Currently, the Victorian Government influences the waste, recycling and resource recovery sector through legislation and regulation, enforcement, incentives, grants and programs and education, setting strategic direction for the sector and supporting local government in its service delivery role.

There are also two key Victorian agencies involved in overseeing waste management:

- \ The Environment Protection Authority (EPA) Victoria – an independent statutory authority currently operating under the *Environment Protection Act 1970*. The EPA Victoria administers and enforces laws to protect the environment and public health from pollution and waste in Victoria.<sup>249</sup> On 1 July 2021, the *Environment Protection Amendment Act 2018* will come into effect which will change how the EPA Victoria regulates pollution, waste and contamination in Victoria.<sup>250</sup>
- \ Sustainability Victoria – an agency established under the *Sustainability Victoria Act 2005* to facilitate and promote environmental sustainability in resource use.<sup>251</sup> Sustainability Victoria supports the waste industry and governments through education, research and data reporting to support planning.

Local governments plan, provide and maintain services and infrastructure for the local community, as well as undertake strategic and statutory land use planning. They are responsible for waste and recycling collection services, as well as passing laws that reinforce land use planning and municipal recycling and resource recovery strategies.<sup>252</sup> In addition, there are seven Waste and Resource Recovery Groups which facilitate collective procurement of waste processing services on behalf of local governments. Water corporations manage the removal and treatment of trade waste and sewage.<sup>253</sup>

## Challenges and opportunities

### Parks and forests

Key challenges for parks and forests include responding to climate change, population growth, changing community needs, increased visitation, invasive pest species and accessibility requirements. In April 2021, the Victorian Government released its updated Open Space Strategy, *Open Space for Everyone - Open space strategy for Metropolitan Melbourne 2021*.<sup>254</sup> Parks Victoria is also developing a land management scheme to guide planning across parks and reserves.<sup>255</sup>

Bushfires present a significant risk to Victoria's parks and forests. For instance, the 2019-20 Victorian summer bushfires burnt 1.2 million hectares of land, making the fires the largest bushfires on record since 1939.<sup>256</sup> The 2019-20 fires affected at least 60% of Victoria's national parks and nature reserves,<sup>257</sup> impacting significant environmental assets and biodiversity.

Climate change presents significant challenges for parks and forests including longer fire seasons, coastal degradation and declining alpine snow.<sup>258</sup> Climate change will also influence the future location, extent and availability of habitats for flora and fauna.<sup>259</sup>

Visitation numbers to parks have been growing. For instance, 242,000 people visited the Twelve Apostles in December 2019, 12% more than December 2018 and 16% more than December 2017.<sup>260</sup> Growing visitor numbers across Victoria's parks and forests will require new infrastructure, and the maintenance of existing assets, to keep up with demand. This presents a significant opportunity to also support regional economies by attracting private sector investment and bolstering tourism.

State forests are also under pressure from transitioning commercial timber forestry from native forest harvesting to sustainable plantation-based timber supply. In late 2019, the Victorian Government released the *Victorian Forestry Plan*. The Victorian Forestry Plan immediately banned logging in old growth forests.<sup>261</sup> Coupled with protections set out in the *Greater Glider Action Statement*, banning old growth forest logging reduced the land available for native timber by almost 200,000 hectares.<sup>262</sup> The Victorian Forestry Plan also provides a timetable and support package to transition the industry away from native timber products to sustainable plantation-based timber.<sup>263</sup>

### Waste, recycling and resource recovery

Victoria is producing more waste today than ever before. From 2000 to 2018, waste generation almost doubled from 7.4 million to 14.4 million tonnes.<sup>264</sup> About 30% was buried in landfill, and resource recovery rates have stagnated at just under 70% of total waste.<sup>265</sup> This poses a significant task for the Victorian waste, recycling and resource recovery system.

Different waste streams have different current recovery rates, depending on how easy the material is to recover, its quality and how strong markets are for that material. Victoria's largest export partner, China, will no longer accept waste for recycling and the Council for Australian Governments, which Victoria is party to, has agreed to progressively ban waste exports from 1 July 2020. This means a step change in recycling and resource recovery for Victoria, which will require an expansion of infrastructure capacity and capability for processing materials and developing end markets, combined with waste reduction efforts.

The resource recovery sector will need to significantly expand capacity. We estimate around 3.1 million tonnes per year of extra processing capacity may be required over the next 20 years, with an investment of \$800 million to \$1.1 billion needed.<sup>266</sup> An estimated 87 new or upgraded facilities will be required, with 52 of those in regional Victoria.<sup>267</sup>

However, infrastructure investment alone will not be able to address capacity gaps. For instance, plastics processing shortfalls are expected by 2025.<sup>268</sup> However, because its resource recovery rate is very low (23%), significant change in people's recycling behaviour is also necessary to complement infrastructure upgrades and improve recycling rates.<sup>269</sup> Similarly, organics present the biggest opportunity for household waste reduction through increased recycling.<sup>270</sup>

Recovering more resources presents a significant economic opportunity, particularly for organics, plastics, glass, and paper and cardboard.<sup>271</sup>

Recovering also presents a significant opportunity to move Victoria towards a circular economy where the environmental impacts of production and consumption are reduced by avoiding waste and re-using materials.<sup>272</sup> Moving towards a circular economy will require a coordinated response from all stakeholders, including governments, businesses, households and industry. Victorians feel strongly about recycling, with 89% of people we surveyed indicating they were open to changing the way they sort and dispose of waste.<sup>273</sup>

## Current key investments

### Parks and forests

Recent Victorian Government infrastructure investments in parks and forests include:

- \ \$37.9 million to keep protecting our forests through Regional Forest Agreements<sup>274</sup>
- \ \$52 million to improve biodiversity through community-driven action, including by continuing the successful Victorian Landcare Program<sup>275</sup>
- \ Over \$31 million to enhance Parks Victoria operations to maintain priority parks and public space<sup>276</sup>
- \ \$20 million over the next two years for the Zoos Victoria Kids Free policy to allow children to enjoy free access to Melbourne Zoo, Healesville Sanctuary and Werribee Open Range Zoo on weekends, public holidays and during school holidays<sup>277</sup>
- \ \$4.4 million over two years to transfer public land management to the new Great Ocean Road Coast and Parks Authority and continue to develop a strategic framework plan for the management of the Great Ocean Road and its landscapes<sup>278</sup>
- \ \$15.9 million towards safeguarding marine and coastal environments in the face of climate change.<sup>279</sup>

Australian Government investments include the Building Better Regions Fund to support investment in community and tourist infrastructure in regional areas. Victoria also received funding under the COVID-19 Response Package to upgrade World and National Heritage sites, including:

- \ \$436,500 for Budj Bim Cultural Landscape to facilitate visitor access and support increased tourism
- \ \$3 million for Mt Buffalo Chalet to undertake conservation and associated works to protect and restore the iconic site.<sup>280</sup>

The Australian Government also provided funding to Victoria through existing programs including \$13.4 million to reduce the risk and impact of disasters in line with priorities of the National Disaster Risk Reduction Framework.<sup>281</sup>



## Waste, recycling and resource recovery

The Victorian Government has noted that Infrastructure Victoria's *Advice on Recycling and Resource Recovery Infrastructure* will inform the implementation of its new waste policy *Recycling Victoria – a new economy*.<sup>282</sup> Currently, the Victorian Government is investing \$300 million to expand the local recycling processing and manufacturing industry and support market development for recycled materials,<sup>283</sup> including:

- ✓ Over \$71 million to reduce waste crime, with more resources to stop illegal dumping and stockpiling, and deal with high-risk sites and substances<sup>284</sup>
- ✓ \$39.5 million for the Recycling Victoria Infrastructure Fund which provides business grants to address infrastructure gaps and to increase recycling capacity, as well as new infrastructure to improve the recycling of solvents from liquid hazardous waste<sup>285</sup>
- ✓ \$30.5 million for the Recycling Victoria Recycling Markets Acceleration package which provides funding for research for new product development using recycled materials<sup>286</sup>
- ✓ \$10 million to expand waste-to-energy initiatives for materials that cannot be recycled<sup>287</sup>
- ✓ \$10 million for grants to businesses to help them improve resource efficiency, reduce waste and increase recycling<sup>288</sup>
- ✓ \$7 million to establish a Business Innovation Centre for industry, universities and councils to collaborate on reducing waste, increasing recycling and reuse and generating new revenue streams for business.<sup>289</sup>
- ✓ \$127 million to support councils to buy new bins to standardise bin-lid colours, improve drop-off facilities at resource recovery facilities, and deliver education campaigns.

As part of the Australian Government \$190 million Recycling Modernisation Fund, the Victorian and Australian governments have partnered to invest \$46 million in recycling projects in Victoria. In January 2021, seven infrastructure projects were awarded \$8.1 million to increase Victoria's ability to process and recycle glass and plastic waste.<sup>290</sup>

These projects are expected to be completed in early 2024. In addition, the Australian and Victorian governments will also invest a combined \$24 million, with a \$13 million contribution from Visy Industries, to fund Australia's first drum pulper to recycle Victoria's waste paper and cardboard at the Coolaroo Paper Mill.<sup>291</sup>

In 2021-22, the Australian Government is providing \$58.9 million for the Food Waste for Healthy Soils Fund to deliver grants in partnership with states and territories that enhance existing organic waste and processing infrastructure and make better use of this resource.<sup>292</sup> They have also allocated \$11 million to further stimulate and incentivise recycling behaviours among Australian businesses and communities, including \$5.9 million for a further grant round from the National Product Stewardship Investment Fund, and \$5 million to support small business adopt the Australasian Recycling Label.<sup>293</sup>

## 07. Health and human services

### Overview

Health and human services infrastructure provides every Victorian with access to high quality health care, and safety and security support services, which supports Victorians in living full, lasting lives.

Health infrastructure includes over 150 public hospitals,<sup>294</sup> over 80 private hospitals,<sup>295</sup> and around 180 public residential aged care facilities.<sup>296</sup> It also includes numerous ambulance stations and facilities for delivering community health, public health, alcohol and other drug and mental health services. These facilities are often co-located with other human services and justice services.

Human services infrastructure includes over 64,000 public housing dwellings,<sup>297</sup> and family, residential, disability and youth care facilities, including the Orange Door family safety support hubs.

### Governance

The health and human services sector is highly regulated and complex, with numerous, diverse, and geographically dispersed participants. The Australian, Victorian and local governments, as well as private and not-for-profit service providers, all play a role in providing and maintaining health and human services infrastructure. Private and not-for-profit parties include private health service providers, residential aged care service providers, general practitioners, dentists, and community services and housing providers.

The Australian Government plays many roles in this sector including funding, service provision, regulation and policy development for various health and human services but does not own or manage significant health and human services infrastructure in Victoria.

In February 2021, the former Department of Health and Human Services was separated into two new departments that now oversee the public health and human services systems – the Department of Health (DH) and the Department of Families, Fairness and Housing (DFFH).<sup>298</sup> Together, these departments are responsible for providing high-quality health and human services across Victoria through a mix of direct delivery and funding service providers. Ultimately, DH and DFFH make decisions that influence the availability and quality of those public services, as well as the infrastructure supporting public service delivery.

The Victorian Health Building Authority manages Victoria's health, mental health and aged care infrastructure, and is involved in investment planning, asset services, design and delivery of infrastructure.<sup>299</sup>

Public hospitals are typically run by area-based health services which have Boards appointed by the Minister for Health. These health services are responsible for asset management, with the Victorian Health Building Authority leading the development of policies and guidelines to assist health services in effective asset management.<sup>300</sup>



Victorian health services also operate 178 public sector residential aged care services, 11% of the total number of residential aged care in Victoria.<sup>301</sup>

Operating under the *Ambulance Services Act 1986*, Ambulance Victoria responds to medical emergencies and provides high quality pre-hospital care and medical transport.<sup>302</sup> It is funded from a mix of Victorian Government budget funding, membership fees and transport fees.<sup>303</sup>

Many community-based health and human services are delivered by local government, not-for-profit organisations and private organisations, with the Australian and Victorian governments playing a service planning and funding role. In many cases, the infrastructure is provided and managed by the organisation providing the service.

The Victorian Government plays a larger role in the social housing sector, as it plans, funds and delivers housing services. Social housing is made up of public housing, owned by Victorian Government through the Director of Housing, and community housing which is managed by the community sector and subsidised by the Australian and Victorian governments through infrastructure grants and subsidisation of rents.

## Challenges and opportunities

Victoria's population and economy have grown fast in recent years, increasing pressures on the health system.

The COVID-19 pandemic temporarily slowed this growth, and also drove dramatic and rapid change for the health and human services sector. As essential services, health and human services have continued to operate throughout the pandemic, but some have had to rapidly change to using ICT to deliver services remotely, becoming less reliant on infrastructure for service delivery. Continuing to embed technology in health and human services delivery is an opportunity that could provide better, more efficient services for many Victorians and reduce infrastructure demand.

## Health

A decade of rapid population growth was already placing stress on health care in certain areas. Managing demand will be an ongoing challenge. The greatest health service gaps are in Melbourne's outer north, west and east, as well as in regional locations such as north-west Victoria, Gippsland and Latrobe regions.<sup>304</sup>

The Victorian population is also ageing. Previous projections estimated the number of Victorians over 85 years old could increase by 135% from 2015 to 2037, and life expectancy could increase by 3.3% annually.<sup>305</sup> With older Victorians using health services more frequently, this will place extra pressure on existing infrastructure, particularly in Victoria's growth areas. Other challenges for the health system arise from the rise in chronic disease, from more people surviving what were previously fatal conditions, rising costs of care and technology, and community expectations for better, more convenient and personalised services.<sup>306</sup>

Further, complexity of the care needs of people entering residential care is also increasing as community preferences for care at home increases. The Royal Commission into Aged Care Quality and Safety has found the aged care system across Australia is 'woefully inadequate', 'a shocking tale of neglect' with many older people who receive aged care services having 'their basic human rights denied'.<sup>307</sup> The Royal Commission found the aged care system has struggled to adapt to these developments, as have specific providers.<sup>308</sup>

The Royal Commission tabled its final report in March 2021, and Victoria's participation in the national implementation of the final recommendations is a significant opportunity to improve Victorian aged care services. The Royal Commission recommended a more integrated approach across the Australian, state and territory governments, supported by clearer responsibilities and improved governance. Specific measures the Royal Commission recommended included: improving the design of aged care accommodation, including to make facilities more accessible and dementia-friendly; establishing new multipurpose services in regional, rural and remote

areas; increasing access to mental health services for older people; supporting young people to leave residential aged care; establishing culturally-appropriate pathways for Aboriginal and Torres Strait Islander aged care; and smoothing transitions between the aged care, health and mental health systems.<sup>309</sup> In May 2021, the Australian Government published its formal response to the Royal Commission and announced \$17.7 billion for a reform package. Among other priorities, this funding aims to improve residential aged care services, sustainability, quality and safety, and to provide more at-home care for elderly Australians.<sup>310</sup>

The Royal Commission into Victoria's Mental Health System found Victoria's mental health system was afflicted by systemic failings,<sup>311</sup> 'woefully unprepared for current and future mental health challenges',<sup>312</sup> and 'does not provide those living with mental illness with what they deserve or what we as a community should demand.'<sup>313</sup> From 2003 to 2017, the proportion of adult Victorians diagnosed with an anxiety or depressive disorder increased from 14.7% to 27.4%.<sup>314</sup> In 2018, more than three times as many Victorians died from suicide than from the road toll.<sup>315</sup> Reforming the mental health system will be a key challenge for the Victorian Government, but work to deliver the Royal Commission's recommendations is already underway and supported by significant funding.<sup>316</sup> With at least 45% of Victorians experiencing a mental health condition in their lifetimes,<sup>317</sup> achieving high quality services will require ongoing commitment to reform. In May 2021 the Victorian Government committed to a new levy to help fund the reform to Victoria's mental health system and implement the recommendations of the Royal Commission<sup>318</sup> as well as a significant initial allocation of \$3.8 billion.<sup>319</sup>

Health infrastructure continues to play a key role in Victoria's response to the COVID-19 pandemic, including by providing surge capacity – particularly for intensive care units. The trend toward greater use of digital technology to connect with health services accelerated during the pandemic and telehealth services will likely play a much greater role in the future.

Asset management is also a key challenge. Hospitals are valued at around \$14.2 billion as a physical asset alone,<sup>320</sup> representing a significant portion of the Victorian Government's asset base. Managing this asset base so that it remains functional, operational and effective becomes even more important as hospital demand grows. Ageing and deteriorating assets create problems for health care access and service continuity. An opportunity exists to better manage hospital infrastructure across the asset lifecycle so that hospitals are maintained, upgraded and renewed to get the maximum life out of infrastructure assets.

Managing health demand presents opportunities to examine new models of care. This could include improving person-based, preventative health. This allows for early intervention and health care outside of an acute setting, reducing the pressure placed on public hospital infrastructure.<sup>321</sup> Further exploration could leverage existing opportunities, such as Australian Government funding for Home Care Packages to support older Australians living in their own homes while connecting them to essential care, and recent commitments to make home and community-based care more accessible through private health insurance, focusing initially on mental health and general rehabilitation services.

The *Travis Review* provides illustrative examples of innovative activities such as alternative models for effective and efficient service delivery through nurse-led clinics and telehealth based models,<sup>322</sup> as well as recommending that systems are put in place to encourage home-based care.<sup>323</sup> Better using technology to provide health services can help alleviate some demand to visit health care services onsite, and can assist in addressing inequities and inefficiencies in outcomes between metropolitan and rural patients. A highly networked, technology-enabled system could provide many services as close to home as is safe and appropriate.<sup>324</sup>

### Social housing

Social housing is government-delivered or subsidised infrastructure, meeting the basic social need of providing adequate, appropriate and affordable housing. The need for social housing has been increasing. For instance, the number of low-income households in rental stress, as defined in the National Housing and Homelessness Agreement, has grown by nearly 60% over the decade to 2018, numbering more than 140,000 households.<sup>325</sup>

Homelessness is clear evidence that Victoria's housing need is not being met. According to the definition of the Australian Bureau of Statistics (ABS), approximately 25,000 Victorians were homeless on census night in 2016.<sup>326</sup> Numbers have been rising since the ABS first reported on homelessness in the 2001 census. However, not all categories identified by the ABS have been changing at the same rate. People classified as homeless due to living in severely crowded dwellings has been the largest contributor to the increase in Victoria over the last decade.<sup>327</sup>

Social housing comprises a considerable Victorian Government asset held by the Director of Housing, totalling \$26.5 billion in June 2019.<sup>328</sup> However, Victoria's supply of social housing has not kept pace with population growth over the last 20 years. Since 1998, Victoria's population has increased by nearly 1.5 million people, but the number of public housing properties owned by the Director of Housing has only increased by 89.<sup>329</sup> Victoria's public housing stock is also in poor condition and not configured for demand. Nearly half of Victorian social housing tenants live alone, and nearly half of social housing dwellings have three bedrooms. This problem is even more pronounced for new applicants, as around 80% are seeking one- or two-bedroom dwellings.<sup>330</sup>

Viewing social housing as infrastructure can create opportunities for the sector. It can encourage governments to manage their social housing portfolio in a planning, financially sustainable way, like other infrastructure sectors. This can include undertaking a planned asset management cycle to procurement, operation, maintenance and disposal of assets, coordinated with a long-term pipeline for planned expansion at an appropriate scale.

### Human services

Human services are quite diverse, reflecting the different needs of different people in different circumstances. In some cases, responding to a need requires action across the health, human services and sometimes the justice sectors. Three key areas stand out with specific challenges and opportunities where infrastructure could play a role: family safety, supporting Aboriginal self-determination, and disability.

In Australia, violence in intimate relationships contributes more to the disease burden (cost of disease) for women aged 18 to 44 years than any other risk factor such as smoking, alcohol use or being overweight or obese.<sup>331</sup>

Every two minutes family violence results in a police call-out across Australia,<sup>332</sup> and women are five times more likely than men to require hospitalisation due to family violence.<sup>333</sup> Violence against women costs Australia \$21.7 billion per year, and is the leading driver of homelessness for women.<sup>334</sup> In March 2016, the Royal Commission into Family Violence in Victoria made 227 recommendations, all accepted by the Victorian Government.<sup>335</sup> In addition to better outcomes for all Victorians, implementing reforms can better manage demand on health and justice infrastructure, and provide for tailored infrastructure that better meets specific needs.

Aboriginal self-determination empowers communities to plan, own and operate infrastructure that delivers culturally appropriate services.<sup>336</sup> Aboriginal community ownership and control of social infrastructure already helps to deliver

quality services, and demonstrates better outcomes are achieved when Aboriginal people have a genuine say in the design and delivery of services that affect them.<sup>337</sup> In line with the approach, the Victorian Government is transferring ownership of 1448 social housing properties to Aboriginal Housing Victoria.<sup>338</sup>

Some forms of social housing aim specifically to contribute to Aboriginal and Torres Strait Islander community wellbeing through attempting to improve housing outcomes, particularly in remote areas and discrete communities.<sup>339</sup> *Wungurilwil Gagapduir – the Aboriginal Children and Families Agreement and Strategic Action Plan* is an overarching strategic response to improving the lives of vulnerable Aboriginal children and young people through self-determination.<sup>340</sup> The agreement establishes a new relationship between government and the Victorian Aboriginal community, which will see continued strong leadership from the alliance and enduring commitment from all parties to improve outcomes for Victorian Aboriginal children and families, and those residing in Victoria.<sup>341</sup>

As the National Disability Insurance Scheme is implemented, the Victorian Government's role has been changing. For instance, it is transferring government disability services and respite services to non-government providers but is retaining ownership of government disability accommodation.<sup>342</sup> Victorian Government disability accommodation comprises a large proportion of the total stock, and much of it is ageing and may need to evolve to match more contemporary person-based service delivery models. A Royal Commission into Violence, Abuse, Neglect and Exploitation of People with Disability was established in April 2019 in response to community concern about the treatment of people with disability. The Commission is due to report by 29 April 2022.<sup>343</sup>

Key challenges for the Victorian Government also include adopting universal design principles and improving accessibility across all departments and agencies for all infrastructure. This will involve retrofitting infrastructure and meeting legislative requirements for accessibility, such as for tram stops.

## Current key investments

The Victorian Government has a number of major health and human services infrastructure projects underway. The 2020-21 Victorian Budget included significant funding to health and aged care projects, including:

- \ \$562 million to expand Frankston Hospital, \$384.2 million for the Warrnambool Base Hospital redevelopment, and \$217 million for the Latrobe Hospital expansion<sup>344</sup>
- \ \$492 million responding to interim recommendations of the Royal Commission into Victoria's Mental Health System to deliver 120 mental health beds<sup>345</sup>
- \ \$75 million to purchase land and undertake detailed capital planning and early works for the new Melton Hospital<sup>346</sup>
- \ \$200 million to establish a new Metropolitan Health Infrastructure Fund<sup>347</sup>
- \ \$556 million to construct and expand 10 community hospitals in Craigieburn, Cranbourne, Sunbury, Torquay, Pakenham, Mernda, Phillip Island, Eltham, Point Cook and the inner south of Melbourne<sup>348</sup>
- \ \$100 million to build paediatric emergency department zones at Casey, Maroondah, Geelong, Northern and Frankston hospitals (which includes a \$40 million contribution from the Australian Government)<sup>349</sup>
- \ \$99 million to expand the Angliss Hospital<sup>350</sup>
- \ \$95 million to redevelop the Maryborough Hospital<sup>351</sup>
- \ \$49 million to build a new emergency department for the Swan Hill District Hospital.<sup>352</sup>

In 2021, the Victorian Government committed a \$3.8 billion overhaul of the mental health system. An additional \$507 million was also provided for infrastructure funding for mental health,<sup>353</sup> including:

- \ \$350 million for the Thomas Embling Hospital, including a new 34-bed dedicated women's precinct, new 48-bed men's precinct and to refurbish existing units<sup>354</sup>

- \ \$141 million for five new 10-bed youth prevention and recovery care (YPARC) units in the North-Eastern Metropolitan, Barwon South West, Gippsland, Grampians and Hume regions, and to refurbish existing YPARC units in Frankston, Dandenong and Bendigo<sup>355</sup>

- \ \$11 million for an additional five beds at the mental health Acute Inpatient Unit in Warrnambool.<sup>356</sup>

This builds on previous committed infrastructure, including:

- \ \$1.5 billion to build a new Footscray Hospital, and \$564 million for the Victorian Heart Hospital<sup>357</sup>
- \ \$162 million for the Northern Hospital inpatient expansion and \$139.8 million toward the Casey Hospital expansion<sup>358</sup>
- \ \$464 million toward the Ballarat Health Services expansion and redevelopment
- \ \$171.2 million to redevelop Goulburn Valley Health facilities.<sup>359</sup>

During the COVID-19 pandemic, the Victorian and Australian governments announced significant investments in hospital capacity and mental health.

For social housing, the Victorian Government announced its Big Housing Build program.<sup>360</sup> The government is investing \$5.3 billion in more than 9300 new social housing dwellings, \$300 million to upgrade existing public housing, and 2900 new affordable and market homes for first home buyers and renters over the next four years.<sup>361</sup>

The Director of Housing has \$1.8 billion of new and existing infrastructure projects.<sup>362</sup> Recent investments include:

- \ \$209 million for new housing, including 800 one and two-bedroom properties and 200 three-bedroom properties<sup>363</sup>
- \ \$185 million in the Public Housing Renewal Program<sup>364</sup>
- \ \$160 million towards the 600-unit Heidelberg public housing redevelopment<sup>365</sup>
- \ \$146 million towards the 246-unit Carlton public housing redevelopment<sup>366</sup>
- \ \$59 million towards upgrading low-rise public housing
- \ \$19.2 million towards upgrading high-rise public housing.<sup>367</sup>

## 08. Justice and emergency services

### Overview

Justice and emergency services infrastructure serves to protect the community, hold offenders accountable, help emergency services aid Victorians each day, improve community resilience and respond to danger and major disasters including bushfires, floods, heatwaves and pandemics. The infrastructure supports people to feel safe in their homes and communities, and free from harm.

Victoria's justice and emergency services infrastructure includes stations and facilities for emergency services, courts and tribunals, remand centres, prisons and youth justice facilities. Facilities are enabled and supported by specialised equipment and ICT infrastructure including case management systems, audio-visual links, public safety systems and mobile communications to support operations.

### Governance

The Victorian Government is responsible for overseeing the operation, management, development and funding of justice and emergency services.

There are many agencies involved in justice and emergency services infrastructure, and their governance arrangements reflect varied levels of operational and decision-making independence from government.

The Department of Justice and Community Safety oversees Victoria's justice and emergency services. As part of this department, the Community Safety Building Authority designs, procures, builds and upgrades Victoria's prisons, youth justice centres, court and custody facilities, emergency services facilities and public safety features such as closed circuit television (CCTV) networks.<sup>368</sup> The Emergency Services Infrastructure Authority, a part of the Community Safety Building Authority, supports infrastructure for volunteer brigades and units within the Victoria State Emergency Service, Life Saving Victoria and Marine Search and Rescue.<sup>369</sup>

The judiciary system is independent from executive government. Court Services Victoria was established in 2014 as an independent statutory body corporate to provide services and facilities to courts, the Victorian Civil and Administrative Tribunal and the Judicial College of Victoria.<sup>370</sup>

The Victorian Government also funds some legal services as part of the justice system. The Office of Public Prosecutions Victoria provides public prosecutions services and is responsible for prosecuting serious criminal matters on behalf of the state.<sup>371</sup> Victoria Legal Aid provides free legal information and education to all, and legal advice and representation to those who meet financial and other eligibility requirements.<sup>372</sup> There are 48 Community Legal Centres across Victoria,<sup>373</sup> which are independent community organisations that provide free legal services to the public.<sup>374</sup>

Corrections Victoria sets strategy, policy and standards for the management of correctional facilities.<sup>375</sup> It undertakes business planning and initiatives, and manages correctional infrastructure programs.<sup>376</sup> Victoria currently has 11 publicly-operated prisons, three privately-operated prisons and one transition centre.<sup>377</sup>

Victoria's emergency services include police, fire, rescue, ambulance and other emergency services. Each has their own legislation and independent operational decision-making powers. The Emergency Services Telecommunications Authority links the community with emergency services, providing the 24-hour emergency call-taking and dispatch services for police, fire, ambulance and the Victoria State Emergency Service.<sup>378</sup>

Victoria Police operates under the *Victoria Police Act 2013*. Victoria Police provides a wide range of services to the community, including detecting, responding to and investigating crime, supporting court processes, providing safe custody for alleged offenders, conducting community safety programs and promoting road safety. Victoria Police also works with other state and commonwealth agencies to address complex social challenges such as family violence, alcohol and drug use, and mental illness, and to support

whole-of-government efforts to combat terrorism and respond to large-scale emergencies like the catastrophic bushfires of 2019-20 and the COVID-19 pandemic.<sup>379</sup>

Fire prevention, preparedness and response services are delivered by the Country Fire Authority and Fire Rescue Victoria. The Country Fire Authority is Victoria's volunteer fire service operating from more than 1200 stations.<sup>380</sup> Fire Rescue Victoria serves metropolitan Melbourne and major regional centres, operating out of 85 stations.<sup>381</sup> Some Country Fire Authority and Fire Rescue Victoria stations are co-located.

Several more volunteer-based organisations keep Victorians safe and provide emergency assistance. The Victoria State Emergency Service is a volunteer-based organisation, providing emergency assistance and helping communities plan, respond and recover when emergencies occur. The Victoria State Emergency Service is a statewide service with nearly 150 units. It is the control agency for flood, storm, tsunami, earthquake and landslide incidents throughout Victoria and operates under the *Victoria State Emergency Act 2005* and Emergency Management Victoria.<sup>382</sup> Life Saving Victoria is in charge of preventing aquatic-related death and injury, including in public pools and beaches across Victoria. Life Saving Victoria employs around 500 staff and has more than 37,000 members.<sup>383</sup>

Marine Search and Rescue is a volunteer organisation that provides emergency assistance to vessels along Victoria's coastline, out at sea, and in many inland waterways.<sup>384</sup>

Emergency Management Victoria is the coordinating body for emergency preparedness, response and recovery across Victoria's emergency management sector in conjunction with communities, government, agencies and business.<sup>385</sup> The Emergency Management Commissioner leads Emergency Management Victoria.



Bushfire Recovery Victoria is a permanent dedicated agency which works directly with local communities impacted by bushfires to rebuild and recover. The agency is coordinating and overseeing the implementation of the *Eastern Victorian Fires 2019-20 State Recovery Plan* which includes buildings and infrastructure recovery.<sup>386</sup>

## Challenges and opportunities

### Justice overview

The justice system is highly interdependent, with many opportunities and challenges shared between police, courts and corrections. Increased demand in one area can lead to impacts on other parts of the system, as well as relevant health and human services such as social housing, mental health and employment services.

Police numbers have increased from 14,695<sup>387</sup> police in 2018 to 16,222 in 2021.<sup>388</sup> There has been an 57.6% increase in the number of prisoners in Victoria's prison system over the last 10 years, from 4537 prisoners in 2010 to 7151 in June 2020.<sup>389</sup> The adult imprisonment rate was 157 prisoners per 100,000 adult population in 2019.<sup>390</sup> The courts are projecting service demand in the CBD alone to increase by 26.8% by 2031.<sup>391</sup>

Across the police, courts and corrections system, growing and changing population is contributing to growing demand for justice services. But demand is also influenced by policy changes in sentencing, bail and family violence,<sup>392</sup> increased detection and reporting, the growing complexity and volume of criminal cases, and increasing volumes of evidence.<sup>393</sup> There is an opportunity through policy reform to deliver diversionary policies and programs to manage demand on the justice system.

### Courts

A rising number of cases before Victoria's courts is creating delays and reducing clearance rates. In Victoria, backlogs are higher than the national benchmark for processing cases in an expeditious and timely manner.<sup>394</sup> The Melbourne legal precinct is already under pressure and faces a particular challenge from limited land available to expand the physical infrastructure.<sup>395</sup> Across Victoria, the ability of the courts to respond to increased demand is challenged by inflexible court buildings and systems, which can constrain service delivery improvements.<sup>396</sup> For instance, the current method of courts operation has not been able to meet the increasing complexity and number of cases going to trial, with the Supreme Court in particular under real strain and pressure.<sup>397</sup>

This is due to a combination of factors in addition to infrastructure, including late mistrials, diversion of resources from trials and more 'not guilty' pleas.

Opportunities exist to improve the physical and operational connections in Victoria's courts. The COVID-19 pandemic impacted how justice is administered in courts and tribunals, and necessitated change to traditional protocols and procedures.<sup>398</sup> Courts now make significantly greater use of technology<sup>399</sup> and have used remote testimony to reduce the number of attendances required for filing hearings.<sup>400</sup> In early 2021, the Victorian Government passed legislation to enable courts to hear a wider range of matters via audio visual link and without in-person hearings. This legislation, the *Justice Legislation Amendment (System Enhancements and Other Matters) Act 2021*, also provides a legal framework for the electronic signing and remote witnessing of important legal documents, and continues measures introduced during the pandemic to streamline arrangements for serving documents, enabling remote attendance and examinations, and electronically inspecting documents.<sup>401</sup>

There are opportunities to continue the positive changes by embracing new technology to transform the workings of Victoria's courts. New, more flexible and multi-jurisdictional courts infrastructure is also required to better accommodate demand across jurisdictions, as is greater video and digital capabilities.

### Corrections

Adequate corrections infrastructure is important to safely house prisoners. Overcrowding within prisons and management cells can lead to increased prisoner incidents. In 2012, the Victorian Auditor-General found the rate of serious incidents per prisoner, such as assaults, attempted suicides and self-mutilation, doubled over a period of six years.<sup>402</sup>

In recent years, demand on Victoria's prison system has rapidly increased, particularly through growth in prisoners on remand.<sup>403</sup> While the COVID-19 pandemic has reduced demand, the reduction was only temporarily and has caused delays in sentencing that mean many people on remand are spending more time in custody awaiting their day in court.<sup>404</sup>

Meeting growing demand through increased infrastructure spending can come at a high cost, with the costs of housing prisoners in Victoria some of the highest in Australia.<sup>405</sup> The average annual maintenance cost per inmate is even higher where facilities are ageing – up to 133% higher for facilities with a high risk of obsolescence – and corrective maintenance can be expensive.<sup>406</sup>

Opportunities exist to meet demand changes by strengthening infrastructure planning and deploying options such as reserving land early, expansion options for buildings and using innovative methods for rapid deployment, such as prefabricated modular cells. These measures can also be supported by policy reforms that reduce long-term demand from offending, including diversionary and treatment programs and the application of best practice to reduce the likelihood of reoffending.



The youth justice system is part of the overall criminal justice system but also intersects with the child welfare system.<sup>407</sup> While overall numbers of young people involved in youth justice has been in decline, the nature of crimes are more serious, with crimes against a person steadily rising.<sup>408</sup> The performance of the system is poor compared with other Australian jurisdictions. For instance, Victoria has the highest recorded rates of assaults in custody, and has the most expensive youth justice system per capita, yet little difference in outcomes.<sup>409</sup> Once in contact with the system, the life outcomes for young people are poor with no change in offending patterns.<sup>410</sup>

Victoria's two youth justice facilities are under pressure due to incidents at both sites in 2016 and 2017, resulting in reduced accommodation and subsequent overcrowding, forcing corrections to use isolation and admission cells as bedrooms.<sup>411</sup> In addition, the design and organisation of accommodation spaces do not provide optimal conditions for the delivery of therapeutic services for young people.<sup>412</sup> In addition to delivering 68 more beds across the Youth Justice custodial precincts in Parkville and Malmsbury,<sup>413</sup> the Victorian Government is developing a new youth justice facility and has undertaken a comprehensive review of the youth justice system.<sup>414</sup> These developments provide an opportunity to deliver better outcomes for young people, and improve long-term planning for infrastructure that supports young people's needs.

### Police

Policing is also changing, with the sector facing increasing complexity in dealing with crime, and changing public expectations with how the police engage with the community.<sup>415</sup> Legislation has further increased demands on police in areas such as mental health, drug abuse, family violence, traffic offences and sex offenders. There is also much more interaction with other agencies to deal with the causes of harmful behaviours.<sup>416</sup> These pressures on Victoria Police cannot be relieved by traditional methods of investment due to lower revenue growth and increased demand on public expenditure.<sup>417</sup>

A key challenge is adapting operations, including suitable infrastructure and equipment to support changes in policing. For instance, police station locations could better match where there is demand for policing. This creates an opportunity to examine service delivery models and infrastructure needs to support a more agile workforce, with increased community presence and more preventative policing.<sup>418</sup> This could include hub and spoke models enabled through technology. Further efficiencies could be realised through reducing the number of police stations while still supporting an increased police presence in the community.

Victoria Police is embarking on a Service Delivery Reform program, which provides an opportunity to improve technology and infrastructure for a responsive, visible and modern police service.

### Emergency services

The frequency and impact of extreme weather events and natural disasters is projected to increase in Victoria.<sup>419</sup> Emergency services face a great challenge to prepare for, respond to, provide relief and assist recovery from disastrous events. In 2020 alone, Victoria experienced some of the most damaging bushfires in its history,<sup>420</sup> and the COVID19 pandemic has led to a 'State of Disaster' and 'State of Emergency' being declared.

These risks have not been unforeseen. In 2014, the highest priority emergency risks were identified as bushfire, flood and pandemic influenza.<sup>421</sup> Other natural disasters include heatwave, severe storms and earthquakes. Risk comes about when a hazard, particularly geophysical hazards such as bushfire, flood, landslip, storm, earthquake and tsunami, are combined with an exposed and vulnerable population and its assets.<sup>422</sup>

Emergency services require infrastructure to perform their role. Since 2014, Emergency Management Victoria is responsible for the strategic planning of the sector. Opportunities to increase capital and ICT infrastructure integration, including interoperability of equipment across agencies, can boost the sector's capacity and better leverage expertise and infrastructure.<sup>423</sup>

Emergencies also test the resilience, and demonstrate the vulnerabilities, of Victoria's infrastructure. A key challenge is overcoming fragmentation across agencies which Emergency Management Victoria leads, and a key opportunity is to build up resilience before events occur, including by improving asset maintenance.

Critical infrastructure systems, networks and supply chains are increasingly complex and interconnected, with disruptions in one sector able to quickly affect other sectors and having the potential to cause serious cascading failures. Critical infrastructure owners and operators need to be able to respond to the vulnerabilities and dependencies in their own sector and be able to operate during crises.<sup>424</sup>

A key opportunity is to continue strengthening the emergency preparedness and response capabilities of agencies. Multiple reviews have examined the sector's preparedness and response following the 2019-20 summer bushfires and COVID-19 pandemic emergencies, including the Royal Commission into National Natural Disaster Arrangements,<sup>425</sup> the Inspector General for Emergency Management Inquiry into the 2019-20 Victorian Fire Season,<sup>426</sup> and the Board of Inquiry's COVID-19 Hotel Quarantine Inquiry.<sup>427</sup>

These reviews were necessarily wide-ranging in focus, but they collectively identified continued opportunities for infrastructure systems, networks and facilities, as well as in emergency preparedness. Recommendations included improved information sharing and cooperation across and between jurisdictions, encompassing shared technologies and common information platforms.<sup>428</sup> They also highlighted the importance of continuous improvements in emergency preparedness and community resilience as Victoria prepares for more intense and frequent emergency events.<sup>429</sup> Following the COVID-19 Hotel Quarantine Inquiry, the Victorian Government has begun planning for a new purpose-built quarantine accommodation facility to respond to the ongoing threat posed by COVID-19.<sup>430</sup>

## Current key investments

The Victorian Government funds most of the infrastructure for the justice and emergency services sector. Key investments include:

- \ Nearly \$1.3 billion to boost the men's prison system capacity and \$190 million to boost the women's prison system capacity<sup>431</sup>
- \ Nearly \$700 million for the Chisholm Road Prison Project (previously known as the Lara Prison precinct)<sup>432</sup>
- \ \$383.6 million to continue reducing bushfire risk in a rapidly changing climate, which includes provision for asset maintenance and replacement (such as strategic road network and fire towers)<sup>433</sup>
- \ \$278.4 million for a new youth justice facility at Cherry Creek<sup>434</sup>
- \ \$272 million for a new Wyndham Law Court<sup>435</sup>
- \ \$272 million to upgrade communication technologies for emergency services, including funding for Forest Fire Management Victoria and the Country Fire Authority (CFA) to upgrade their radios<sup>436</sup>
- \ \$231.6 million towards the initial implementation of the fire service reform, including funding for the replacement of 15 fire stations, a new fire station at Clyde and replacement of 50 firefighting appliances<sup>437</sup>
- \ \$124.4 million for prison capacity expansion in Melbourne<sup>438</sup>
- \ \$112.4 million for critical and urgent bushfire recovery initiatives, including restoring the road network
- \ \$66.8 million for a courts case management system<sup>439</sup>
- \ \$28.1 million to enhance the facilities of emergency service organisations to provide modern, fit for purpose infrastructure<sup>440</sup>
- \ \$19.1 million towards critical police stations and \$5 million for mobile police stations<sup>441</sup>

- \ \$44 million for building a replacement police station in Benalla and the purchase of land for a future Yarra police precinct involving the amalgamation of Fitzroy and Collingwood stations<sup>442</sup>
- \ An additional \$141.242 million for the new metropolitan youth justice facility<sup>443</sup>
  - \$10.2 million for Online Magistrates' Court<sup>444</sup>
- \ \$29 million for the Victorian Civil and Administrative Tribunal digital service transformation<sup>445</sup>
- \ \$35 million for the specialist family violence integrated court response.<sup>446</sup>

Recent Australian Government investments include \$1.2 billion over five years to better prepare for, respond to, and recover from natural disasters. This includes \$61.1 million to establish a new National Recovery and Resilience Agency to support local communities respond to large-scale natural disasters and manage impacts from future events and climate change.<sup>447</sup>

## 09. Water

### Overview

Victoria's water resources are needed across the state, by households, communities, industry, and the environment. Sustainably accessing adequate quantities of acceptable quality water is needed for many different purposes.

The water sector covers water supply, irrigation and salinity mitigation, wastewater management, waterway management, regional drainage and floodplain management. Key infrastructure includes: dams, storages and weirs; water and wastewater treatment plants; water and sewerage pipelines; irrigation pipelines, channels and drains; desalination plant; and urban drainage systems.

Water resources include surface water (waterways such as rivers, creeks and streams, and bodies of water such as lakes, reservoirs, dams and wetlands), groundwater (water found in spaces and fractures in rock and sediment underneath the ground's surface), recycled water (wastewater treated to a standard appropriate for its intended use) and desalinated water (salty water, such as seawater, treated by removing dissolved salts).

In 2018-19, Victoria's public water corporations provided services to over 2.8 million customers, employed around 6000 staff, collected \$6.3 billion in revenue, invested \$1.8 billion on capital works, and held around \$15.7 billion in total borrowings.<sup>448</sup>

In 2018-19, nearly 12,100 gigalitres of water was available in Victoria from surface water, groundwater and recycled water, down from 15,400 gigalitres in 2017-18.<sup>449</sup> Nearly 4000 gigalitres of water was for consumptive use in 2018-19.<sup>450</sup> Agriculture was the largest user with irrigation using around 77% of consumptive water.<sup>451</sup>

### Governance

The *Water Act 1989* sets the authorising environment for Victoria's water sector. The water sector is made up of 19 government-owned statutory authorities, known as public water corporations. Two will merge from 1 July 2021. Each public water corporation has a Board appointed by the Minister for Water. There are also 10 Catchment Management Authorities, the Victorian Environmental Water Holder and the Victorian Catchment Management Council. The *Constitution Act 1975* sets out that public authorities are to remain responsible for water services.<sup>452</sup>

The *Water Act 1989* lists a range of purposes for the water sector, including the promotion of orderly, equitable and efficient use of water resources while making sure water resources are used sustainably for the benefit of present and future Victorians, across economic, social, cultural and environmental needs.<sup>453</sup> The Act sets out the authorising environment for how water is managed and provided for various needs and consumers. Infrastructure is needed to support this provision.

In Victoria, the roles and responsibilities for policy, regulation and service delivery are separated and distributed across many different entities, including Victorian Government departments and agencies, local government, and multiple public water corporations.

Water services are delivered by the public water corporations. Currently, public urban water corporations provide water supply (including recycled water) and sewage and trade waste disposal services to urban customers throughout Victoria. Three public water corporations provide rural water services which include delivering water for irrigation, domestic and stock purposes and associated drainage, and salinity mitigation services. The remaining public water corporation provides urban and rural services.<sup>454</sup>

Melbourne Water Corporation provides bulk water and bulk sewerage services to water corporations in the Melbourne metropolitan area and manages rivers, creeks and major drainage systems in the Melbourne, Port Phillip and Westernport regions. Melbourne Water also supplies recycled water, through several retail public water corporations, for irrigation and other purposes,<sup>455</sup> though it is not the sole supplier for recycled water.

The Minister for Water, with the Department of Environment, Land, Water and Planning, sets water policy and, together with the Treasurer, supported by the Department of Treasury and Finance, provides governance and performance oversight for the water sector. The Minister for Water is also responsible for statewide water resource assessment programs and long-term planning for the use and allocation of water.<sup>456</sup> Public water corporations are responsible for urban water and rural water planning within their regions.<sup>457</sup>

The public water corporations operate under an economic regulatory framework. Water pricing and investment is overseen by the Essential Services Commission, which assesses and determines maximum prices, or the way prices are to be calculated for water services. The Essential Services Commission also sets customer service standards through water codes and guidelines.<sup>458</sup>

Drinking water quality is regulated by the Department of Health and Human Services which is responsible for safe drinking water legislation and regulation.<sup>459</sup> Environmental quality standards for waste water discharges to land or waterways are regulated by the Environment Protection Authority (EPA) Victoria. Public water corporations are subject to policies, licences and works approvals which set out the operating conditions, waste discharge limits, and the waste acceptance conditions for operating sites of public water corporations.<sup>460</sup>

The Australian Government also holds an interest in national water policy, establishing the National Water Grid Authority to work with state and territory governments to identify, plan and invest in priority projects to grow agriculture, build resilience to drought and support regional areas.

## Challenges and opportunities

### Challenges

Victoria's water supplies are under pressure from population growth and climate change. This has implications for water investments to meet these challenges.

When the Victorian Government's water plan, *Water for Victoria*, was released in 2016, Victoria's population was projected to reach 10.1 million people by 2051.<sup>461</sup> The COVID-19 pandemic has temporarily slowed this growth, and Victoria's population pathway is uncertain. But eventually, population and economic growth will likely resume in the next 30 years.

Victoria's climate varies across the state. Long-term observed records show that Victoria's climate is changing under the influence of global warming.<sup>462</sup>

The severity of the Millennium Drought has been linked to human-induced climate change.<sup>463</sup> Climate projections indicate Victoria will become warmer and drier in the future, with annual rainfall projected to decline across the state, meaning future streamflow is also expected to decline.<sup>464</sup> These changes could lead to reduced runoff into rivers and dams and less reliable filling of water storages.<sup>465</sup>

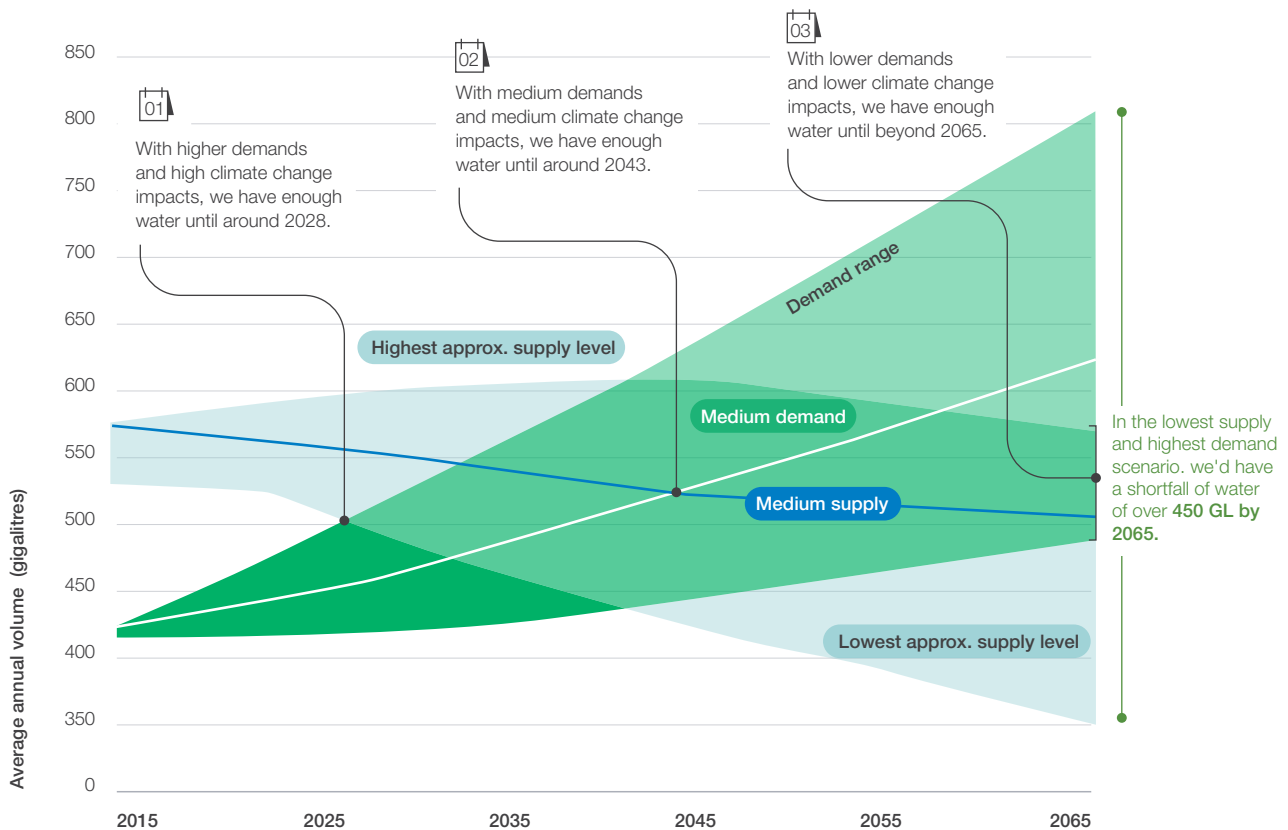
With growing demand and projected supply constraints, urban water strategies have been developed by public water corporations for their supply districts. In the metropolitan area, under a high water demand and high climate change scenario, water shortages could emerge in Melbourne as soon as 2028 unless action is taken.<sup>466</sup> Under a medium water demand and medium climate change scenario, water shortages could emerge from 2043.<sup>467</sup>

Both scenarios would require consideration of water efficiency initiatives and diverse sources of water, as well as major water supply augmentation.<sup>468</sup> Efficient long-term planning and clear decision-making processes will support efficient and timely investments.

Supply shortfalls could appear even sooner in some regional areas of Victoria. Some regional and rural areas are particularly vulnerable to low levels of water security, especially during extended dry periods. Unless action is taken, shortfalls may occur as early as 2025 in Coliban's service area, which includes Bendigo,<sup>469</sup> and by 2031 in areas serviced by Western Water which includes Bacchus Marsh, Melton, Sunbury and parts of the Macedon Ranges.<sup>470</sup>

Climate change has implications for water infrastructure in two ways. Emissions generated from water infrastructure and its activities will need to be mitigated. Infrastructure will also need to operate under warmer, drier conditions with increased frequency of intense weather events such as flooding, storm surges and bushfires. The water sector is responsible for 24% of government's emissions; the largest share. It is followed by rail (19%), other government (19%), and health care (18%).<sup>471</sup> In May 2021, the Victorian Government release *Victoria's Climate Change Strategy*<sup>472</sup> and, amongst other sector pledges, the *Whole of Victorian Government emission reduction pledge*. Victoria's water corporations have committed to reducing their collective emissions at least 42% by 2025. The targets are to be achieved with improved energy efficiency, converting waste to energy, increasing carbon storage through revegetation programs, and other initiatives.<sup>473</sup>

Figure 9: Supply and demand scenarios for Melbourne



Source: City West Water et al., *Water for a future-thriving Melbourne*, 2017, p. 15, [www.melbournewater.com.au/sites/default/files/2017-10/Water-for-futurethriving-Melbourne\\_0.pdf](http://www.melbournewater.com.au/sites/default/files/2017-10/Water-for-futurethriving-Melbourne_0.pdf). Note that the Melbourne System and Urban Water strategies are currently under review and that supply demand scenarios for Melbourne may change.

The emission reduction commitments are consistent with the pledge in the 2018 *Pilot Water Sector Climate Change Adaptation Action Plan*.<sup>474</sup> The water sector adaptation plan is expected to be finalised in October 2021.<sup>475</sup>

**Opportunities**

Alongside the challenges posed by population growth and climate change, there are changing community expectations and customer needs surrounding the water sector. Increasingly, the provision of water services is being viewed within the context of delivering broader liveability benefits. Customers also expect to be more meaningfully engaged in decision-making, such as when options for future supply augmentation are being considered.<sup>476</sup> Changing expectations and needs align with the water sector’s changing approach to create water sensitive cities through integrated water cycle management planning. The community can influence the changing role of water services, and contribute to infrastructure planning

including the nature of investments and timing. As rainfall-dependent water supplies become more constrained from a warmer, drier climate, alternative water sources will need to be deeply explored. Recycled water and stormwater offer significant opportunity to expand Victoria’s water resources and assist with mitigating water security risks in the future.

Current use of recycled water and stormwater resources is low. For instance, of the 461 gigalitres of wastewater produced in 2018-19, most was treated for release into the ocean with only 22% recycled.<sup>477</sup> The largest single volume of recycled water is available at the Eastern Treatment Plant, where around 120 gigalitres of Class A water is produced each year. Most of this high-quality water is discharged into Bass Strait.<sup>478</sup> More water in Victoria could be recycled and reused where there are significant economic, social and environmental benefits to do so. This will require further effort to identify and address barriers to increased use of recycled water.

Increasing urbanisation creates an immense opportunity to capture and re-use stormwater that runs off from impervious surfaces, such as roads and other development. In Melbourne alone, stormwater volume in 2015-16 was estimated at 349 gigalitres, of which 337 gigalitres flows relatively uncontrolled and untreated to waterways, which can create environmental problems.<sup>479</sup> This is significant because Melbourne’s water consumption in 2015-16 was 516 gigalitres,<sup>480</sup> meaning capturing and re-using more stormwater reduces pressures on water supply. Infrastructure can play a role in increased capture and use of this water, and in reducing runoff through changed urban design and construction. While water consumption has been generally increasing over the past eight years, the amount consumed by each person was 20% lower in 2019 than in 1997.<sup>481</sup>

As the roles and responsibilities for different elements of water management can sit with several entities and bodies, addressing the barriers to these opportunities will require examining current governance and policy settings. Governance is a term that encompasses the rules, policies, practices, processes and institutional arrangements that drive decisions about achieving objectives around the management of urban water resources and services.<sup>482</sup>

Water efficiency also presents an opportunity, including through modernising irrigation systems, supporting the development of efficient water markets and demand management. Permanent water saving rules remain in place,<sup>483</sup> and the Victorian Government maintains its Target 155 program, encouraging Melburnians to limit water consumption to 155 litres person per day.<sup>484</sup>

### Current key investments

Public water corporations have significant investment underway, with an extra \$7 billion of new projects in 2020-21 alone.<sup>485</sup> As the water sector is under economic regulation, most investment is funded via water bills. For instance, Melburnians pay for the Victorian Desalination Plant via their water bills. The Victorian Government also provides budget funding for select projects, as well as the Australian Government.

Significant projects by the public water corporations include:

- \ About \$373 million for the Eastern treatment plant projects and \$190 million for the Western treatment plant projects<sup>486</sup>
- \ Over \$85 million for East Grampians rural water supply<sup>487</sup>
- \ \$21.8 million for stage 1 of the Western irrigation network Parwan-Balliang irrigation district network<sup>488</sup>
- \ Over \$24 million for stage 2 of the Toolern stormwater harvesting project<sup>489</sup>
- \ About \$25 million for the Sunbury to Melton recycled water plant recycled water interconnector pipeline.<sup>490</sup>

Recent projects supported with Victorian Government budget funding include:

- \ \$62.6 million to complete phase 2 of the Macalister Irrigation District Modernisation project, which is jointly funded by the Australian Government providing \$31.3 million, the Victorian Government \$10.4 million and Southern Rural Water \$20.9 million<sup>491</sup>
- \ \$224 million to improve regional waterway and catchment health<sup>492</sup>
- \ \$24.5 million to support regional communities and economic recovery through healthy waterways, with a focus on sites of high recreational and tourism importance<sup>493</sup>
- \ \$5.8 million to help the North East Catchment Management Authority and East Gippsland Catchment Management Authority deliver the Restoring Waterways and Catchments (bushfire recovery) project<sup>494</sup>
- \ \$8.4 million over three years - Resilient water markets, regional communities and infrastructure, includes grants for infrastructure projects to enable farms to modernise and optimise water efficiency<sup>495</sup>
- \ \$2.5 million to strengthen compliance and enforcement approaches, invest in measures to maintain confidence in water reliability for entitlement holders and address the risks posed by climate change to water availability.<sup>496</sup>

Recent Australian Government investments include \$177.5 million for the Goulburn Murray Water Efficiency Project to modernise and upgrade ageing off-farm water infrastructure in the Goulburn-Murray Irrigation District.<sup>497</sup> \$11 million new funding for Werribee Irrigation District Modernisation (Stage 4 and 5) and \$5.5 million for Recycled Water on the Bellarine, through the National Water Grid Fund.<sup>498</sup>

The Victorian Government are reviewing the Central and Gippsland Region Sustainable Water Strategy (CGRSWS), the state's plan for the sustainable use of water resources in the Central and Gippsland Region. The final CGRSWS and implementation plan is expected to be released in 2022.<sup>499</sup> The urban water and system strategies for Melbourne are also under review. Melbourne Water, Greater Western Water, South East Water, and Yarra Valley Water are jointly preparing a 50-year strategy for greater Melbourne called *Water for Life*. The final strategy is due to be submitted to the Department of Environment, Land, Water and Planning (DELWP) by the end of March 2022.<sup>500</sup> Barwon Water is also currently reviewing their urban water strategy which is due for release in 2022.<sup>501</sup> DELWP released guidelines to guide the development of urban water strategies which promotes the use of all available sources to support liveability outcomes where the water sources are fit for purpose.<sup>502</sup>



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## Appendix H

# Legislative requirements

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The *Infrastructure Victoria Act 2015* requires certain elements to be included in Victoria's 30-year Infrastructure Strategy. This appendix summarises the approach of Infrastructure Victoria to meet all legislative requirements in preparing this updated strategy.



Requirement	Legislative provision	Approach
Periodically review and update a 30-year infrastructure strategy	32(1)	The tabling of this strategy fulfills the requirement to review and update the 2016 strategy.
Include a statement of social, economic and environmental objectives	33(2)(a)	This strategy includes a list of social, economic and environmental objectives. Each objective's supporting text has been revised since 2016 based on community feedback received from Infrastructure Victoria's consultation on the strategy objectives in 2018. Consideration has also been given to the alignment between the strategy objectives and the United Nations' Sustainable Development Goals.
Include an assessment of the current state of infrastructure in Victoria	33(2)(b)	Throughout the review and updating process, we have gathered information on the current state of infrastructure in Victoria. This information is summarised in Appendix G.  These summaries build on the information from our <i>2016 Infrastructure Capability Assessments and new information from the Australian Infrastructure Audit 2019</i> . They provide an overview of the current state of infrastructure in each sector, including the role and relevance of the Victorian Government in the sector, the challenges and opportunities faced, emerging issues, and forthcoming committed investments in that sector.
Identify Victoria's short, medium, and long-term infrastructure needs and priorities	33(2)(c)	The recommendations identify infrastructure priorities for Victorian Government action, including timeframes for action. The needs, priorities and objectives that each recommendation addresses are explained in the accompanying text. Each recommendation includes a recommended timeframe for completion, reflecting its position as a short, medium or long-term infrastructure priority. The timing of each recommendation is provided in Appendix C.
... based on detailed, objective and quantitative evidence, including land use plans, population projections and economic data	33(2)(c)	Infrastructure Victoria has drawn on multiple sources of objective and quantitative evidence to complete this strategy. We developed <i>Regional Infrastructure Needs and Metropolitan Infrastructure Needs</i> profiles as evidence to underpin our analysis. We used numerous sources including the <i>Plan Melbourne</i> land use plans and Victoria in Future population projections. Infrastructure Victoria has also utilised economic data from resources such as our modelling reports and the Australian Bureau of Statistics.
Assess options available to meet the identified infrastructure needs and priorities	33(2)(d)	Our detailed methodology to developing recommendations has been included in appendix D. This included considering alternative options and using evidence to select the best option to meet infrastructure needs for a given project or sector, as well as to achieve strategy objectives.

Requirement	Legislative provision	Approach
... including new infrastructure projects	33(2)(d)(ii)	Where relevant, we considered demand management, better use, or regulatory reform as potential solutions to meeting strategy objectives.
... consider the balance between investing in new infrastructure and making better use of existing infrastructure	33(2)(d)(iii)	All projects and work consider this balance, and Infrastructure Victoria has reviewed the final list of recommendations before tabling to confirm this balance has been achieved.
Include recommendations regarding specific major projects, policies or reforms	33(2)(e)(i)	This strategy includes 94 recommendations, which include specific projects, policies or reforms as recommended by Infrastructure Victoria.
Include funding options for the specified major projects, policies or reforms	33(2)(e)(ii)	We have developed costings for each recommendation, adding to the information provided in the strategy. We present funding options for major projects, policies or reforms in the final strategy in Appendix C.
Include the level of priority for the specified major projects, policies or reforms	33(2)(e)(iii)	Infrastructure Victoria has only made recommendations for priority projects, policies or reforms. Accompanying timeframes indicate how quickly those actions should be implemented, reflecting their urgency.
Have regard to any current land use, transport or other relevant social, economic or environmental policy in Victoria	33(3)	Infrastructure Victoria has considered multiple relevant social, economic and environmental policies in reviewing the updated strategy. We have included some of the policies we had regard to in Appendix D.
Undertake public consultation on a of the statement of social, economic and environmental objectives	34(a)	Infrastructure Victoria commissioned polling on the strategy objectives in 2018, which have been published on our website. We received further feedback through consultation on the draft strategy.
Undertake public consultation on the strategy	34(b)	Infrastructure Victoria published a draft of this strategy in December 2020. We designed a comprehensive engagement process to facilitate consultation and feedback.
Publish, as far as is reasonably practicable, the evidence and analysis relied upon in preparing the updated strategy	35(5)	We have provided short summaries of the evidence and analysis underpinning each recommendation in accompanying text. Infrastructure Victoria has released, where practicable, underlying reports documenting our evidence.
Infrastructure Victoria must review and update the 30 year infrastructure strategy no less than three years, but no more than five years, after the most recent date on which the strategy is laid before each House of Parliament.	36	The 2016 strategy was tabled in Parliament on 12 December 2016. The tabling of this document has occurred within three to five years of that date.









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