



His Worship the Mayor
Councillors
City of Marion

Notice of Infrastructure Committee

Council Chamber, Council Administration Centre
245 Sturt Road, Sturt

Tuesday, 7 November 2023 at 6.30 pm

The CEO hereby gives Notice pursuant to the provisions under Section 83 of the *Local Government Act 1999* that an Infrastructure Committee will be held.

A copy of the Agenda for this meeting is attached in accordance with Section 83 of the Act.

Meetings of the Council are open to the public and interested members of this community are welcome to attend. Access to the Council Chamber is via the main entrance to the Administration Centre on Sturt Road, Sturt.

A handwritten signature in blue ink, appearing to read "Tony Harrison", is positioned above the printed name.

Tony Harrison
Chief Executive Officer

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1 Open Meeting

2 Kurna Acknowledgement

We acknowledge the Kurna people, the traditional custodians of this land and pay our respects to their elders past and present.

3 Elected Member Declaration of Interest (if any)

4 Confirmation of Minutes

4.1 Confirmation of Minutes of the Infrastructure Committee Meeting held on 5 September 2023

Report Reference	IC231107R4.1
Originating Officer	Business Support Officer – Governance and Council Support – Cassidy Mitchell
Corporate Manager	Manager Office of the Chief Executive – Kate McKenzie
General Manager	Chief Executive Officer – Tony Harrison

RECOMMENDATION

That the minutes of the Infrastructure Committee Meeting held on 5 September 2023 be taken as read and confirmed.

ATTACHMENTS

1. I C 230905 - Final Minutes [4.1.1 - 9 pages]



**Minutes of the Infrastructure Committee
held on Tuesday, 5 September 2023 at 6.30 pm
Council Chamber, Council Administration Centre
245 Sturt Road, Sturt**

**PRESENT**

Mayor Kris Hanna
Councillor Ian Crossland (Chair)
Councillor Matt Taylor
Councillor Jana Mates

Apology

Councillor Amar Singh

In Attendance

Chief Executive Officer - Tony Harrison
Acting General Manager City Services - Angela Allison
Chief Financial Officer - Ray Barnwell
Manager Engineering, Assets and Environment – Mat Allen
Executive Officer to General Manager City Services - Colleen Madsen
Councillor Sarah Luscombe
Councillor Joseph Masika
Environmental Sustainability Partner - Anna Haygreen
Infrastructure Engineer - Daniel Chan
Unit Manager Asset Solutions - Brendon Lyons
Water Resources Coordination - Glynn Ricketts

1 Open Meeting

The Chair opened the meeting at 6.31pm.

2 Kurna Acknowledgement

We acknowledge the Kurna people, the traditional custodians of this land and pay our respects to their elders past and present.

3 Elected Member Declaration of Interest (if any)

The Chair asked if any member wished to disclose an interest in relation to any item being considered at the meeting.

The following interests were disclosed:

- Nil

4 Confirmation of Minutes**4.1 Confirmation of Minutes of the Infrastructure Committee Meeting held on 6 June 2023**

IC230905 - Infrastructure Committee - 5 September 2023



Report Reference	IC230905R4.1
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Moved Councillor Taylor**Seconded Mayor Hanna**

That the minutes of the Infrastructure Committee Meeting held on 6 June 2023 be taken as read and confirmed.

carried**5 Business Arising****5.1 Business Arising Statement - Action Items**

Report Reference	IC230905R5.1
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Moved Mayor Hanna**Seconded Councillor Taylor**

That the Infrastructure Committee:

1. Notes the business arising statement, meeting schedule and upcoming items.

carried**6 Confidential Items - Nil****7 Reports for Discussion****7.1 Community Gardens Policy**

Report Reference	IC230905R7.1
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The Environmental Sustainability Partner, Anna Haygreen presented the draft Community Gardens Policy for feedback prior to the final draft being presented to General Council for endorsement.

The City of Marion currently has 5 community gardens.

Feedback and discussion from the Committee included:

- We have the process right in asking for substantial community interest before initiating a community garden.
- If a requirement is that a group must be incorporated, should we have a model constitution with a small committee? Staff confirmed that the requirement is the group is incorporated themselves or under the umbrella of an incorporated group.
- Discussion on Council's position on a garden requirement to be fenced or unfenced. Staff advised that we do not have a formal position; it is up to the groups to propose what model they want. Planning approval is required for a fenced garden. Current recommendation to



groups with individual plots is to consider fencing as leased plots as they should have access to that produce.

- Under the list of criteria, 'compatibility with surrounding land uses,' the real sensitivity is the adjacent residents, are we able to give this more weight in either the policy or internal procedures?
- Page 72 under site selection and assessment, instead of saying site criteria, could we make it site selection considerations?
- Should Council's pre-selected sites be stated in the policy so that people could consider those prior to going through the process of site selection? The amount of site criteria that people need to address may prohibit them starting a community garden.
- It has become apparent to staff in going through this process that site selection criteria is more about how council assesses the sites. This could be made clearer in the guidelines.
- There was discussion on the challenges we see with each site and whether this new policy foreshadows some of those potential problems and challenges before we install a new site, i.e., signage, fencing etc.? The list under the Site Selection Criteria hopes to reduce those issues such as toilets and storage sheds for the larger gardens.

The chair invited Councillor Luscombe to provide feedback.

- Councillor Luscombe queried whether council could take more of a pro-active approach in pre-selecting suitable sites for community gardens so that people coming to council do not need to address as much of the site criteria, thus reducing the time taken to start up the garden (including community consultation).
- Could council manage more community gardens? The committee commented that if the garden is community initiated, the community will have more sense of ownership and we would need to consider the risks and financial implications if council managed.
- Are there opportunities to link up with playgrounds, irrigations, neighbourhood centres etc. as we develop our reserves, we are possibly reducing potential future sites.
- The Committee queried whether the new policy and procedures will reduce the time taken to establish the gardens. In response, staff advised that the intent of the policy has not changed. Although no changes have been made to the procedure they can be changed. There is no simple way to fast track the garden set up, it depends on the individual group and the site, however the comments regarding earlier community engagement will be considered.
- Staff are identifying potential sites, in conjunction with the Open Space Review.

The chair invited Members to email any further comments on the policy through to staff.

Next steps Policy will come to Council at the October meeting.

Staff clarified that only the policy not guidelines are going to Council, however they will be updated following feedback.



Moved Councillor Taylor

Seconded Councillor Mates

That the Infrastructure Committee:

1. Provides feedback on the Community Gardens Policy (Attachment 1).
2. Subject to the inclusion of feedback in this meeting, recommends that the draft Community Gardens Policy is referred to General Council for endorsement.

carried

7.2 Footpath Strategic Review

Report Reference IC230905R7.2

The Manager Engineering, Assets and Environmental Sustainability, Mat Allen introduced Infrastructure Engineer, Daniel Chan who provided the Committee with a background of footpath management strategies relating to new footpath creation and provided options for strategic improvement.

Discussion from staff included:

- The main focus for tonight's meeting is driver 1. One footpath per road, and 2. Customer requests.
- Construction price increases from the tender schedules and for specific asset classes have increased between 15-30%.
- With the increased demands on budgets, how would we manage the increase in construction costs while maintaining our service levels?
- We need to consider refinement of current footpath strategies.
- Site constraints have inflated the cost of construction on some roads.
- Are we achieving value for money and are these assets critical, what is the risk for Council?
- Would Council like to set minimum and maximum services level?
- Is a Footpath Policy an item Council would consider, to provide consistency and transparency?

Discussion from the Committee included:

- Confirmed that \$710k per year is for new footpaths not renewal.
- Legislation does not state that we must provide any footpaths, however if we are putting in a footpath, the disability act states it should be at least 1.2 meters.
- If we went to have a policy to provide 1 footpath per street as a standard, when a renewal comes up would it be within the council's right to consider removing one of the footpaths if it was not required. Staff commented that community consultation would need to be considered.
- In a Policy, the type of language used needs to be considered.

IC230905 - Infrastructure Committee - 5 September 2023



- As we have virtually achieved the target of 1 footpath per street, why do we continue to have the same budget per year? Is it possible to see a reduction of 5% each year?
- A survey of cul-de-sacs indicated many residents did not want a footpath. An exception was if it is a way to the train station etc. That is a completely acceptable service standard.
- New developments where their gardens extend to the gutter, consideration should be given to exempting those streets from the 1 footpath policy.
- Like the idea of 1 footpath is enough policy at least for public consultation to determine the response.
- Include in the policy that the argument from residents 'because other streets have 2 footpaths, they should also have two footpaths', is not a valid argument.
- Include in the policy that if there has been community consultation where the community has said no, or not exceeding 50%, that there is a 10-year freeze on going out to consultation again.
- Confusion with some of the language and intent. Need to be clear and not subject to interpretation when used in the Policy.
- Governance and a clear strategy on what we can roll out. Setting expectations for our residents will help steer what we do in the future.
- Make it easier to approve/disapprove.
- If it is clearly stated in the policy and the information easily found, a service standard could consider that low traffic areas have 1 footpath maintained and the other side of the road reevaluated for potential uses.
- How would this policy link into the walking and cycling strategy? If saying no to the second footpath, will we be reducing access to the community and limiting those with mobility issues? Staff advised the walking and cycling guidelines is aimed more at the wider community and linking shared use paths and connectivity with train stations etc. The footpath policy is not aimed at inclusivity as such, but more to give residents value for money.
- How do we respond to disability access? Staff advised that the general response is that unfortunately a footpath may not be considered due to financial restraints and usage. It is a difficult question as we want to be inclusive, but it is important for the council to consider a balance for sustainability.

The chair invited Councillor Masika to provide feedback.

- Councillor Masika asked if the number of vehicles per day outlined in the presentation (3,000 per day) is provided by the Department of Infrastructure and Transport (DIT) or City of Marion? Staff responded that there is not a specific standard from DIT, the figure has been taken from other councils that have adopted that figure. This also aligns with our road hierarchy.
- The chair supported a policy which saves staff revisiting problems, providing criteria for when a 2nd footpath is considered.



7

- As with all policies, if a Council Member wishes to help a resident with a disability and the needs are greater than the majority they can come to Council with a Motion with Notice.

Moved Mayor Hanna

Seconded Councillor Taylor

That the Infrastructure Committee:

1. Notes the report and provides feedback on the Footpath Strategic Review presentation.

carried

7.3 Draft Asset Management Strategy 2023-2033

Report Reference IC230905R7.3

Unit Manager Asset Solutions, Brendon Lyons presented the Draft Asset Management Strategy 2023-2033 and the Community Engagement Plan for Committee feedback.

The Asset Management Strategy forms part of Council's Strategic Management Framework and designed to enable Council's Asset Management Policy.

The chair advised that the report will be taken as read and invited comments from the Committee.

Councillor Mates noted there is no mention of the value of our assets and could that be included at the beginning of the Strategy.

The chair invited Members to provide any additional feedback to staff.

Moved Mayor Hanna

Seconded Councillor Mates

That the Infrastructure Committee:

1. Notes and provides feedback on the draft Asset Management Strategy 2023-2033 (Attachment 1) and the Community Engagement Plan (Attachment 2).
2. Recommends the draft Asset Management Strategy 2023 –2023 and the Community Engagement Plan (with associated feedback addressed) is presented to the General Council Meeting on 12 September 2023 for consideration.

carried

8 Reports for Noting



8.1 Marion Water Project Update

Report Reference IC230905R8.1

The Water Resources Coordinator, Glynn Ricketts, provided the Committee with an update on the progress of Marion Water's current distribution project.

Marion Water is the name given to the water scheme in City of Marion, which is a public facing business, and we have progressed from just servicing our water needs to also supplying water to third parties. It is a financially self-sustained business unit and we have spent the last twelve months improving governance.

The main topic covered in the update was the distribution network extension project, including the location and pipe construction, and the electrical and mechanical contract, the injection and extraction well, the project timeline and budget and the Marion Water Structure.

Discussion by the Committee included:

- Should council consider extending this pipeline in the future, are we easily able to do a cost benefit analysis on where it is going and what the payback would be? Staff advised that we have future proofed the sites, pipes, pressure, and flow for extension such as the golf club, the Villawood land division, additional pipelines to our sports clubs on Majors Road and further north from Oaklands Wetland.
- It was noted the graph in attachment 8.1.1 on total water usage across CoM shows the SA Water usage and the Committee queried whether it is possible to show the increased usage of Oaklands water. Staff advised the green line shown on the graph is what we injected in the winter and orange is what we extracted in the summer.
- Staff will re-do the graph to make the water usage clearer.
- Comment made on the Marion Water Business was that it is an exciting project, having a business that will be self-funding in the long term and not having the reliance on SA water, that also the Water Business has a lot of scope for improvement.

Moved Councillor Taylor

Seconded Councillor Mates

That the Infrastructure Committee:

1. Notes the Reports and provides feedback on the progress of the distribution network extension project.

carried

9 Workshop / Presentation Items - Nil

10 Other Business



11 Meeting Closure

The meeting shall conclude on or before 8.00pm unless there is a specific motion adopted at the meeting to continue beyond that time.

The meeting was declared closed at 8.00pm

CONFIRMED THIS 7 DAY OF NOVEMBER 2023

CHAIRPERSON

5 Business Arising

5.1 Business Arising Statement - Action Items

Report Reference	IC231107R5.1
Originating Officer	Executive Officer to the General Manager City Services – Colleen Madsen
Corporate Manager	N/A
General Manager	General Manager City Services – Ben Keen

REPORT OBJECTIVE

The purpose of this report is to review the business arising from previous meetings of the Infrastructure Committee meetings, the meeting schedule and upcoming items.

RECOMMENDATION

That the Infrastructure Committee:

- 1. Notes the business arising statement, meeting schedule and upcoming items.**

ATTACHMENTS

1. IC231107 Business Arising as at 07 November 2023 [**5.1.1** - 1 page]
2. IC231107 Schedule of Upcoming Items 2023 [**5.1.2** - 2 pages]

**CITY OF MARION
BUSINESS ARISING INFRASTRUCTURE COMMITTEE MEETINGS****AS AT 07 NOVEMBER 2023** 

Meeting Date	Document	Item No.	Item	Action Required	Assignee/s	Action Taken	Status
				No items for this month			

* Completed items to be removed are shaded

Infrastructure Committee – 2023 Draft schedule of upcoming items

Infrastructure Committee		Date: Tuesday, 07 February	Time: 6.30pm – 8.00pm	Venue: Chamber	
Topic	Type of Report	Description	External Attendees	Staff Responsible	
Business Arising		Business arising from previous meetings, the meeting schedule, and upcoming items		C Madsen	
Workshop agenda 2023					

Infrastructure Committee		Date: Tuesday, 4 April	Time: 6.30pm – 8.00pm	Venue: Chamber	
Topic	Type of Report	Description	External Attendees	Staff Responsible	
Business Arising		Business arising from previous meetings, the meeting schedule, and upcoming items		C Madsen	
Parking controls in residential streets				C Lundborg	
Community Centres		Review of current utilisation, an opportunity for the Committee to raise questions for administration to report back at a future meeting		M Fyfe	
Open Space Matrix		Irrigation matrix, service levels, biodiversity, pocket parks etc.		R Deans G Ricketts	
Finalise the 2023 Schedule of Upcoming Items		Topics workshopped at the 7 February meeting to be provided		C Madsen	

Infrastructure Committee		Date: Tuesday, 6 June	Time: 6.30pm – 8.00pm	Venue: Chamber	
Topic	Type of Report	Description	External Attendees	Staff Responsible	
Business Arising		Business arising from previous meetings, the meeting schedule, and upcoming items		C Madsen	
Stormwater Management				A Dorn C Lundborg	

Infrastructure Committee – 2023 Draft schedule of upcoming items

Infrastructure Committee		Date: Tuesday, 5 September	Time: 6.30pm – 8.00pm	Venue: Chamber	
Topic	Type of Report	Description	External Attendees	Staff Responsible	
Business Arising		Business arising from previous meetings, the meeting schedule, and upcoming items		C Madsen	
Community Gardens Policy		Referred from FORUM230407		A Haygreen	
Footpath Strategic Review				D Chan	
Marion Water Project Update				G Ricketts	
Draft Asset Management Plan 2023-2033 for Community Consultation				B Lyons	

Infrastructure Committee		Date: Tuesday, 07 November	Time: 6.30pm - 8:00pm	Venue: Chamber	
Topic	Type of Report	Description	External Attendees	Staff Responsible	
Business Arising		Business arising from previous meetings, the meeting schedule, and upcoming items		C Madsen	
Civil Service Review				B Green	
Committee 'Year in Review'				M Allen	
Drainage – change in methodology	Info			D Eatts	
South Australia's 20 Year Infrastructure Strategy - Feedback				C Lundborg	

6 Confidential Items - Nil

7 Reports for Discussion

7.1 Civil Service Review

Report Reference	IC231107R7.1
Originating Officer	Manager Operations – Brian Green
Corporate Manager	- N/A
General Manager	General Manager City Services - Ben Keen

REPORT OBJECTIVE

To provide an update on the progress, status and future focus areas and direction of the Civil Services Business Unit (CSBU) Review.

EXECUTIVE SUMMARY

The CSBU Review commenced in December 2021, with time and motion studies on the various activities undertaken by the Civil Services team. In August 2022, the Executive Leadership Team (ELT) approved a proposed new structure for the Civil Services team, creation of new roles and an implementation transition plan.

Since this time, various elements of the transition plan have been progressively implemented including workplace consultation, change in operating model and the introduction of the new organisational structure.

Throughout this transition process the CSBU has continued to safely deliver the annual operational and capital works programs.

Implementation of change is continuing, and since May 2023 transition activities have been accelerated with the aim of CSBU Review operating model being fully implemented and the changed work practices being Business as Usual by December 2024.

RECOMMENDATION

That the Infrastructure Committee:

It is recommended that Infrastructure Committee notes:

1. Progress and status of the CSBU Review.
2. Key change management activities that are continuing to be implemented including appointment of leadership positions and vacant team member roles, rotational Work Group Leaders, Skills Gap Training, Visual Management, Operational Key Performance Indicators (KPI) and Commercial Fleet Change-over.
3. Focus Areas for continued improvement.

ATTACHMENTS

1. Infrastructure Committee Meeting Civil Services Review [7.1.1 - 11 pages]

Infrastructure Committee Meeting



CIVIL SERVICES REVIEW

Journey so far...

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Journey so far...



DECEMBER 2021

- Civil Service Review commenced using time and motion studies

MARCH 2022

- Civil Team Workshop
- Time & Motion Studies including Drainage, Concreting, Paving & Road Re-Sealing
- Review of Leadership capability

JULY 2022

- New Civil Services Organisational consultation
- Leadership training commenced
- Redeployed 7 staff (Open Spaces, Operational Support, Records)

SEPTEMBER 2022

- Civil Services Organisational consultation
- Organisation changes commenced
- Fleet rationalisation commenced

MAY 2023

- Fleet Rationalisation revisited
- Civil Services organisation structure reviewed
- Civil Services Skills Gap Analysis
- Benchmarked Internal v External Base Rates

JUNE 2023

- Successfully delivered 2022/23 Work Plan
- 2023/24 Work Plan Developed
- 2023/24 Budget Confirmed
- Fleet Ownership transferred to Operations

Journey so far...



JULY 2023 ONWARDS

- Civil Service Team Meeting
- Seconded Open Spaces Field Supervisor
- Advertise and fill vacant Positions (Target of December 2023)
 - Civil Services Team members x 6
 - Project Manager – Civil x 1
 - Field Supervisor x 1
 - Coordinator Civil Services x 1
- Introduced New Visual Management Board
- Introduced Operational KPI Display
- Introduce Rotational Work Group Leaders
- Skill Gap Training – progressing
- Introduced Operations H&S Meeting
- Commercial Fleet Change-over - commenced
- Introduce Work Management System (Work Orders) – January 2024

FOCUS AREAS

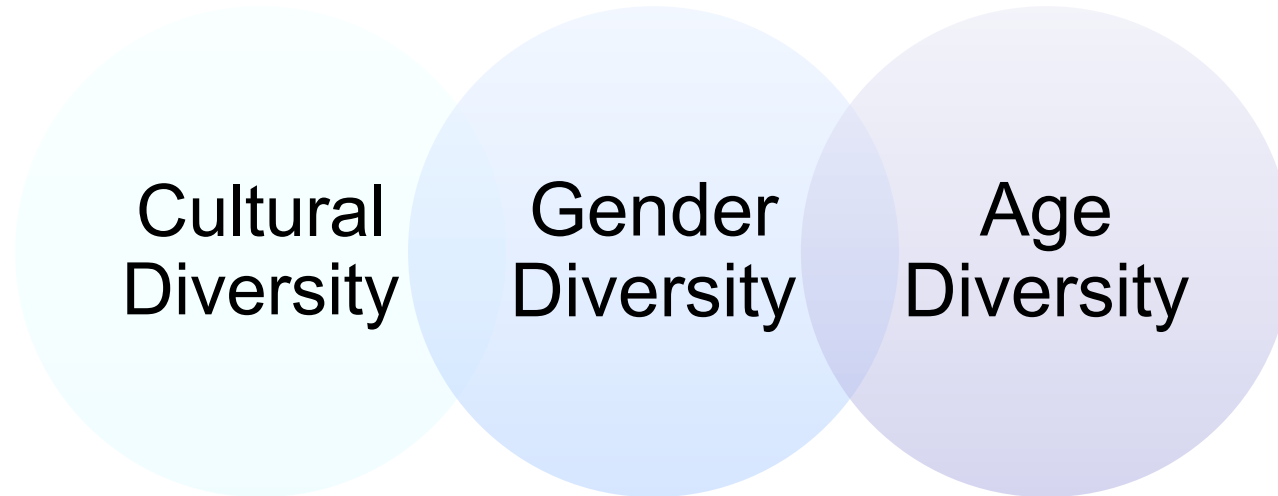
- Community / Customer
- Employee Engagement
- Leader Led Safety, Safe Working Behaviours, Training & Competancies
- Operational WHS (Fit for Work) and Toolbox meetings
- Work Plan Delivery / Budget / Productivity
- Leadership & Project / Contract Management
- Recognition & Celebration of Success

DECEMBER 2024

- Civil Services Review - Business as Usual

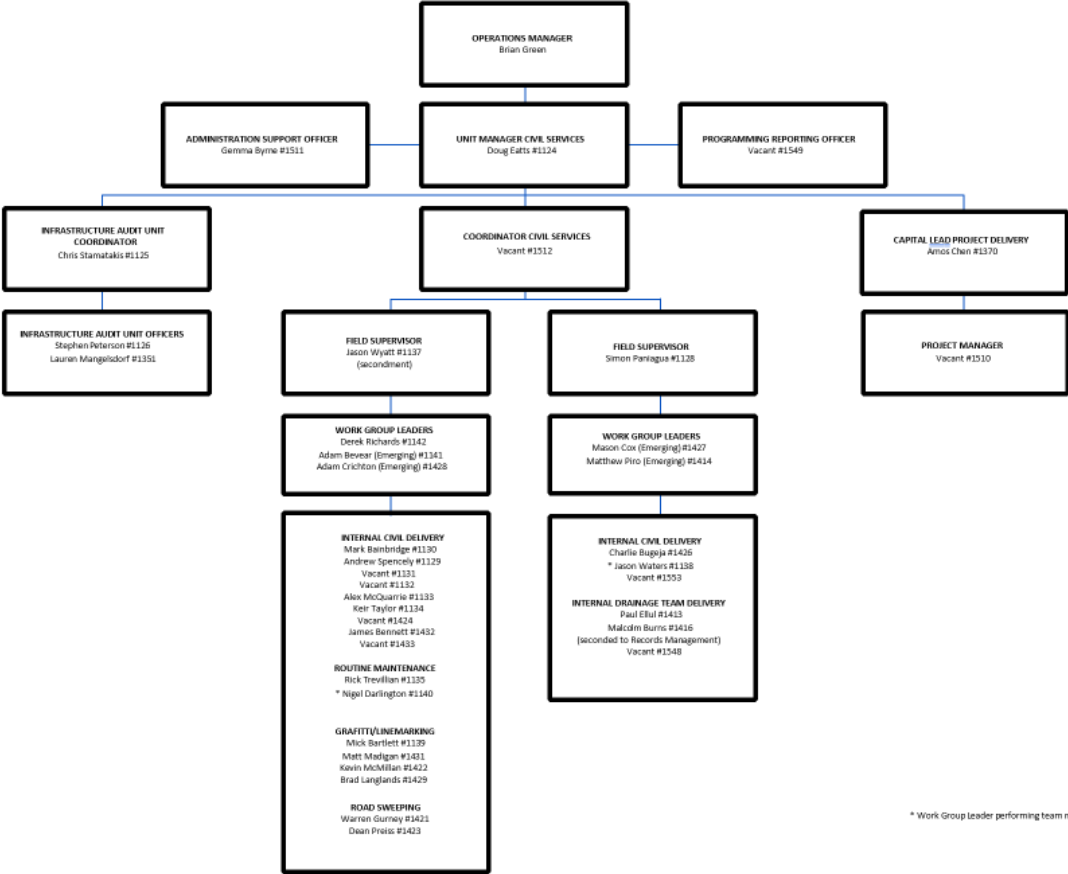


Diversity within the team



- Introducing female field staff
- Cultural awareness and Indigenous training
- Introduced emerging leaders into rotational work group leader positions
- Recruited early career Civil Services team members
- Average age of Civil Services field staff reduced from 56 to 49 years of age

Organisational Structure



* Work Group Leader performing team member duties

Visual Management Board



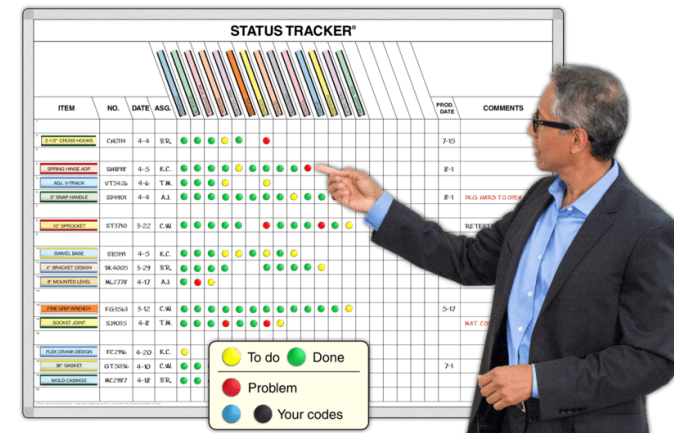
Update existing VM whiteboard to e-whiteboard. Toggle between displays including:

- Annual Workplan
- Daily Work Plans
- Fortnightly / Monthly Lookahead

Plus:

- Civil Services Morning sign-on via QR code
- Safety moment, reminders and safety issues
- Available crew planning and details of job / progress
- Access to SOPs, SWMS ...
- Weather forecast
- Annual leave plan
- Plant availability / maintenance

Operational Key Performance Indicators Display



Key Performance Indicators



Customer Requests
(CRM)



Employee
Engagement
(Teamgage)



Safety (Skytrust)



Civil Services Work
Area Plan
(Sharepoint)



Capital Works Report:
High level summary
(Sharepoint)



Budget / Productivity
(Financial Force)



Trees (Forestreet) –
Open Spaces Work
Plan



Hard Rubbish
(Financial Force)



Vehicle Utilisation
(Netstar)

Customer Requests (CRM)



Civil Services (excluding Infrastructure Audit Unit)

- Increased Customer Service Focus
- Reduced Number of Cases on Hold
- Reduced Overdue Cases

CRM Cases	June 2023	October 2023
Opened	395	230
On Hold	18	23
Overdue	265	46



Engagement: Teamgage Comparison



April 2023



- Improved Leadership
- Improved Communications
- Improving Team Morale
- Increasing Participation
- Increasing Teamgage Score

June 2023



October 2023



Celebrating Success



Breakout Creek Shared User Path

- 2,460m² prep and asphalt works
- faced with multiple challenges with tree roots



Thorne/Lutana Walkway Upgrade

- narrow walkway
- 204m² of preparation and paving
- crews encountered several issues with plant size and disturbances due to residents



George Court Drainage Upgrade

- 47.2m reinforced 525mm concrete piping
- 3.5m deep trench
- Working in close proximity to live gas and electrical services



Le Cornu Avenue Road Remediation

- rectify soft spot before undertaking road reseal working in conjunction with Downer.
- remediate existing road materials and compact to meet 25 year road standard

CITY OF MARION



**BROAD HORIZONS
BRIGHT FUTURE**

marion.sa.gov.au

7.2 South Australia's 20 Year Infrastructure Strategy - Feedback

Report Reference	IC231107R7.2
Originating Officer	Unit Manager Engineering – Carl Lundborg
Corporate Manager	Manager Engineering, Assets and Environment - Mathew Allen
General Manager	General Manager City Services - Ben Keen

REPORT OBJECTIVE

This report seeks the Infrastructure Committee to provide feedback on the South Australian 20 Year Infrastructure Strategy consultation.

RECOMMENDATION

That the Infrastructure Committee:

1. **Provides feedback on the South Australian 20 Year Infrastructure Strategy Discussion Paper.**
2. **Supports staff to submit the Infrastructure Committee feedback to Infrastructure SA.**

BACKGROUND

Infrastructure SA is an independent South Australian Government agency that provides advice on the coordination, planning, prioritisation, delivery, and operation of infrastructure.

Under the *Infrastructure SA Act*, Infrastructure SA must prepare a 20 Year State Infrastructure Strategy and review it every 5 years. The strategy assesses state-wide infrastructure needs as well as strategic goals and priorities to 2045.

To inform the strategy, the state government have developed a Discussion Paper for feedback (Attachment 1).

The Discussion Paper covers the context of the state economy along with trends, evidence, and data on state infrastructure. It also covers the key issues and challenges that face infrastructure in South Australia.

The new 20 Year State Infrastructure Strategy will provide expert, independent advice to the South Australian Government on future strategic infrastructure needs. It will support Government to prioritise infrastructure spending, ensuring it is aligned to economic growth, while balancing social and environmental objectives.

DISCUSSION

Infrastructure is central to economic prosperity and the liveability of our State. It is the backbone of a productive economy, and it impacts and shapes every aspect of our day to day lives.

Infrastructure is diverse - it includes roads, rail, ports, housing, and facilities associated with health, culture, sports, tourism, education, energy, water, and waste utilities. It also includes digital connectivity infrastructure and other physical assets that can act as enablers for industry and other sectors of the economy.

Infrastructure SA welcomes submissions to inform the development of the Strategy; submissions must be received by 13 November 2023.

The Committee is invited to provide feedback and responses to the below questions to help inform a submission.

There are several questions that are not applicable to Local Government, the questions relating to Local Government are highlighted in **bold**.

Questions for City of Marion to consider for the feedback submission:

1. **What opportunities should we consider to improve South Australia's economic growth?**
2. What infrastructure constraints are preventing a more efficient, accessible, and productive freight sector?
3. **How can we enable a sustainable and affordable water supply into the future?**
4. How do we realise the opportunities and mitigate risks with transforming our transmission and distribution infrastructure for the future?
5. What are the barriers to increased adoption of digital technology to improve productivity?
6. What investments could unlock the value of South Australia's resources?
7. **How can South Australia better coordinate infrastructure investment to support a growing population?**
8. **What can be done to support sufficient, fit-for-purpose housing to improve housing affordability?**
9. **How can we improve public transport services across Adelaide and outer metropolitan areas to encourage greater patronage?**
10. What investments would support a more efficient and productive health system that meets our growing and changing needs?
11. How can infrastructure support improved education and skills outcomes for South Australia?
12. **How can we sustainably grow these sectors to realise greater benefits for visitors and residents?**
13. **How can we think differently about infrastructure investment to support equitable access and a more inclusive society?**
14. **What are the opportunities for infrastructure investment to accelerate attainment of the Closing the Gap targets?**
15. **What infrastructure investments will support industries to transition to a global net zero future?**
16. How do we maintain an affordable, reliable, and secure energy system through the energy transition?
17. What are the most significant challenges for decarbonising transport and how do we address them?
18. **What action is needed to achieve a circular economy in South Australia?**
19. **What measures can be taken to enable the infrastructure industry to decarbonise?**
20. **How do we better account for the impacts of climate change in our infrastructure, to support improved resilience?**
21. **What are the critical resilience issues that South Australia needs to address?**
22. **How can we better realise the resilience benefits of green and blue infrastructure to inform infrastructure planning?**

23. How can government and industry work together to support the supply of skilled labour needed to deliver a transparent infrastructure pipeline?
24. **How can we maximise the productivity benefits of digitising our infrastructure?**
25. **How can government continue to encourage collaboration and innovation in procurement?**
26. What are the funding and financing options government should consider in future, to ensure its infrastructure program remains affordable and sustainable?

ATTACHMENTS

1. South Australia's 20-Year State Infrastructure Strategy - Discussion Paper [7.2.1 - 64 pages]



South Australia's 20-Year
State Infrastructure Strategy

Discussion Paper

October 2023

infrastructure.sa.gov.au

Acknowledgement of Country

We acknowledge and respect the First Peoples of this land and their deep ongoing spiritual and cultural connection to Country.

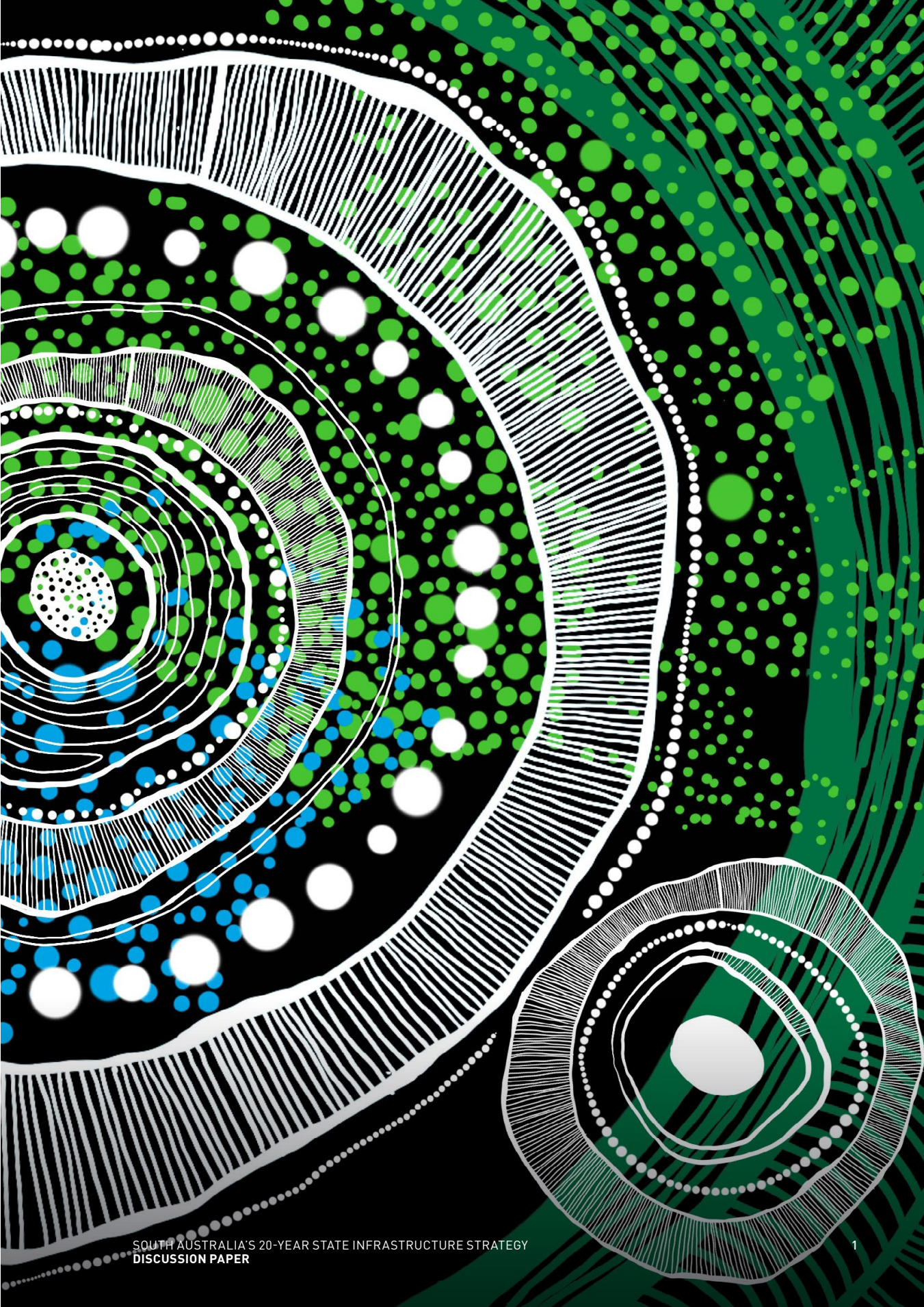
We will work together with our First Nations people to share our collective knowledge and recognise the enduring impact of infrastructure on Country.

Cover image: Adelaide Entertainment Centre Tram Stop
Image courtesy of Department for Infrastructure and Transport

Image this page:
Artwork created for Infrastructure SA by Eastern Arrernte artist Patrick Caruso. Patrick is the founder of We Create Print Deliver, a South Australian based advertising and business agency.

The artwork represents Infrastructure SA and our people, knowledge and skills, the projects and communities impacted by our work and the people travelling through the landscape via the work that we do.

SOUTH AUSTRALIA'S 20-YEAR STATE INFRASTRUCTURE STRATEGY
DISCUSSION PAPER



SOUTH AUSTRALIA'S 20-YEAR STATE INFRASTRUCTURE STRATEGY
DISCUSSION PAPER

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Foreword by Chair



This Discussion Paper presents an opportunity for South Australians to engage with us on the infrastructure we need for the next 20 years, to support a growing economy that improves the prosperity of all South Australians.

Infrastructure SA was established in 2018 and in its first five years of operation has demonstrated value as an independent advisor to Government. Infrastructure SA provides an external review of all major infrastructure projects and a view on which infrastructure projects should be prioritised, through the annual Capital Intentions Statement.

Developing a 20-year Infrastructure Strategy is a key part of Infrastructure SA's responsibilities. The Strategy will inform future decisions on infrastructure by assessing the needs, strategic goals and priorities for infrastructure for the next 20 years.

Infrastructure SA presented its first Strategy to the Government of South Australia in May 2020. The Strategy identified 38 priorities to guide government policy and investment in infrastructure. A key priority identified at the time was the investigation of water infrastructure to unlock economic opportunities, which led to the creation of the Northern Water Supply Project. Infrastructure SA has leveraged its expertise in infrastructure planning to lead delivery of a business case, with a final investment decision expected in 2024.

Infrastructure SA is required to review the Strategy every five years and is now in the early stages of preparing its next Strategy. It is a timely opportunity to consider how our infrastructure needs have evolved given the landscape has changed significantly, with the COVID-19 pandemic, the transition to net zero and increasing digitalisation impacting the way we think about, plan for, and use our infrastructure.

Since the release of our last Discussion Paper in 2019, our infrastructure spend has grown substantially. Over the next four years we will see an estimated spend of \$21 billion, an increase of \$9.1 billion. This program of investment includes expenditure on flagship projects like the new Women's and Children's Hospital and the Torrens to Darlington section of the North-South Corridor. In addition, the previously announced Hydrogen Jobs Plan is progressing, supporting the creation of a green hydrogen industry and demonstrating South Australia's leadership in renewables and hydrogen.

However, our funds are not unlimited. An increase in net debt is forecast, while general government sector revenue growth remains flat in real terms over the forward estimates. Given these fiscal constraints, it's more important than ever that we maximise the value of our existing assets and continue to support evidence-based prioritisation of infrastructure needs.

Infrastructure SA sees real opportunities to improve our productivity and grow our economy. Economic growth is essential to the prosperity and wellbeing of all South Australians. We have a small population and market size, so our growth must be in national and international exports and import replacement.

We also need to diversify our economy, expanding on the strength of our agricultural and resource exports and moving up the value chain to deliver more complex products. This will deliver the revenue needed to continue our investment in infrastructure to achieve an economy that is smart, sustainable and inclusive.

To support our economic growth, we will need to carefully plan for and coordinate the delivery of infrastructure and do more to attract, train and retain skilled people. We also need to think differently about how we make South Australia a vibrant and liveable place that becomes a destination of first choice for interstate and overseas migration.

This Discussion Paper is foundational to the development of our next Strategy. It provides an overview of the key infrastructure opportunities and challenges faced by South Australia. We encourage industry and the community to think about what we want the South Australia of the future to look like when responding to this Paper.

I hope this Discussion Paper generates fresh ideas and I encourage you to contribute your knowledge and insights to assist Infrastructure SA develop our next 20-year State Infrastructure Strategy.



Anthony F Shepherd, AO
Chair of Infrastructure SA



It's more important than ever that we maximise the value of our existing assets and continue to support evidence-based prioritisation of infrastructure needs.

1. Context

1.1 About Infrastructure SA

Infrastructure SA was established and operates under the *Infrastructure SA Act 2018* (SA) (the Act) to serve as an independent advisory and assurance body in relation to major infrastructure projects in South Australia. It is governed by an independent Board, with both public and private sector expertise, and reports directly to the Premier of South Australia.

Section 5(1) of the *Infrastructure SA Act 2018* (SA) defines the objects of Infrastructure SA as:

- a. to promote such efficient, effective and timely coordination, planning, prioritisation, delivery and operation of infrastructure as is necessary for the economic, social or environmental benefit of the State and
- b. to promote the adoption and use of policies, practices, information and analysis to support sound decision-making in relation to infrastructure.

Infrastructure SA has four core deliverables, consistent with the Act:

- issuing a **20-Year State Infrastructure Strategy** and updating it at least every five years (the subject of this Discussion Paper)
- providing **project monitoring** as independent assurance for projects and programs with a capital value of \$50 million or more
- preparing an annual **Capital Intentions Statement** that represents Infrastructure SA's views on priority infrastructure initiatives
- providing **strategic advice** to the Premier of South Australia as needed.

Infrastructure SA's vision is that efficient and evidence-based infrastructure planning and delivery will grow the economy, create jobs and improve liveability for all South Australians.

You can find out more about Infrastructure SA at our website www.infrastructure.sa.gov.au.

1.2 Defining infrastructure

Infrastructure SA uses the following broad definition of infrastructure.

Infrastructure is the physical assets and structures that enable the services necessary to sustain or enhance the economy and liveability of South Australia.

This includes roads, rail, ports, housing, and facilities associated with health, culture, sports, tourism, education, energy, water and waste utilities. It also includes digital connectivity infrastructure and other physical assets that can act as enablers for industry and other sectors of the economy.

1.3 South Australia's 20-Year State Infrastructure Strategy

Infrastructure SA delivered its first 20-Year State Infrastructure Strategy in May 2020.¹ We are now developing the next 20-Year State Infrastructure Strategy (the Strategy) which will:

- focus on economic growth, aligned with the South Australian Economic Statement²
- identify the challenges and opportunities for providing and managing infrastructure
- consider how we can maximise the value of the State's existing assets
- identify requirements for new infrastructure, and the policy changes or other reforms that can help drive economic growth through an infrastructure lens
- recommend future priorities to ensure the State has the infrastructure needed to grow the economy, create jobs, and improve the liveability and sustainability of South Australia.

The new Strategy will replace the 2020 Strategy and will be available online.

1.4 How to read this Discussion Paper

This Discussion Paper has been developed to provide context and facilitate feedback to inform the new Strategy. To provide the context, this Discussion Paper:

- outlines the role of Infrastructure SA
- discusses megatrends which are likely to influence infrastructure over the next 20 years
- describes the vision for the Strategy and sets six objectives to reach that vision
- discusses the current economic context.

To facilitate feedback, each of the six objectives are discussed further in individual chapters. Each chapter raises key issues related to the objective. A targeted consultation question is provided at the end of each key issue to provoke your thoughts and ideas for feedback.

It is noted that many of the key issues are relevant across multiple objectives, and some of the objectives overlap. When providing feedback and responding to the questions, you are welcome to raise issues where you see the best fit.

1.5 You are invited to participate

This Discussion Paper is the primary means of contributing your insights and knowledge to inform the new Strategy. Infrastructure SA is keen to understand the needs and views of different communities, sectors and regions to shape the direction of the Strategy, aligned with the vision of a smart, sustainable and inclusive economy.

We welcome submissions from anyone who would like to inform this process. Submissions can range from a simple letter to a more substantial document. Where possible, each submission should include evidence, such as relevant data, documentation or references to support your views. This approach is consistent with the Act, which requires Infrastructure SA to invite submissions to the Strategy and consider relevant information provided.

For further information on making a submission please refer to Chapter 12 How to make a submission to Infrastructure SA.

2. Megatrends impacting infrastructure in South Australia

Given the long-term nature of the Strategy and the rapid pace of change, Infrastructure SA has partnered with the Foresight Unit in the Government of South Australia's Department of the Premier and Cabinet to identify global megatrends relevant to infrastructure for South Australia over the next 20 years. These are the trends identified today that are likely to impact infrastructure delivery in the future.

Strategic foresight and the identification of megatrends is useful to frame thinking about the future, explore

potential scenarios and plan for the unexpected. Exploring the impact of megatrends on our strategic infrastructure requirements helps ensure the Strategy remains relevant in many future scenarios. The megatrends present both opportunities and challenges for South Australia.

The megatrends identified as the most relevant to South Australia and the new Strategy are outlined in Figure 1. The impacts of these on infrastructure are explored throughout this Discussion Paper.

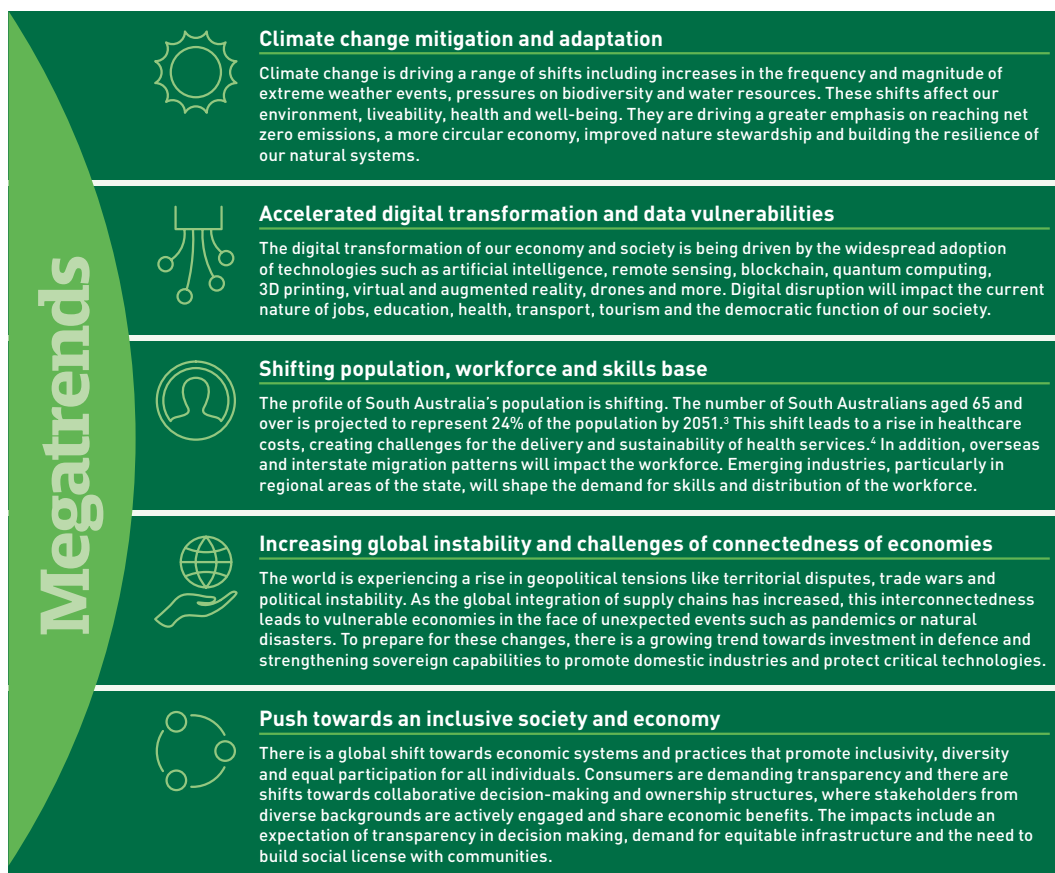


Figure 1:
Megatrends identified as impacting infrastructure in South Australia

3. Growing the economy with infrastructure

3.1 The vision

The South Australian Economic Statement⁵ has a vision to support economic growth and prosperity. Infrastructure SA has applied this vision to set the direction for the new Strategy.

An economy that is fit for the future, improving the wellbeing of all South Australians. An economy that is smart, sustainable and inclusive.

South Australian Economic Statement 2023

The Strategy seeks to identify the infrastructure necessary to meet this vision and acknowledges the need to balance social, environmental and economic outcomes.

3.2 The objectives

Aligned with the vision, Infrastructure SA has identified six key strategic objectives we are seeking to achieve through the new Strategy. These objectives have been developed with consideration of the analysis of megatrends (Chapter 2) and current and future opportunities and challenges in infrastructure across South Australia, Australia and globally.



1. Enabling infrastructure unlocks higher productivity and economic growth to improve our living standards



2. Liveable and well-planned places attract skilled people, support a growing population and create prosperous communities



3. Accessible and inclusive infrastructure supports social inclusion and economic participation



4. Infrastructure supports a decarbonised, sustainable economy that capitalises on our competitive advantages and opportunities



5. Improved resilience to shocks and events helps avoid or respond to disruptions that impact our economy, services and supply chains



6. A stronger infrastructure industry optimises our infrastructure investment through better planning and prioritisation

4. The economic context

The megatrends discussed in Chapter 2 will shape the way we plan for infrastructure over the next 20 years. As a foundation for our future infrastructure needs, this chapter summarises the current economic environment.

4.1 Global economy

Global economic conditions remain challenging in the wake of COVID-19 and Russia's invasion of Ukraine. The compounding effects of these crises – including congested supply chains and scarce energy – have resulted in very high inflation and, consequently, a strong response from central banks worldwide.

According to the Organisation for Economic Co-operation and Development (OECD), global economic growth in 2023 is projected to be 2.7%, the lowest annual rate since the global financial crisis (excluding the 2020 pandemic period).⁶ A slight improvement to 3% is expected in 2024, based on analysis undertaken for the Federal Budget (Table 1).⁷

Table 1:
Global economic growth forecasts from the Federal Budget 2023–24²¹

	Outcome	Forecasts (Calendar Years)		
	2022	2023	2024	2025
China	3.0	5 ¾	4 ½	4 ½
India	6.7	5 ½	6 ¼	6 ¾
Japan	1.0	1 ¼	¾	1
United States	2.1	1	¾	2 ¼
Euro area	3.5	½	1	1 ¾
United Kingdom	4.1	-½	½	2 ¼
Other East Asia	4.4	3 ¼	4	4 ¼
Major trading partners	3.0	3 ¼	3 ¼	3 ½
World	3.4	2 ¾	3	3 ½

World and Other East Asia growth rates are calculated using gross domestic product (GDP) weights based on purchasing power parity (PPP). Growth rates for major trading partners are calculated using Australian goods and services export trade weights. Other East Asia comprises Indonesia, Malaysia, the Philippines, Thailand, Vietnam and Singapore, along with Hong Kong, South Korea and Taiwan.

Despite the current circumstances, many countries are forging ahead with climate change action. The United States has introduced the *Inflation Reduction Act (2023)* which provides significant federal funding to lower greenhouse gas emissions, with requirements for domestic content or procurement from countries with which the United States has a free trade agreement⁸ – including Australia, presenting a significant opportunity.

4.2 Australia's economy

Australia has not escaped the impacts of these challenging global economic conditions. Economic growth has slowed, with gross domestic product (GDP) only increasing by 0.2% in the March 2023 quarter.⁹ GDP per capita, a measure of the standard of living, has lagged headline GDP growth and went backwards in the March 2023 quarter.¹⁰

The Reserve Bank of Australia (RBA) expects GDP growth to slow to 1.3% in 2023–24 in line with weakening global conditions and domestic cost-of-living pressures, before picking up to 2.0% in 2024–25.¹¹ However, there are key domestic uncertainties that may result in different outcomes, including the uncertain outlook for China and domestic consumption being affected by competing forces.¹²

Inflation is expected to have peaked at the end of 2022, with the consumer price index (CPI) rising 7.8% over the twelve months to the December 2022 quarter.¹³ The RBA has, in response, increased the cash rate target from 0.1% in April 2022 to 4.1% in June 2023. The RBA expects inflation to fall to 3.3% by the end of 2024, before returning to the target band of 2–3% by the end of 2025.¹⁴

Australia's labour market has remained robust, with the trend unemployment rate at 3.6% in July 2023.¹⁵ According to RBA forecasts, the unemployment rate is projected to rise to 4.2% by the June quarter of 2024 and 4.5% by the June quarter of 2025, which is still low by historical standards.¹⁶ Skills and labour shortages are continuing to impact many industries, although record levels of overseas migration may ease pressures.

4.3 South Australia's economy

South Australia's economy has recently performed well in both an absolute and relative sense. South Australia's gross state product (GSP) increased by 5.1% in 2021–22, following a rise of 4.7% the previous year.¹⁷ This represents the second-fastest growth rate in the country, behind Victoria at 5.6%.¹⁸ The increase was driven primarily by agricultural industries (Chart 1), with favourable weather conditions producing two years of year-on-year growth above 25% following three years of decline, as well as strong household, public and business spending rebounding post-COVID.¹⁹ GSP per capita increased by 4.5% in 2021–22 to \$68,777, though this remains below national GDP per capita at \$83,678.²⁰

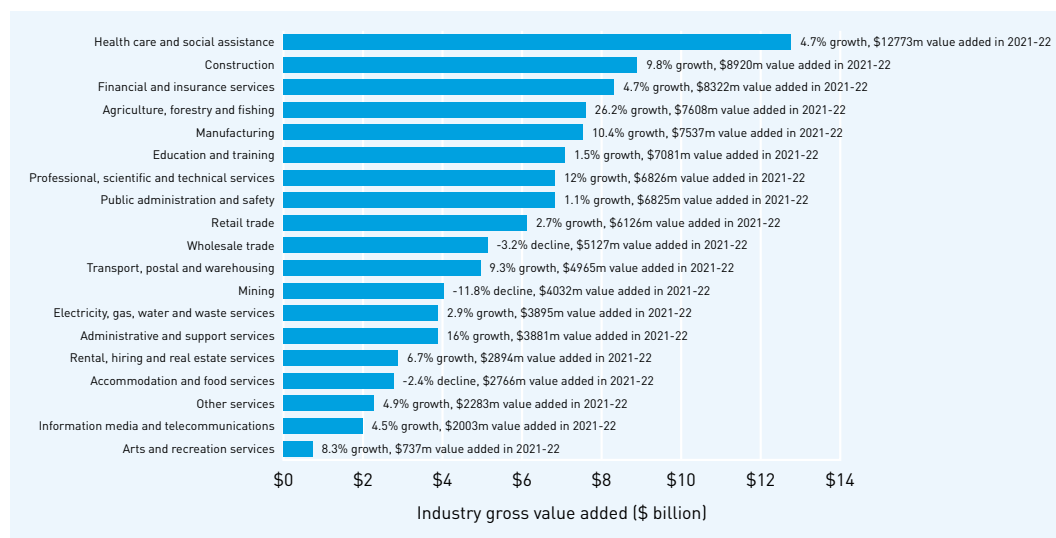


Chart 1:
South Australia's industry composition, 2021–22²²

Goods exports from South Australia totalled \$17.4 billion in the twelve months to June 2023, up 19% on the previous period in unadjusted terms.²³ The state accounted for 2.9% of national goods exports overall.²⁴ South Australia's goods exports are highly concentrated, with ten commodities accounting for 80% of goods exports (Chart 2).²⁵

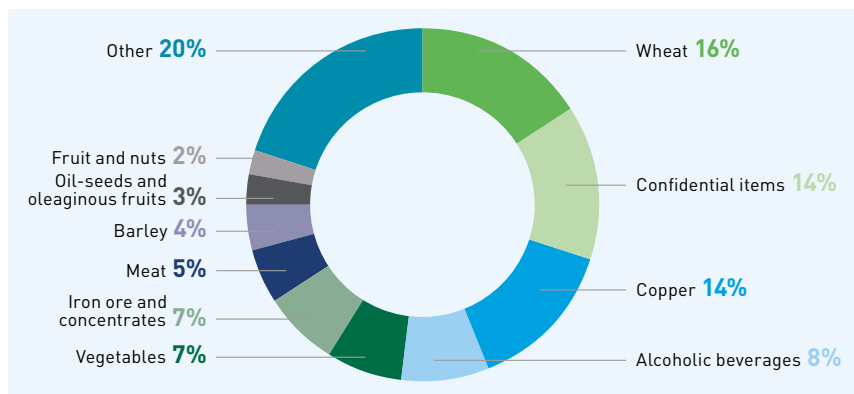


Chart 2:
South Australia's export profile, 2022-23²⁶

South Australia's labour market has strengthened in-line with national performance, with the state's trend unemployment rate at 4.1% in July 2023, while total employment is at a historical high in trend terms.²⁷ Such a tight labour market has seen organisations across the state face skills shortages.

In the short term, skilled migration is likely to be the core means to address shortages, balanced with increasing local skills development over the longer-term. South Australia's Skilled and Business Migration program had their largest year on record in 2022-23.²⁸ Overseas migrants accounted for the vast majority of South Australia's 1.6% annual population growth in 2022.²⁹ Population projections estimate that South Australia will reach 2.3 million residents by 2051 in a medium scenario, with an average annual growth rate of around 1% over the next 30 years (Chart 3).³⁰

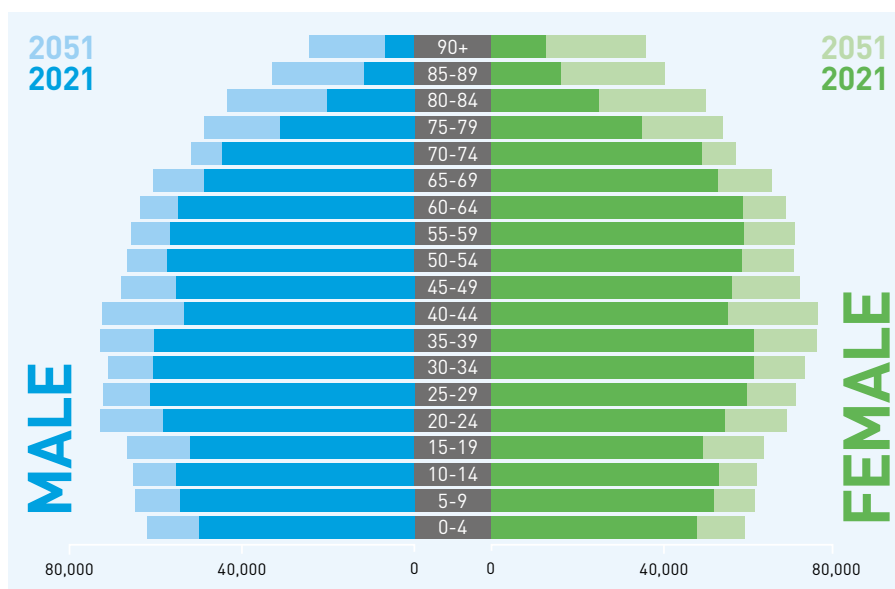


Chart 3:
South Australia's projected population, 2021 and 2051, by age group³¹

4.4 Our productivity challenge

Productivity growth has slowed in South Australia in recent decades; similar trends have been observed across Australia and other advanced economies. South Australia's labour productivity growth averaged 0.4% between 2010-11 and 2019-20, compared to 2.3% across Australia.³² Productivity matters because it is a key driver of higher living standards.

While the existence of our productivity challenge is well known, solutions are more difficult to identify and implement. The South Australian Productivity Commission recently found that technological progress in South Australia has stalled since 2001, and the economy has experienced inefficiency for almost the last two decades – with technological progress and efficiency being two key drivers of productivity growth.³³

Inadequate infrastructure and connectivity can give rise to inefficiency in the economy.³⁴ South Australia's infrastructure, and the new Strategy, are therefore a key part of addressing our productivity challenge.



Consultation question 1

What opportunities should we consider to improve South Australia's economic growth?



Construction of Seaford Railway Station
Image courtesy of Department for Infrastructure and Transport

5. Enabling infrastructure



Objective 1.

Enabling infrastructure unlocks higher productivity and economic growth to improve our living standards

South Australia has major economic opportunities on the horizon. The Government of South Australia will play a key role in planning and coordinating the infrastructure and connectivity needed to support these opportunities, setting us up to capture the benefits.

The global imperative to deliver net zero emissions and new and emerging industries mean South Australia needs to be ready with the right enabling infrastructure to unlock economic growth. Building upon existing infrastructure and developing new infrastructure, skills and capabilities will be instrumental to maximising the benefits presented through defence and the AUKUS partnership, space, cybersecurity, agriculture and manufacturing. Strategic infrastructure planning and provision will act as the enabler to maximise these and other multi-generational opportunities.

5.1 Freight and supply networks

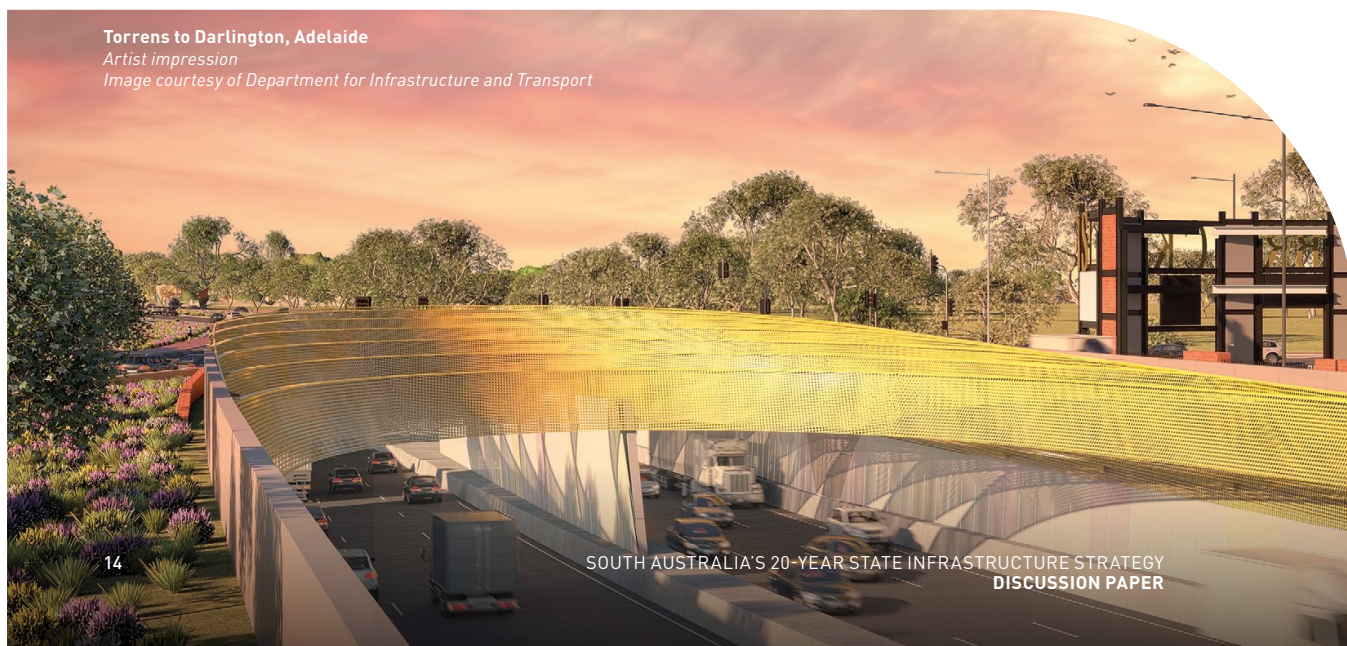
We need to remain connected to markets

The movement of goods via our freight and supply networks remains a fundamental driver to the economic wellbeing of South Australia. Improving productivity and efficiency, coupled with increased accessibility and reliability across all modes and supply chains, is needed to ensure we remain competitive and connected to markets. The national freight task is forecast to grow by 26% to 2050, with road freight forecast to grow by 77% from 2020 volumes.³⁵

Torrens to Darlington, Adelaide

Artist impression

Image courtesy of Department for Infrastructure and Transport



In South Australia, the bulk of our freight movements occurs by road (>80%),³⁶ with safety and congestion factors often competing with productivity objectives for prioritisation of investment across the network. Constraints across the key regional corridors results in limitations being imposed upon High Productivity Vehicles (truck and trailer combinations that shift more freight more efficiently)³⁷ significantly impacting efficiency for regional movements. The rapidly changing environment driven by e-commerce and consumer change is resulting in increased urban freight activity through 'direct-to-home' deliveries, adding to congestion and metro network challenges.

The freight sector is a complex and diverse system that operates across the full spectrum of our communities' daily lives, from connecting and supplying our regions and natural resources, transporting our goods to local and export markets, and keeping our cities functioning. This network is supported through a hierarchy of infrastructure and transport needs, from the key freight corridors and ports and facilities to the 'first and last mile' delivery to point-of-use destinations.

The sector is also facing challenges due to decarbonisation to meet net zero commitments. The emerging tension between reduced productivity and increased network impacts to accommodate low emission heavy vehicles is a key challenge for road infrastructure.

A more competitive freight network may encourage companies to locate in, or increase the production of goods, in South Australia. In turn, increased exports will help support our economic growth and increase employment opportunities.



Consultation question 2

What infrastructure constraints are preventing a more efficient, accessible, and productive freight sector?

5.2 Water supply

Our water supply needs to be sustainable and affordable

Water is critical to supporting our state's growth, prosperous and liveable communities and a healthy environment. South Australia's water security is under increasing pressure from climate change (Box 1), population growth, increasing demand and an ageing infrastructure base.³⁸

Box 1. Climate projections for South Australia

The latest climate projections show that South Australia can expect more hotter days, with declining total annual rainfall, more severe and prolonged droughts, and an increase in the intensity and frequency of heavy rainfall events.³⁹



Across many parts of the state, inadequate water security, the cost of water and lack of distribution infrastructure are cited as key inhibitors to industry investment and growth.⁴⁰ Improving access to sustainable, secure and affordable supplies of water is essential to enabling growth and to key industry sectors including agriculture, mining and manufacturing, as well as enabling new industries such as hydrogen.

Delivering sufficient water to where it is needed to support economic growth in an affordable way is an ongoing challenge, as is efficiently and sustainably balancing demand with supply from the available water resources (Figure 2).⁴¹ Proposals such as the Northern Water Supply Project have the potential to support projects across a range of industries, providing a new water supply to key economic growth areas.

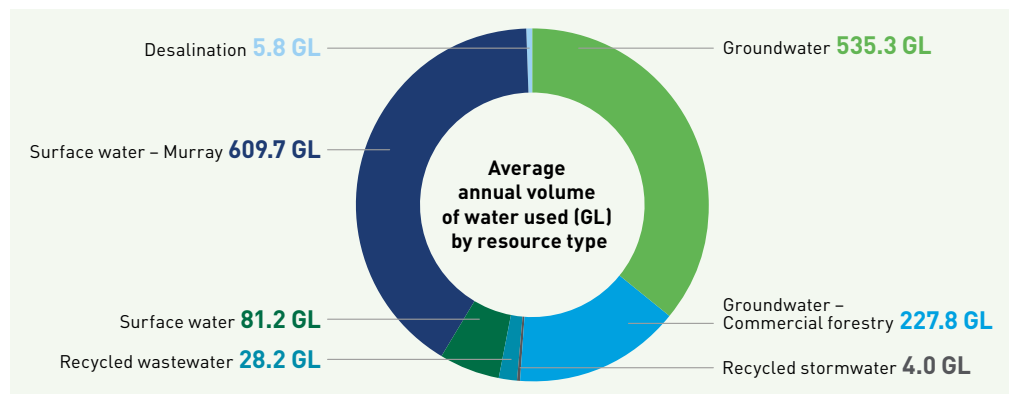


Figure 2:
Volume of water used in South Australia (2021-22)⁴²

Understanding future demand for water supply and where it's needed will support effective planning. Strategic initiatives such as the Resilient Water Futures project, being led by SA Water in collaboration with agencies across government, are supporting planning for long-term water security aligned with the Government of South Australia's priorities. When finalised, such initiatives will inform future infrastructure investment needs and their timing.

In the face of future uncertainties, water systems will need to be resilient and adaptive to ensure secure and sustainable supply that supports our communities and industries. This includes greater use of integrated water management and consideration of all options to increase supply, including increased use of recycling schemes.



Consultation question 3

How can we enable a sustainable and affordable water supply into the future?



5.3 Energy transmission

The right energy transmission infrastructure optimises benefits for households and industry

To support the Government of South Australia's economic ambitions and net zero targets, significant investment will be required to deliver new transmission and modernised distribution networks. This will ensure secure, reliable and affordable energy is available, where it is needed, to service end-customers.

Our energy generation mix continues to evolve and must balance the variable nature of renewables with the firming capacity required to maintain levels of service at all times, requiring a transformation of existing and new transmission infrastructure. Building social acceptance through engagement and informed network planning will also be important to deliver transmission through both urban and regional areas. The Australian Energy Market Operator's (AEMO) Integrated System Plan (ISP), backed by the Australian Government's \$20 billion Rewiring the Nation plan is intended to give some level of certainty to planning for future transmission. The role of natural gas and the emerging role for hydrogen into the future will require careful consideration of our transmission and storage networks. We will need to meet demand and maintain stability of supply in a rapidly changing environment, while avoiding stranding existing assets.

The forecast growth in electrification across the residential and commercial building industry and transport sectors will increase operational consumption in South Australia for the next ten years.⁴³ This requires ongoing development of dispersed generation and storage assets, resulting in increased transmission networks to ensure energy is available at the point of consumption. Balancing an efficient and timely investment and delivery program will be fundamental to ensuring we maximise the opportunities and reduce the risks associated with the task.



Consultation question 4

How do we realise the opportunities and mitigate risks with transforming our transmission and distribution infrastructure for the future?

5.4 Digital connectivity

Digital connectivity is key to productivity improvements

Infrastructure that supports digital connectivity (Box 2) is a key enabler for the Government of South Australia's vision for South Australia to be a smart economy. Digital infrastructure and technology are key drivers for productivity growth and will support South Australia to keep pace with global developments. Bolstering cyber security is imperative, to protect our critical infrastructure and supporting systems.

Box 2. Digital connectivity

Digital connectivity refers to the application of technology to physical infrastructure, which facilitates the connection of assets and people to the internet. It encompasses:

- telecommunications infrastructure, such as submarine cables and fibre transmission
- end-point user devices and applications, such as Internet of Things devices and handsets
- access networks, such as fixed line, mobile and satellite
- cyber capabilities and platforms
- data centres.⁴⁴



Business need secure and reliable digital infrastructure to make the best use of technology, including emerging technologies such as generative artificial intelligence, robotic automation and big data analytics. Individuals need reliable connectivity to fully participate in work and society and to learn new skills. Advances in technology are expected to create significant productivity and economic benefits through making existing industries more efficient and enabling the creation of new products and services.

Australia is lagging in global competitiveness of internet speeds, ranking 84th in the world on median fixed broadband speeds in July 2023, behind North America, most of Europe and parts of Asia.⁴⁵

Currently, responsibility for planning and delivering digital infrastructure sits with multiple layers of government and the private sector, meaning it is difficult to gain visibility on the current situation to address gaps.

Government has an important role in supporting the adoption of digital technologies. The Australian Productivity Commission found that governments can encourage better use of technology through the provision of digital infrastructure, particularly in regional and remote Australia; data sharing frameworks and integration; and facilitating improvements in technical digital and data skills.⁴⁶

The Government of South Australia recently announced a \$200 million investment to drive strategic and targeted investment in cyber security and digital initiatives. Priority investments include completion of a State Connectivity Strategy to define the standard of internet connectivity across all areas of the state to align future initiatives and investment decisions.⁴⁷ This will assist in understanding the challenges with internet connectivity, particularly in regional areas.



Consultation question 5

What are the barriers to increased adoption of digital technology to improve productivity?

5.5 Resource exports

Adding value to our resource exports supports a stronger economy

South Australia performs strongly in the export of mineral and agricultural products. In the 12 months to June 2023, these exports totalled \$13.3 billion.⁴⁸ However, our exports are largely unprocessed (Box 3).

Box 3. South Australia's agricultural and natural resources exports

The Australian Government's Department of Foreign Affairs and Trade estimate that for South Australia in 2022-23, of the total \$13.3 billion in agricultural and mineral goods exported, 56% were unprocessed primary products, such as grains, vegetables, fruit and iron ore.⁴⁹
Note calculations exclude confidential items.



In South Australia, we have opportunities to expand the volume of resource exports and develop and export higher value-add products. Higher value-add products are more complex and increase the total value of our exports. More local production and value-adding to our natural resources requires more workers, new skills and greater expertise, all of which contributes to higher wages, economic growth and greater productivity.

Globally, demand for critical and strategic mineral resources is growing rapidly to enable the transition to net zero, including for use in electric vehicles, solar photovoltaics, hydrogen electrolyzers and batteries (refer to Box 4 on the battery value chain). In South Australia, we have numerous opportunities to capitalise on this demand, including through increased production of copper in the Gawler Craton region; developing new magnetite resources in the Braemar and Eyre Peninsula regions; and extraction and processing of critical minerals resources such as graphite and rare earth elements across South Australia⁵⁰.

Box 4. The battery value chain

In 2019, Australia had 50% of the global market share for mining a large number of the raw materials used in lithium-ion batteries – graphite, copper, cobalt, manganese, nickel and lithium. However, Australia captures minimal value downstream – 0 to <1% of the market share for refining, production, manufacturing, service, maintenance and re-use and recycling.⁵¹



In the agricultural sector, there are also opportunities to improve the value of products exported, with more transformation and processing undertaken in South Australia. This includes meeting demand for emerging food and beverage markets, such as protein-based foods produced from plants.

Supporting increased value from our resources will require strengthening our supply chain capability and enabling greater access to key infrastructure enablers including freight and supply networks, water, energy and digital connectivity.

The facilitation of common-user infrastructure provides an opportunity to aggregate demand, creating economies of scale and efficiencies for our resource industries. Common-user infrastructure may also lower costs of entry, reduce duplication of physical infrastructure and allow more efficient use of land.⁵²

**Consultation question 6**

What investments could unlock the value of South Australia's resources?

Port of Thevenard, Ceduna



6. Liveable and well-planned places



Objective 2.

Liveable and well-planned places attract skilled people, support a growing population and create prosperous communities

The liveability of our places is integral to sustainable and equitable economic growth

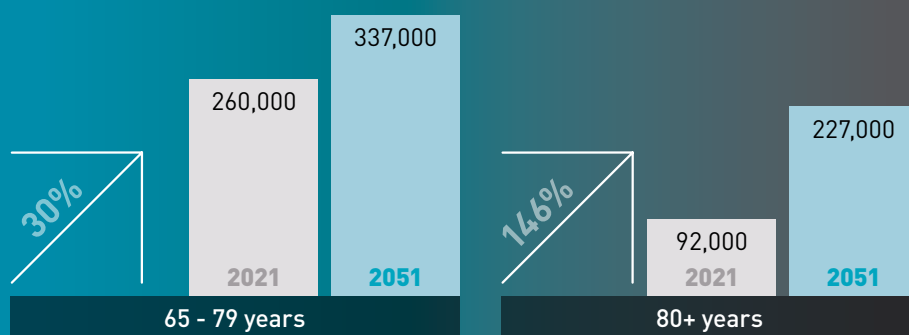
Creating liveable places fosters sustainable economic development, attracts investment and retains local and international workforce talent. Liveable places can also enhance productivity, support tourism and promote innovation and entrepreneurship.

South Australia's future economic performance will be linked to our ability to grow our population and strengthen our labour market by attracting new and diverse skills and businesses. We need to grow in a way that is sustainable and protects and enhances our way of life. Key population and demographic statistics are shown in Box 5 below.⁵³

Box 5. Population and demographic statistics

South Australia's population is growing. By 2051 South Australia's population is predicted to grow to 2.3 million people (based on a medium scenario).

The number of 'active retirees' (65 to 79 years) is projected to increase by 30% from 260,000 in 2021 to 337,000 by 2051, while the 'older population' (80+ years) is projected to increase by 146% from 92,000 to nearly 227,000 by 2051.⁵⁴



Most of the projected population growth is concentrated in Adelaide. Regional growth is anticipated to be focused on areas of key economic activity (e.g. Whyalla for the hydrogen hub).

We are competing in an increasingly challenging global labour market. South Australia is experiencing the most acute skills shortages in decades, with a range of immediate skills challenges to be addressed. In 2022, 285 occupations were identified as experiencing a skills shortage, up from 149 in 2021.⁵⁵ By 2032, South Australia's workforce will need 190,000 people with vocational education and training qualifications.⁵⁶

The actions we take now will lay the foundation to sustainably manage population growth and South Australia's quality of life, to attract and retain a skilled workforce. A failure to plan appropriately could result in cities, suburbs and towns expanding in population without access to services, jobs and infrastructure, negatively impacting on South Australia's desirability as a location to live and work.

6.1 Coordinated planning

Coordinated planning drives better community outcomes

Coordinated infrastructure planning and delivery underpins South Australia's quality of life and vibrancy. Effective alignment of land use and infrastructure planning will allow for a more integrated and accurate view of the infrastructure required to deliver better outcomes for growing communities. We also need to ensure our land use and infrastructure planning is adaptable to addressing future challenges.

Integration of land use and infrastructure planning enables the identification and preservation of strategic land parcels to support staged infrastructure delivery of schools, medical clinics and other essential services. Integrated planning will enable the timely provision of services that communities expect and require for quality of life. It may also help avoid the pitfalls of previous releases, such as the 2010 rezoning of land in the Mount Barker township that was not supported by adequate infrastructure planning and financing and is now experiencing an infrastructure backlog.

The State Planning Commission is currently updating the Greater Adelaide Regional Plan, along with six other regional land use plans for South Australia. The regional plans are strategic planning and land use documents that outline the long-term vision and goals and identify priority actions for the development and growth of South Australia. Aligning the 20-Year State Infrastructure Strategy with the new Greater Adelaide Regional Plan and the non-metropolitan regional plans will allow for more coordinated infrastructure planning and development. In addition, to improve the consistency and coordination of infrastructure planning across government, the importance of using common planning assumptions and forecasts should be elevated.



Consultation question 7

How can South Australia better coordinate infrastructure investment to support a growing population?



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Lightsview
Image courtesy of Renewal SA

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6.2 Affordable housing

Liveability is improved with affordable housing

Access to secure, affordable and appropriate housing is fundamental to wellbeing and is a key element supporting liveability, economic participation and productivity.⁵⁷ In Adelaide, we have a relatively more affordable housing market than other capital cities – our median dwelling value is \$671,755 which compares favourably to Sydney (\$1,082,129), Melbourne (\$766,912), Brisbane (\$735,394) and to the combined capitals value of \$797,815.⁵⁸

The location and availability of housing can enable or constrain access to education, employment, transport and other social infrastructure. A stable and secure home can also help reduce poverty and enhance equality of opportunity, social inclusion and mobility.⁵⁹

The combined effects of ongoing population growth, changes to housing preferences and needs, and under-utilisation and inefficient allocation of housing stock, further compounds the problem. In South Australia, single person households have increased 78% over the last 30 years.⁶⁰ The result has seen housing supply not keeping pace with demand, particularly in some segments. Away from major centres and in regional areas, access to appropriate housing is more complex, with less diversity of stock and increased costs to build.

Rapid increases in purchase and rental prices since mid-2020 are further impacting on housing affordability and household mobility, particularly for low- and moderate-income households. A growing body of research is demonstrating the adverse productivity impacts of inadequate or unaffordable housing in Australia. This includes impacts on human capital through the misalignment of available, affordable and suitable housing and employment location; and, where housing costs outpace income growth, lower residual household income is available to save, consume and invest.⁶¹

Ensuring there is sufficient housing stock for new arrivals is likely to remain a challenge. In 2021, almost four-in-five South Australians lived in Greater Adelaide⁶², with Adelaide's residential rental vacancy rate only 0.6% in July 2023, compared to the national average of 1.3% for the same period.⁶³

Social housing adds supply and assists with making housing more affordable. However, it represents a small proportion of total housing stock, at just 5.5% of all occupied houses and around 20% of rental homes.⁶⁴ South Australia has seen a decline in social housing stock over the last decade. In response, the Government of South Australia has committed to an additional investment of \$232.7 million in public housing and an additional 1,144 households living in public housing by 30 June 2026 compared to previous estimates.⁶⁵

Both the South Australian and Australian Governments are implementing measures to alleviate the pressure on housing affordability and improve housing outcomes. In South Australia, this includes pausing the sale of public housing, building additional social housing, introducing tax incentives, improving rental conditions, fast-tracking structure planning and rezoning, and enabling additional land release opportunities.

Addressing housing outcomes and ensuring adequate and appropriate supply requires a combination of government, private and not-for-profit housing providers and other organisations to be involved in financing, developing and managing housing stock.⁶⁶



Consultation question 8

What can be done to support sufficient, fit-for-purpose housing to improve housing affordability?



6.3 Public transport

Public and active transport options reduce congestion and emissions

Efficient access to public transport maintains the liveability and accessibility of cities and supports the movement of labour. Strategically planned and effective public and active transport enhances accessibility by providing efficient and affordable transportation options for residents. Equality of access to employment and services, decreased isolation and improved environmental and sustainability outcomes are also significant benefits.

Currently, private motor vehicles remain the dominant mode of transport in Greater Adelaide (Figure 3). Public transport patronage in Adelaide has traditionally been lower than other capital cities and fell significantly during the COVID-19 period, with commuters avoiding buses, trains and trams in favour of private cars.

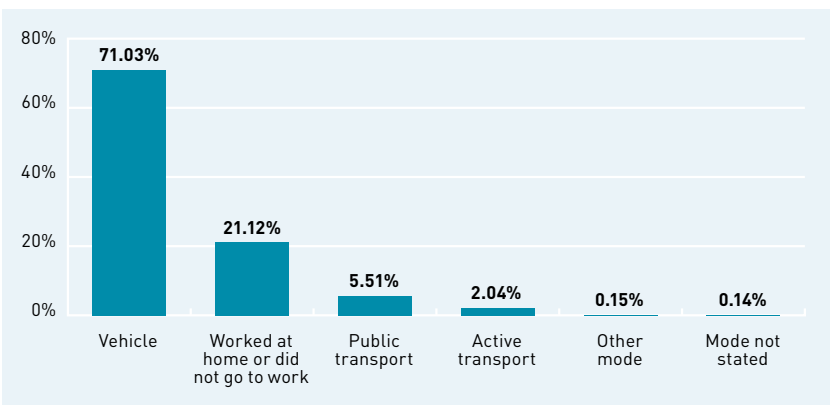


Figure 3:
Journey to work mode share for Greater Adelaide (2021)⁶⁷

A greater modal shift to public and active transport would also reduce the significant impact of road congestion across the metropolitan network and the Adelaide Central Business District (CBD) in particular, improving liveability. Infrastructure Australia estimates the cost of road congestion in Adelaide will increase to \$7.6 million per weekday by 2031.⁶⁸

Adelaide's public transport network is reasonably good at connecting the suburbs to the CBD during peak commuter periods and providing high coverage service to those with limited choice. Future planning and designs should aim to optimise the utilisation of the road network through maximising the use of public transport.

There is an opportunity to improve and redesign the bus network to create a more streamlined and efficient network that provides better cross-suburban connectivity and modal integration. Improving the bus network may encourage a greater modal shift towards public transport and make it the option of choice.

Servicing growing communities on the outskirts of the city and in our regional cities and towns remains a challenge, as delivering public transport in lower density areas costs more per capita.

Approaches such as on-demand bus services, as currently being trialled in Mount Barker, can support greater levels of uptake for public transport in a more-cost effective way than investing in new infrastructure. When coupled with urban design and active travel modes, demand can be reduced for private car usage.

Public and active transport options can contribute to improved productivity and overall quality of life. Walking and cycling also offer significant benefits for health and reduce greenhouse gas emissions from other forms of transport. Newer transport forms using micro-mobility technologies, such as e-scooters and e-bikes, also offer pollution-free convenience for movement.



Consultation question 9

How can we improve public transport services across Adelaide and outer metropolitan areas to encourage greater patronage?

6.4 Health and wellbeing

Improved health and wellbeing supports participation in society

The availability and quality of health care is central to community health and wellbeing and is an essential component of liveability. Improved community health yields less reactive demand on health services and improves productivity by increasing workforce participation. A healthy population also impacts GDP (Box 6).

Box 6. The link between health and GDP

The Australian Productivity Commission estimated that GDP could be increased by \$4 billion per year if the health of people in fair or poor health was improved.⁶⁹



As in other developed countries, Australian Government spending on healthcare has generally grown faster than GDP. Health expenditure is projected to increase from 4.1% of GDP in 2018–19 to 6.2% by 2060–61.⁷⁰ Underpinning increases in health spending are demographic factors (population growth and ageing) and non-demographic factors (technology, changing consumer preferences and rising incomes).⁷¹ In relation to Australian Government health spending, demographic factors are anticipated to account for just under half the increase in real spending per person over the next 40 years.⁷²

In South Australia, we are seeing similar patterns and challenges. Demand on our health system is increasing, particularly as our population grows and ages. South Australia currently has the second highest proportion of the population aged 65 and over, at almost 20%,⁷³ placing a greater demand on chronic disease management and long-term care services. This proportion of the population is expected to increase to 24% by 2051.⁷⁴

Spending on hospitals increased between 2010–11 and 2020–21 for all sectors (Figure 4).⁷⁵ State and territory governments had the highest spending on hospitals in every year over the decade, increasing from \$26.3 billion in 2010–11 to \$38.4 billion in 2020–21.⁷⁶

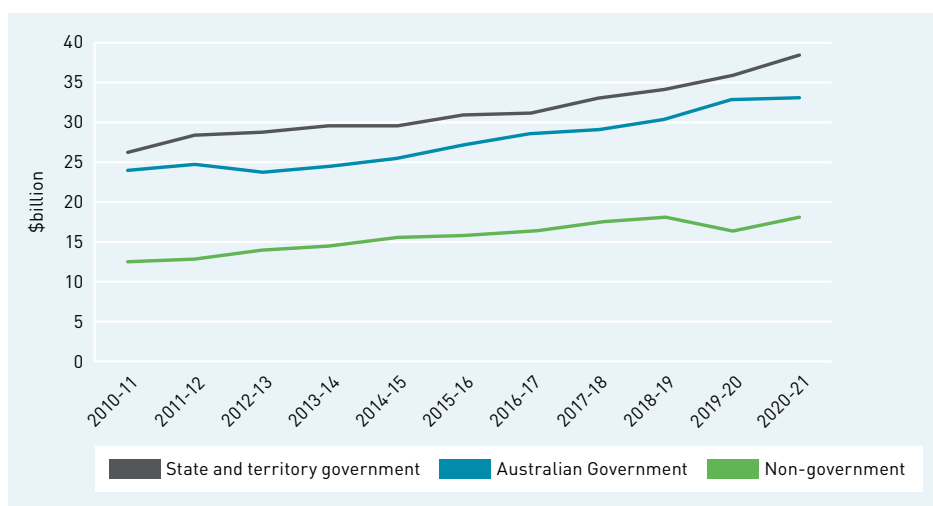


Figure 4:
Spending on hospitals, by source of funds, constant prices, 2010–11 to 2020–21⁷⁷

Constant price health spending is in 2020–21 prices.

The current approach to managing the health system is unsustainable. Investments in more agile or mobile care offerings, including a greater emphasis on primary care clinics, community health centres and mobile units, support improved access to healthcare services would take the pressure off the state's hospital system and infrastructure.

New models of health care that harness the power of technology and innovation offer opportunities for improving efficiency and patient outcomes. The uptake of digital health has been shown to improve access to services, particularly in underserved or regional communities and improve coordination between health care providers. This shift comes with a greater need to focus on the resilience and security of digital systems.

Collectively, these approaches would support more cost-effective and accessible services, lower health care costs for individuals and government and optimise our infrastructure investments. The outcome is a system that better supports community health, societal participation and productivity.



Consultation question 10

What investments would support a more efficient and productive health system that meets our growing and changing needs?





6.5 Education and skills

Education and skills create a productive workforce

The education and training sector is a major enabler of South Australia's productivity. Recent research by the South Australian Productivity Commission identified increased employee skills as a driver of labour productivity growth.⁷⁸ Also, an enquiry by the Australian Productivity Commission found that nationally, labour quality (the education and experience of the workforce) has accounted for about 20% of labour productivity growth in recent decades.⁷⁹

Compared to other jurisdictions and the national average, South Australia's educational attainment levels are lagging. We have the lowest proportion of the population aged 24 to 55 years with a bachelor's degree or higher (22% compared to a national average of 28%); and the second highest proportion with an education level of Year 11 or lower.⁸⁰ This impacts our ability to prepare and position our workforce to grow our economy.

Technological advancements and automation are transforming the job market, increasing the demand for skills that are difficult to automate, such as problem-solving, creativity, and technological proficiency. These skills will be critical to the success of South Australia's economic growth ambitions, such as the AUKUS nuclear submarine program and delivery of the green reindustrialisation.

A number of factors impact the demand for, and type of education facilities required, including disproportionate population growth in favour of metropolitan versus regional areas; changing demographics; an increased number of students with complex needs; and individual family preferences for public versus private schools (Box 7).

Box 7. Population projections

Population projections indicate that between 2021 and 2041, the population of 4 to 17-year-old South Australians will increase by 9% in Greater Adelaide and decrease by 3% in the rest of the state. The regions with the greatest projected enrolment increases are Adelaide North, Inner Metro and Mount Barker.⁸¹



To align workforce capabilities with future industry needs, South Australia's schools, TAFEs, colleges, and universities continue to adapt. To keep pace with a changing environment, learning spaces need to be digitally enabled, we need flexible classrooms and breakout spaces to support learning environments that cater to individual needs, styles, and paces.

Quality early childhood education and care assists with healthy early childhood development and supports workforce participation of parents and caregivers. The Government of South Australia has established a Royal Commission into Early Childhood Education and Care, with a view to introducing a universal quality preschool program for three- and four-year-olds. If implemented, these reforms are likely to increase the demand for skilled labour and for additional infrastructure to support this cohort.

Long-term planning for infrastructure is required for South Australia's education infrastructure to respond to a growing population, changing industry needs and government's overall strategic direction. As articulated in *Our strategy for public education in South Australia*, the Department for Education is aiming to build a world-leading public education system for South Australia.⁸²

**Consultation question 11**

How can infrastructure support improved education and skills outcomes for South Australia?

6.6 Cultural, tourism, and recreational facilities

Cultural, tourism, and recreational facilities make South Australia a vibrant place

The availability of cultural and tourist attractions and recreational and sporting activities play a significant role in creating a sense of place, providing opportunities for social interaction, leisure activities and community engagement and entertainment. These attractions can also enhance amenity and liveability for residents, attract visitors and serve as drawcards for new residents (Box 8).

Box 8. Cultural, tourism and recreational infrastructure

This infrastructure includes parks, recreational areas, sporting facilities, community centres, libraries, cultural institutions, tourist attractions, and public spaces, walkable and bike-friendly pathways.



In addition to improving liveability, our cultural, tourism and recreational experiences are core to attractiveness of South Australia as a destination and supports the growth of South Australia's tourism industry. The state's tourism industry currently employs 34,000 people and, as of March 2023, is worth \$9.4 billion⁸³, making it one of our most important service sectors.

South Australia has a rich history of diversity of people, places, festivals, events, and creative industries, in addition to museums, galleries, theatres, and performance spaces. We also have a range of recreational facilities, including parks, sports facilities and community centres. Leveraging these unique attributes of our cities, regions and precincts will also create jobs for the arts, tourism, hospitality and sporting sectors. As an example, activating the Riverbank Precinct could expand the range of diverse social, recreational, sporting and entertainment activities available in Adelaide.

With a growing population, South Australia will need continue to invest in and maintain our cultural, tourism and recreational infrastructure to support our liveability. Strategic planning for our assets across all relevant sectors, by all levels of government and the private sector, will improve the quality and accessibility of arts, tourism, sporting and recreational spaces.



Consultation question 12

How can we sustainably grow these sectors to realise greater benefits for visitors and residents?

Festival Plaza
Image courtesy of Renewal SA



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7. Accessible and inclusive infrastructure



Objective 3.

Accessible and inclusive infrastructure supports social inclusion and economic participation

South Australia's Economic Statement establishes a vision for an inclusive economy that puts South Australians and their wellbeing front and centre. It recognises that inequity constrains economic growth and that accessibility, social inclusion and economic success go hand-in-hand.⁸⁴

Infrastructure is central to our economic productivity and the wellbeing of communities in all regions. Improved and equitable access to infrastructure assists communities to grow and meet economic challenges, builds resilience and improves quality of life. A growing population increases demand and pressure on infrastructure, meaning new and innovative options are needed.

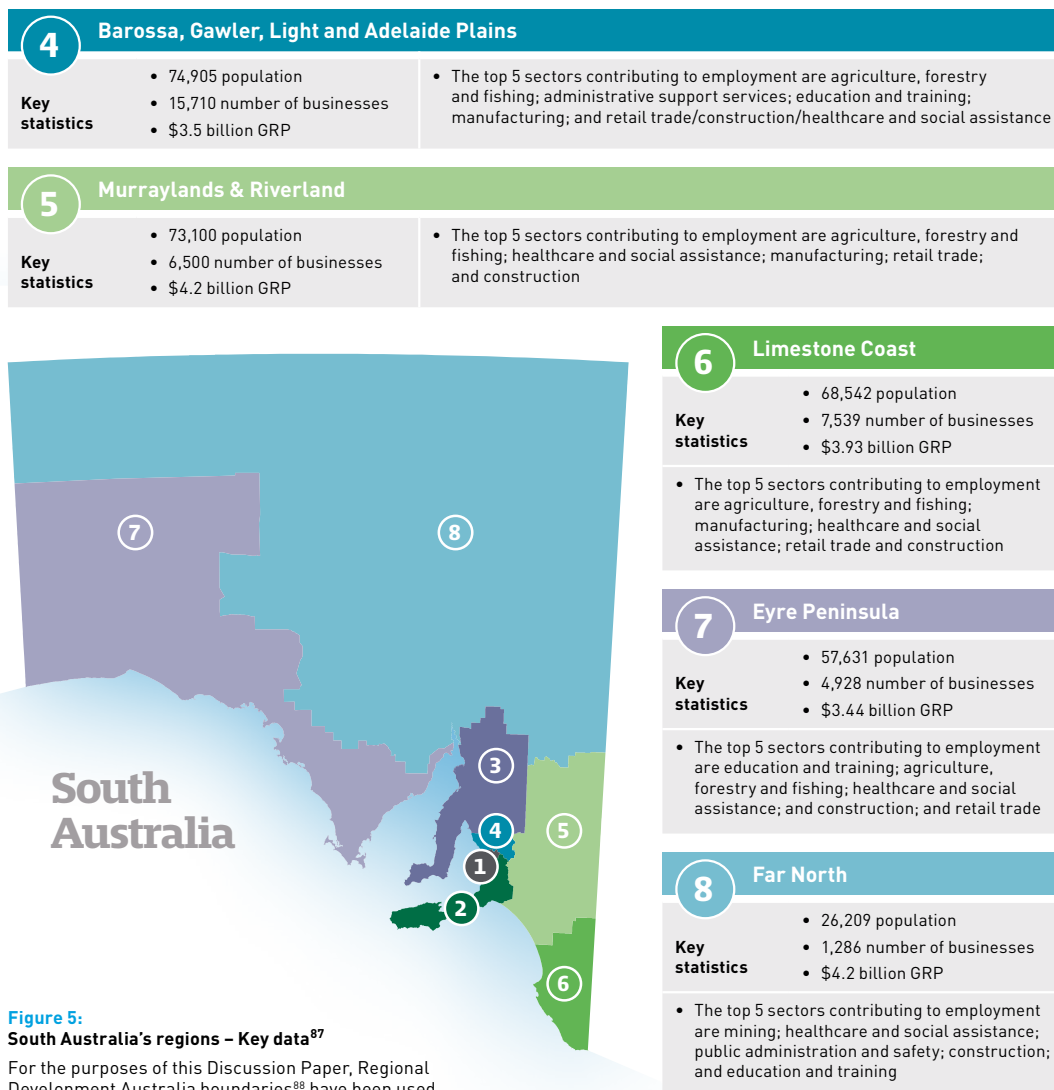
Accessibility and inclusion challenges can arise from many reasons including disability, culture, gender and socioeconomic status. Reducing barriers by increasing access and inclusion is central to increasing participation in our economy and society and supports a more productive South Australia.

7.1 Our regions – A snapshot

Regional South Australia is a key economic driver for the state. In 2021-22 regional South Australia contributed \$36.5 billion to the South Australia's economy, generating 28% of GSP and accounting for 30% of the state's population.⁸⁵ Figure 5 shows the key statistics for each Regional Development Australia (RDA) region in South Australia.

Looking forward, RDA estimates the pipeline of projects for regional South Australia is valued at \$44.64 billion.⁸⁶ The following information outlines key statistics and the top 5 sectors contributing to employment for each region, to help inform responses to this Discussion Paper.

1 Adelaide Metropolitan		
Key statistics	1,261,439 population 103,496 number of businesses \$87.33 billion GRP	The top 5 sectors contributing to employment are healthcare and social assistance; retail trade; education and training; public administration and safety; and manufacturing
2 Adelaide Hills, Fleurieu and Kangaroo Island		
Key statistics	134,661 population 11,609 number of businesses \$5.95 billion GRP	The top 5 sectors contributing to employment are healthcare and social assistance; retail trade; agriculture, forestry and fishing; manufacturing; and construction
3 Yorke and Mid North		
Key statistics	75,509 population 7,317 number of businesses \$4.14 billion GRP	The top 5 sectors contributing to employment are healthcare and social assistance; agriculture, forestry and fishing; manufacturing; retail trade; and education and training



7.2 Regional and remote areas

Regional and remote area needs present unique challenges and opportunities

Our ability to unlock economic growth in regional areas is dependent on understanding the strengths and competitive advantages of our regions and having the enabling infrastructure in place to leverage opportunities. Our regions are the cornerstone to our transition to a greener, decarbonised economy.

The ability of infrastructure to keep pace with population growth and emerging opportunities can be a challenge in regional and remote areas, with infrastructure more expensive to provide on a per-person basis in low population areas. Differences in levels of service and increased costs can create barriers to equity and access which impacts productivity, competitiveness and social outcomes.

Providing accessible and inclusive infrastructure can attract people to visit and stay in our regions, maximise economic participation and help South Australia fully realise the potential of our regions.

Recent work undertaken by Infrastructure Australia identified the infrastructure gaps in South Australia's regions. The three most frequently identified gaps are outlined below.⁸⁹



Water security is crucial to the productivity and resilience of regional Australia, including agriculture, mining and manufacturing, as well to support emerging industries such as hydrogen. It is also key to supporting the health and wellbeing of regional and remote communities.

Many parts of regional and remote South Australia do not have the same level of access to secure, safe, reliable or affordable water supplies as metropolitan or regional centres. This disproportionately affects vulnerable members of the community.

Impacts associated with climate change and the sustainability of existing surface water and groundwater resources also present challenges to existing regional industries that rely heavily on water, including mining and agriculture.



Digital connectivity is an enduring concern across many communities and is increasingly important to the economic and social wellbeing of regional and remote Australia. Reliable and sufficient connectivity is needed to access essential services. Poor or unreliable access costs the state in lost economic opportunities, decreased productivity and the inability to capitalise on market access, as well as impacting public safety and social wellbeing.

The Australian Digital Inclusion Index shows a continued divide in digital access between metropolitan and regional areas. The Index shows that for 2022, South Australia and Tasmania are the least digitally inclusive states.⁹⁰ Access in remote areas is even poorer, though there is a lack of data to fully understand this.



Availability, diversity and affordability of housing to meet the growing and changing demands of regional communities is a major constraint in attracting and retaining skilled workers, growing regional productivity and maintaining liveability.

The lack of available, affordable and quality housing is a key inhibitor to attracting and retaining skilled workers and sufficient labour. There is a well-established evidence base to demonstrate that the provision of well-located, secure housing is vital for catalysing workforce participation and supporting local economies to grow.⁹¹



Consultation question 13

How can we think differently about infrastructure investment to support equitable access and a more inclusive society?



Kaltjiti Desalination Plant
Image courtesy of SA Water

7.3 Closing the Gap

Achieving Closing the Gap targets supports an inclusive South Australia

The National Agreement on Closing the Gap commits all state and territory governments to achieve better life opportunities and wellbeing for all Aboriginal and Torres Strait Islander people. There are implications for infrastructure across the four Priority Reforms and the 17 socio-economic outcomes and corresponding targets (Box 9).

Box 9. Closing the Gap infrastructure-related targets

There are 17 socio-economic outcomes which have corresponding targets and indicators to measure progress on Closing the Gap. The commitments directly relevant to infrastructure are:



- Outcome 9: Aboriginal and Torres Strait Islander people secure **appropriate, affordable housing** that is aligned with their priorities and need.
- Outcome 17: Aboriginal and Torres Strait Islander people have access to information and services enabling participation in informed decision-making regarding their own lives. Target 17: By 2026, Aboriginal and Torres Strait Islander people have equal levels of **digital inclusion**.
- Clause 87i. **Community infrastructure**: The **community infrastructure target** will measure progress towards **parity in infrastructure, essential services, and environmental health and conditions**. This will include data development to measure essential service provision to Aboriginal and Torres Strait Islander communities, including **water and sewerage, waste management, road reserves and electricity supply**, as well composite measures to capture all aspects of the target.⁹²

Building and strengthening structures and systems that empower Aboriginal and Torres Strait Islander people to share in decision-making; and building capacity and capability in the community-controlled sector are central to Priority Reform One and Priority Reform Two. A core element is building capability to increase the proportion of services delivered by Aboriginal and Torres Strait Islander organisations.

Infrastructure that supports services that improve access to education, training and employment and enable Aboriginal businesses to grow and flourish are foundational actions to increasing economic participation and improving outcomes for Aboriginal people.

Improving engagement and building stronger partnerships as part of infrastructure planning will yield benefits. To support meeting the demand for greater inclusion of Aboriginal knowledge and increased shared decision-making, investments that build the capability and capacity of Aboriginal communities and groups will be necessary.

Stronger requirements for procurement that enable inclusion of Aboriginal businesses, and that build further capability across this sector through an integrated approach, will offer opportunities to better engage with Aboriginal businesses and support longer-term, sustained positive outcomes.



Consultation question 14

What are the opportunities for infrastructure investment to accelerate attainment of the Closing the Gap targets?

8. A decarbonised, sustainable economy



Objective 4.

Infrastructure supports a decarbonised, sustainable economy that capitalises on our competitive advantages and opportunities

Climate change is one of the most pressing problems facing our world today and poses severe environmental, social and economic risks to everyone. Australia is heavily climate-exposed and we are already counting the costs from recent climate-driven disasters.

International action on climate change and achieving net zero emissions is gathering momentum and the economic opportunities to meet net zero are significant. Globally, it has been identified that US\$125 trillion of climate investments are needed.⁹³ Australia stands to benefit from a share of a forecast US\$47 trillion investment in the Asia Pacific region.⁹⁴

Nationally, the Australian Government has committed to achieve a 43% reduction in greenhouse gas emissions below 2005 levels by 2030 and net zero emissions by 2050.⁹⁵

The Government of South Australia has adopted goals to reduce the state's net greenhouse gas emissions by more than 50% below 2005 levels by 2030, and to achieve net zero emissions by 2050.⁹⁶ For South Australia, transforming our economy in an orderly and planned way will mean we can realise the positive economic benefits of a cleaner, greener economy whilst mitigating the risks associated with the transition.

Already, South Australia has made significant progress in reducing emissions by 42% from 2005⁹⁷ levels, largely through our leadership position in the energy transition to renewable sources. But more still needs to be done to decarbonise the state's other high emitting sectors, including transport, agriculture, manufacturing and mining. Figure 6 below shows sector-by-sector emissions for South Australia.

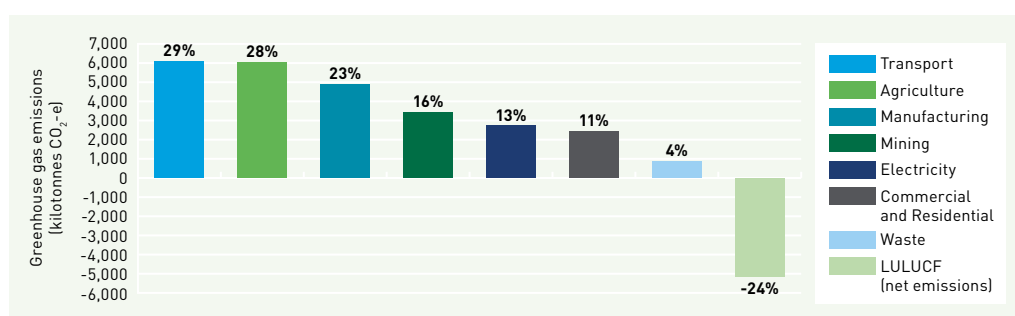


Figure 6:
South Australia's greenhouse gas emissions in 2021⁹⁸

South Australia's regional areas will be the cornerstone to our transition to a greener, decarbonised economy. Supporting new and emerging industries that enable growth requires a workforce in the right place with the right skills. We are well placed to leverage opportunities – building on our industrial capability, South Australia has the potential to manufacture and export green iron and green processed critical minerals, underpinned by world-class carbon accounting and greater circularity of resources.⁹⁹

8.1 Green industries

Green industries will support our transition to net zero

Getting to net zero will require tremendous, rapid change and large-scale technology deployment across multiple industries. It will require a fundamental shift away from high-emissions industrial processes and infrastructure to that of low-emissions, supported by new products, processes and services. This transition will see a shift in job and skill profiles, as new industries emerge. In South Australia, industrial emissions represent 47% of our total emissions and are in hard to abate industries.¹⁰⁰ We will need to be ready to support the changing demand.

Some industry sectors are more exposed to this transition than others. 'Hard to abate' industries that have high levels of emissions in chemical processes, a strong reliance on fossil fuels or where the cost of reducing emissions is high will be particularly challenging.¹⁰¹ These industries include steelmaking, mining, the aluminium supply chain, chemicals (such as fertilisers and plastics), cement, oil and gas, aviation, shipping and heavy road transport. The transition will also create significant opportunities to leverage our advantages to build entirely new businesses and bring in new innovations.

Globally, this is a highly competitive environment and South Australia will need to move quickly if we are to reindustrialise to take advantage of these opportunities. The electricity and water infrastructure required to achieve the state's green industrial ambitions will be on a scale far beyond anything previously seen in South Australia.¹⁰²

The transition to a large-scale, cost-competitive renewable energy system will be key to the green industrialisation. This includes both electricity generation and zero emissions fuels such as green hydrogen. South Australia's early leadership in the transition will contribute to the Government of South Australia's plan to establish a green hydrogen economy through the Hydrogen Jobs Plan and commitment to a green hydrogen power plant.

Decarbonisation of the economy will require significant amounts of critical minerals and rare earth elements. The South Australian Economic Statement sets out an ambition to build on our green industrial capability by manufacturing and exporting premium products like green iron and green processed critical minerals (including copper, graphite and rare earths).¹⁰³

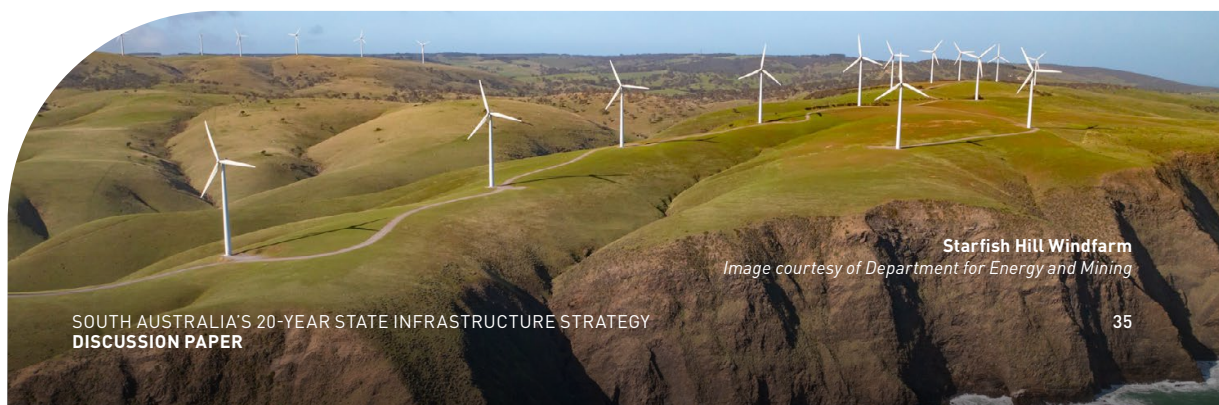
Clean energy alone will not fully support hard-to-abate sectors in reducing their emissions to achieve net zero. Remaining emissions will need to be addressed through other means, for example:

- Carbon offsetting via carbon planting or farming, which can strengthen biodiversity and provides employment. This may offer opportunities for First Nations people as part of the Australian Government's Caring for Country outcomes.
- Carbon capture and storage (CCS) technologies, which capture emissions in storage sites, such as geological formations or depleted oil and gas reservoirs. As an example, in South Australia, Santos Ltd is progressing with a CCS project at Moomba, with start-up expected in 2024.¹⁰⁴



Consultation question 15

What infrastructure investments will support industries to transition to a global net zero future?



Starfish Hill Windfarm

Image courtesy of Department for Energy and Mining

8.2 Decarbonised energy system

Our future energy system requires planning and investment to support security, reliability and affordability

Globally, the transition to a decarbonised energy system is accelerating and impacting all levels of society and the economy. South Australia's Green Paper on the energy transition was released for consultation in July 2023, and outlines both the opportunities and risks associated with the transition.¹⁰⁵

Electrification of the grid is driving increased levels of infrastructure investment across South Australia and will require an orderly, planned roll-out of new generation capacity coupled with appropriate levels of system security services such as firming capacity and frequency services. This will support a secure, affordable, and efficient transition.

South Australia has a target of 100% net renewable energy generation by 2030.¹⁰⁶ In 2021–22, renewables met almost 70% of South Australian total electricity consumption and in 2021 we met 100% of operational demand from renewables on 180 days.¹⁰⁷

The infrastructure investment required across such a complex system is challenging and needs a multi-faceted approach on supply (generation, storage and transmission) and demand (efficient management, local usage and emerging export opportunities). Multiple pathways and technology options exist to reach net zero emissions by 2050, and all require public and private sector collaboration to deliver the enabling infrastructure for a secure transition. Securing community acceptance through engagement will also be a key issue to address for new energy infrastructure.

Establishment of Renewable Energy Zones (via the draft Bill *Hydrogen and Renewable Energy Act 2023* (SA)) and the transmission infrastructure to connect to the National Grid are key enablers. The role of gas, hydrogen (and/or derivatives of hydrogen), domestic photovoltaic (PV) systems and the optimal mix of storage (short, medium, long duration) are some of the key issues to address. All scenarios outlined in the Integrated Systems Plan by the AEMO¹⁰⁸ show that there needs to be a diverse, system-wide approach to achieving net zero by 2050 drawing upon multiple energy sources and approaches.

While renewable energy sources, backed by batteries and other storage options, will provide the bulk of our energy needs, over the medium term it is likely that there will continue to be a role for gas-fired power plants to provide crucial 'firming' of the network demand at peak times. In the longer term, additional green energy sources may be developed, including green hydrogen.

Harnessing the opportunities presented through leveraging a 100% renewable energy system as outlined in the South Australian Economic Statement requires well planned, timely and coordinated approaches to infrastructure delivery.



Consultation question 16

How do we maintain an affordable, reliable and secure energy system through the energy transition?



Bungala Solar Farm
Image courtesy of Department for Energy and Mining

8.3 Transitioning transport

Transitioning transport to net zero requires a concerted effort

The transport sector includes road (people and freight movement), rail, aviation, and shipping and currently represents 29% of South Australia's total emissions.¹⁰⁹ Figure 7 shows a summary breakdown of emissions by mode. Each mode has its own unique set of challenges and opportunities to decarbonise across both the short- and long-haul (Box 10). Infrastructure to support transport has a long lifespan, so the impact of decisions made today will influence outcomes for decades to follow.

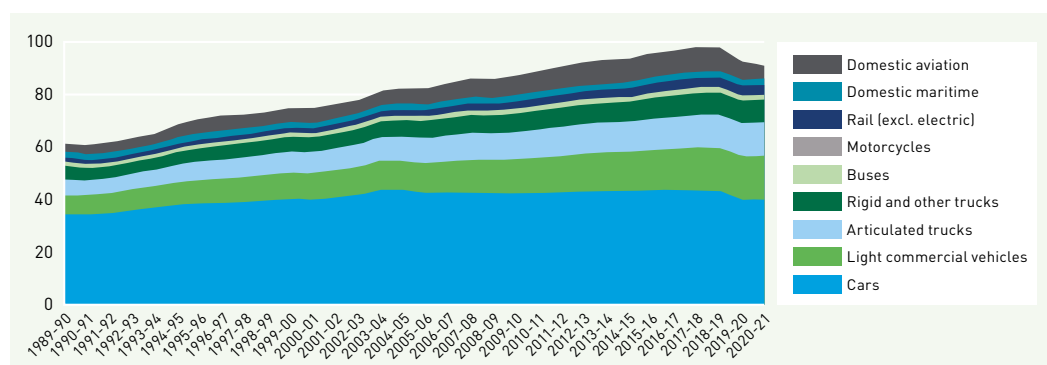


Figure 7:
Greenhouse gas emissions by mode, 1990–2020, Australia, ktCO₂e pa¹¹⁰

Box 10. Road freight emissions

Road freight has higher emissions compared to rail and is the dominant option of choice. By 2050, road freight is projected to increase to comprise 77% of the total freight task in Australia. Further, Australia's road freight fleet is ageing. In 2022, 14% of freight trucks on Australian roads were built before 1996. These are vehicles which emit 60 times the particulate matter of a new truck and eight times the nitrogen oxides.¹¹¹



The Government of South Australia is actively pursuing a range of priority actions to address this issue. This includes transitioning to a zero-emission public transport fleet and supporting the uptake of electric vehicles and delivery of associated charging infrastructure through initiatives such as the grant to RAA to install an electric vehicle charging network throughout South Australia¹¹². A challenge for government is that the public transport fleet is only a relatively small portion of transport emissions, so transition of private sector vehicles will be key to achieving overall reductions.

AEMO's expects the uptake of electric vehicles to increase electricity demand this decade.¹¹³ Planning for the increased load on the energy network, in addition to the deployment of public and private charging infrastructure will be critical for widespread electric vehicle adoption.

Global factors will also facilitate change to the South Australian transport sector, with alternative fuels development and the associated land-side impacts on infrastructure in shipping, rail and aviation all requiring local adaptation and adoption to meet our targets.



Consultation question 17

What are the most significant challenges for decarbonising transport and how do we address them?

8.4 A circular economy

A circular economy reduces waste and creates opportunities for South Australia

Generation of waste has traditionally been regarded as an unavoidable by-product of economic activity, including from inefficient production processes, low durability of goods and unsustainable consumption patterns by the community.

The circular economy presents significant opportunities for addressing this by-product and decarbonising the economy. By transitioning from a linear 'take-make-dispose' model to a circular economy approach, the use of virgin materials and generation of waste is reduced by keeping materials circulating through the economy (Figure 8).

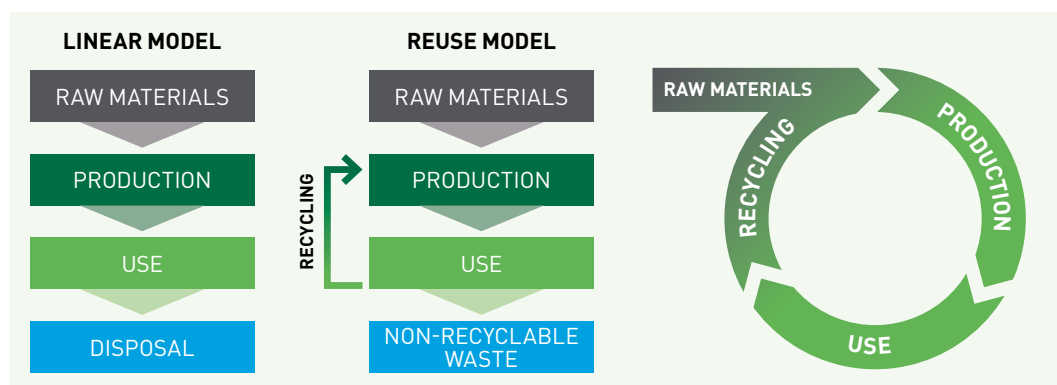


Figure 8:
The circular economy¹¹⁴

Growing the circular economy in South Australia has the potential to create an additional 25,700 full time equivalent jobs and reduce South Australia's greenhouse gas emissions by 27%.¹¹⁵ The National Waste Report 2022 shows South Australia has a high resource recovery rate of 80% and is the highest ranked jurisdiction in Australia for resource recovery.¹¹⁶

As an early adopter of technologies such as solar PVs, wind turbine generation and grid-scale storage (via lithium-ion batteries), South Australia will also be one of the first major developed jurisdictions to confront the opportunities and challenges associated with the resultant end-of-life waste streams generated.

As the energy transition progresses and the value of associated mineral resources increases, the economics of metallurgical recycling of wind turbines, solar panels and lithium-ion batteries will become compelling.¹¹⁷

However, Australia has little-to-no processing capabilities for grid-scale infrastructure waste streams and few planned beyond ideation stage. This leaves a gap in managing an estimated 50,000 tonnes of grid-scale solar PVs, 9,000 tonnes of wind turbines, and 4,500 tonnes of battery energy storage systems per year, by 2050 in South Australia alone.¹¹⁸ Further, established end markets for recovered materials exist globally, but are limited in Australia.¹¹⁹

Embedding decarbonisation principles in public procurement is another opportunity to accelerate the shift to a circular economy, with the Government of South Australia purchasing \$8.5 billion in goods and services every year.¹²⁰ A more circular approach to procurement could leverage government budgets to avoid or mitigate negative environmental impacts and reduce emissions and set a positive example to industry.



Consultation question 18

What action is needed to achieve a circular economy in South Australia?

8.5 Infrastructure delivery

Our infrastructure delivery needs to be environmentally sustainable

The construction and building of infrastructure contributes to waste, with the global built environment responsible for half of the world's raw material use and 40% of landfill waste.¹²¹ Three materials – concrete, steel and aluminium – make up for 23% of total global emissions, and most of this is used in the built environment.¹²²

Addressing embodied emissions is central to supporting decarbonisation across this sector (Box 11). Embodied emissions of construction materials are estimated to be approximately 5 to 10% of Australia's total emissions.¹²³ This proportion is expected to increase, particularly with the greening of the grid and improvements to operational energy use and energy efficiency.

Box 11. Embodied emissions

Embodied emissions or embodied carbon are the greenhouse gas emissions (carbon dioxide equivalent) that occur during resource extraction, transportation of resources to the manufacturer, manufacturing, and transportation of materials to construction sites.¹²⁴



Decarbonising the infrastructure sector requires a concerted effort to reduce emissions across the asset lifecycle – planning and design, construction, ongoing operations and maintenance and decommissioning. The greatest opportunity to reduce carbon emissions occur early in the infrastructure lifecycle (Figure 9). Careful consideration of materials and their embodied emissions will help reduce inputs of high carbon intensive materials (such as concrete, steel and glass), encourage reuse and facilitate end-of-life strategies and improved circular economy outcomes.

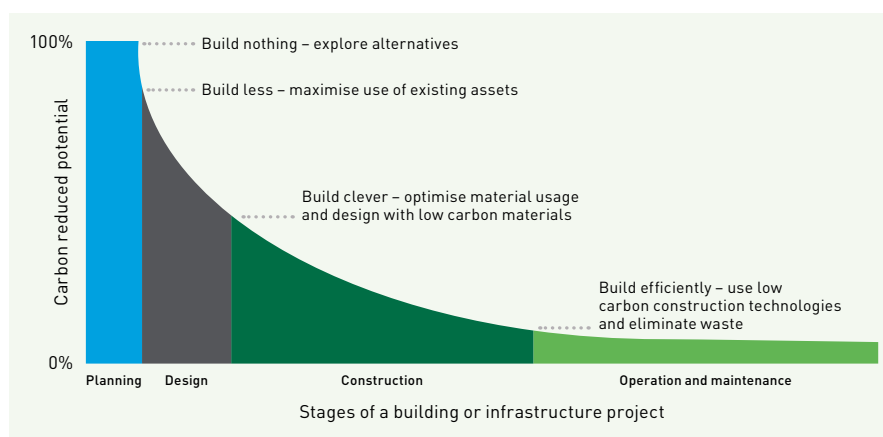


Figure 9:
Opportunities to reduce embodied emissions in different stages of a building or infrastructure project¹²⁵



Consultation question 19

What measures can be taken to enable the infrastructure industry to decarbonise?

9. Improved resilience



Objective 5.

Improved resilience to shocks and events helps avoid or respond to disruptions that impact our economy, services and supply chains

The economic prosperity and liveability of our cities and communities is reliant on the provision of well maintained, functioning infrastructure. Our infrastructure needs to be resilient to withstand and recover from shocks and long-term stresses, to ensure South Australians can continue to enjoy the benefits of living in a smart, sustainable and inclusive state.

With the impact of climate change and increasing global instability, we are seeing an acceleration of threats from natural and human-induced shocks and stresses.¹²⁶ By 2050, the annual cost of natural disasters is expected to increase from \$18 billion per year to more than \$39 billion.¹²⁷ Refer to Box 12 for recent economic losses from floods.

Box 12. Floods create lost economic activity

Lost economic activity from the widespread flooding across Australia in 2022 has been estimated at \$5 billion, the equivalent to a quarter of a percentage point of growth in 2021–22.¹²⁸



Events such as the COVID-19 pandemic, bushfires, cyber-attacks and extensive flooding across Australia highlighted the significant impact shocks and stressors have on our community and economy. Direct and indirect costs for response and recovery efforts, lost productivity, adaptation requirements, impacts to services and supply chains and increasing insurance costs all divert budget from other investments and impede economic growth.

Building consideration of resilience needs into our infrastructure planning and into the operations and maintenance of assets will assist in our ability to prepare and respond, reducing the economic, social, and environmental impact of these events.¹²⁹

Infrastructure Australia identifies three interconnected aspects of resilience – infrastructure resilience, organisational resilience and community resilience – from which, the concept of ‘infrastructure for resilience’ emerges (Box 13). This recognises a holistic and systematic approach to resilience is needed.

Box 13. Infrastructure for resilience

- **Infrastructure resilience:** the resilience planned for, designed, and built into assets, networks and systems (including natural assets).
- **Organisational resilience:** the resilience of the organisations, personnel and processes supporting infrastructure to supply a service.
- **Community resilience:** the community’s role in building and maintaining its own resilience while contributing to infrastructure resilience.¹³⁰



9.1 Planned resilience

Embedding resilience in planning can reduce the impact of shocks

Resilient communities can recover from and adapt to, the effects of shocks and stresses (Figure 10). This is essential to lessening the economic impacts of such events.



Figure 10:
Resilience definition¹³¹

Planning for a more resilient future, one that is less exposed to the economic impacts of shocks and stressors, requires an understanding of the risks and vulnerabilities associated with hazards and threats, and a systematic approach to planning for these. Understanding the extent to which a community can accommodate, absorb, adapt, resist or recover from hazards is critical. Infrastructure plays a core role in supporting each of these elements.

Strategic land use planning supports better resilience outcomes, as it guides the development and management of land and identifies, evaluates, and minimises risks; enhances adaptive capacity; protects ecological systems; and fosters sustainable development.

Climate change and planning for natural hazards are being integrated into planning processes across South Australia. The 'State Planning Policy 5: Climate Change' includes avoiding development in hazard prone areas where possible, or ensuring risks are mitigated to an acceptable or tolerable level, in a cost-effective manner.¹³² Increasingly, infrastructure developments are undertaking specific natural hazard and climate change risks assessments, though this is not yet consistently undertaken.

New state-wide mapping of riverine and surface water flood hazards and refined bushfire hazard mapping is currently being undertaken by the Planning and Land Use Services division of the Government of South Australia's Department for Trade and Investment. This will support future planning that directs development of sensitive uses (such as aged care facilities and schools) and critical infrastructure away from high-risk areas and those exposed to high hazard risks. The outcomes of this work will inform decisions about land use policy, infrastructure and responses to climate change.



Consultation question 20

How do we better account for the impacts of climate change in our infrastructure, to support improved resilience?



9.2 Critical infrastructure

Our critical infrastructure needs to be resilient to respond to disruptions

Critical infrastructure includes physical facilities, systems, assets, supply chains, information technologies and communication networks, that if unavailable for an extended period, would significantly impact our social or economic wellbeing or affect our ability to ensure national security.¹³³ Embedding resilience considerations in our critical infrastructure is important to ensure economic stability, the ongoing provision of essential services, community health and wellbeing and protection of the environment.

While each state is responsible for identifying and assessing their critical infrastructure, the Australian Government is responsible for the administration and enforcement of the *Security of Critical Infrastructure Act 2018* (Cth) which covers the major infrastructure sectors.

The Australian Government's Road and Rail Supply Chain Resilience Review Phase 1 identified nine major risks for nationally significant roads and rail networks (Figure 11). These hazards are common across all infrastructure sectors.

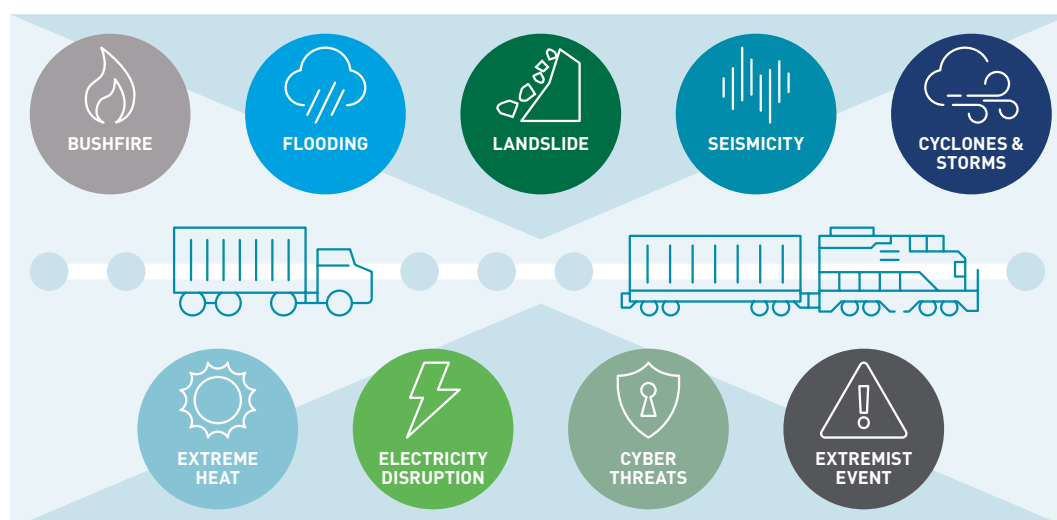


Figure 11:
Key risks to road and rail supply chain infrastructure¹³⁴

The Government of South Australia has strategies to address public critical infrastructure threats and governance arrangements to coordinate planning and actions. Private critical infrastructure operators are responsible for managing the risks to the operation of critical infrastructure assets they own.

A major challenge to achieving resilience is understanding the interdependencies between public and private infrastructure, the supply chains delivering goods and services and determining responsibilities and obligations in an increasingly complex world.

A sector-by-sector approach to resilience has generally been applied to date, however with increasing complexity, there is a pressing need to understand the shared risks, vulnerabilities and mitigations for critical infrastructure across sectors.¹³⁵

Other areas to consider for building the resilience of infrastructure include:

- incorporating a value for resilience in the investment process
- including the community in the decision making for critical infrastructure
- establishing a mitigation funding program for at-risk assets
- embedding ecological knowledge into the planning and development of infrastructure
- setting minimum resilience standards.



Consultation question 21

What are the critical resilience issues that South Australia needs to address?

9.3 Green and blue infrastructure

Green and blue infrastructure supports improved resilience

Green and blue infrastructure, together with other nature-based and ecological assets, plays a vital role in supporting resilience and the wellbeing of our communities (Box 14). The value of adopting a more systematic approach that incorporates green and blue infrastructure is being increasingly recognised.

Box 14. Green and blue infrastructure

Green and blue infrastructure is a system or network of natural and semi-natural systems.

Green infrastructure includes natural and built landscape assets which incorporate vegetation or natural features. It includes trees and green cover, parks and gardens, open recreational spaces, green roofs and façades, permeable pavements, walking and cycling tracks.

Blue infrastructure includes water-related features and assets such as waterways, dams, levees, wetlands, stormwater management systems, beaches and coastal structures.¹³⁶



Green and blue infrastructure is essential for helping our communities to mitigate and adapt to climate change and provides benefits for liveability, biodiversity and sustainability.¹³⁷

Green and blue infrastructure provides ecosystem services and benefits such as urban cooling, flood mitigation, water purification, air quality improvement, space for recreation and climate mitigation and adaptation.¹³⁸ It can also complement and offset the need for traditional infrastructure investments through avoided or reduced upgrades or augmentations. This in turn improves resilience, reducing community vulnerability and exposure to extreme events in an efficient way. Some of these benefits are shown in Figure 12.

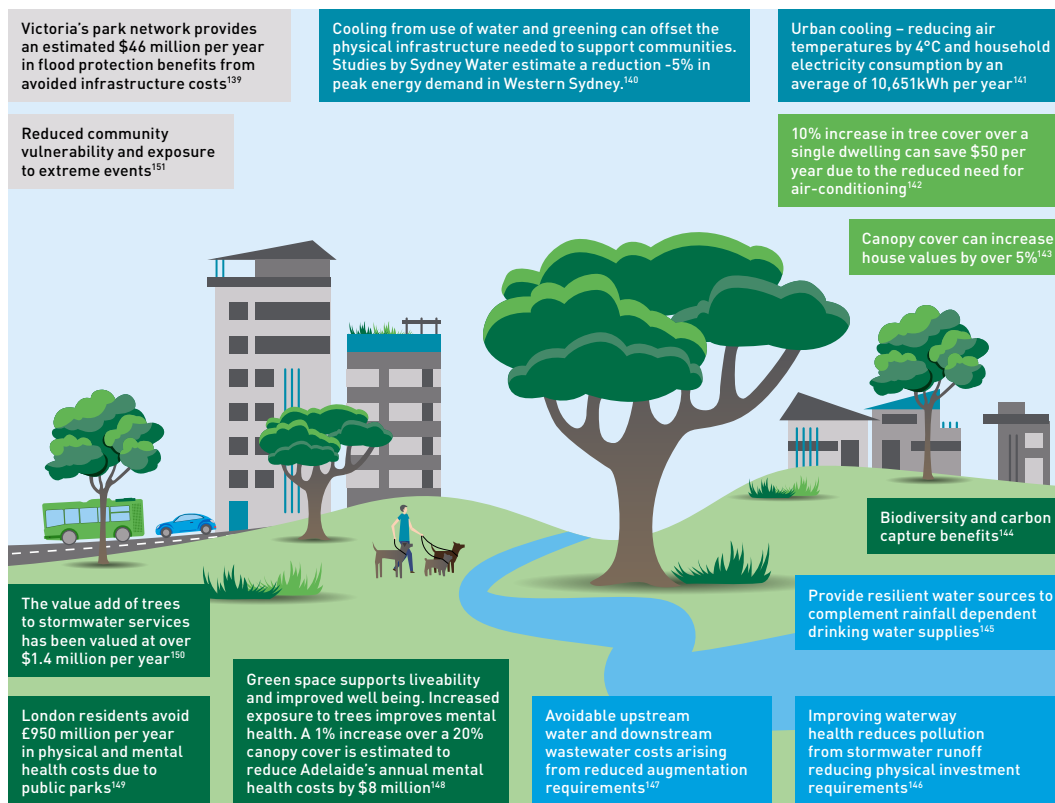


Figure 12:
Green and blue infrastructure benefits

At both a national and state level there is growing recognition of the need for stronger nature stewardship to better protect and enhance our natural systems, biodiversity and the ecosystem services they provide.¹⁵² Making sure impacts to natural systems and ecological processes are avoided, minimised and offset, as part of good decision making in infrastructure planning, supports this outcome.

Despite its recognised benefits, green and blue infrastructure is often overlooked and undervalued as infrastructure.¹⁵³ A lack of consistent approach to valuing benefits means they are not quantified in decision-making processes.¹⁵⁴ Fragmented ownership of the costs, benefits and risks also presents a barrier to protecting the existing green and blue infrastructure network and investing in new green and blue infrastructure assets.¹⁵⁵



Consultation question 22

How can we better realise the resilience benefits of green and blue infrastructure to inform infrastructure planning?



Dry Creek Linear Park
Image courtesy of Department for Environment and Water



Objective 6.

A stronger infrastructure industry optimises our infrastructure investment through better planning and prioritisation

The construction sector plays a significant role in the South Australian economy, accounting for \$8.9 billion, or 7.2% of GSP in 2021-22.¹⁵⁶ In the May 2023 quarter it employed 72,400 people, or 7.5% of the workforce in South Australia, the sixth largest employing sector.¹⁵⁷

Globally and locally, the infrastructure industry is facing challenges due to supply chain constraints, labour and skills shortages, and the significant pipeline of work. At the same time, escalating project costs and increasing project complexity are driving insolvencies and consolidation in the industry.

Good infrastructure planning requires identification of investment needs and priorities, based on a sound business case with a robust evidence base. Planning and sequencing infrastructure investments to support growth is critical to aligning infrastructure investments with the intended social, environmental and economic benefits. We need to optimise the use of our existing asset base through maintenance and augmentation, to strategically prioritising new infrastructure investment where necessary.

10.1 Planned pipeline

Visibility of the pipeline supports industry planning

There are a large number of projects and megaprojects in the forward pipeline across Australia (Figure 13) and globally, placing significant pressure on industry's ability to respond and deliver.

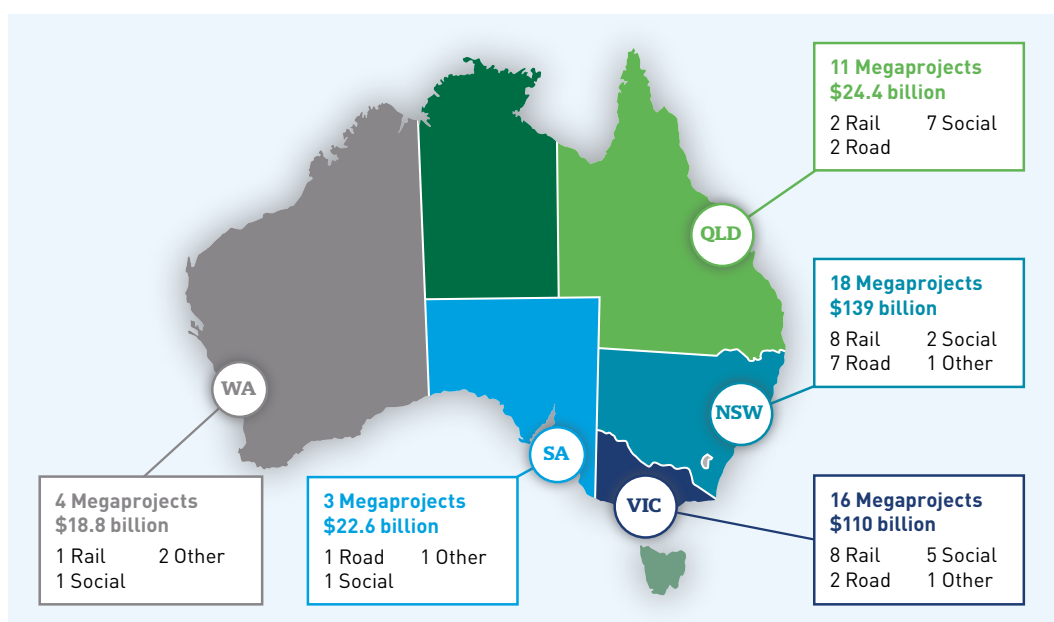


Figure 13:
Australia's megaproject pipeline (June 2023)¹⁵⁸

A megaproject is defined as any project with a published or estimated value of \$2 billion or more, and for social infrastructure a published or estimated value of \$1 billion or more.

To provide visibility to industry, the Government of South Australia publishes information on future infrastructure projects, however there isn't currently a whole-of-government approach.

The Government of South Australia's Department for Infrastructure and Transport publish an annual forward workplan which covers regional and metropolitan areas of the state across the next four years, for projects from planning and design to construction and delivery stages. Other infrastructure providers, such as SA Water, make information available via their regulatory submissions. However, this is not the case across the board. Increased engagement and visibility of the forward work program may allow industry to better plan their resourcing and capacity requirements.

According to Infrastructure Australia, the demand for public infrastructure projects exceeds the capacity of the existing workforce, with an estimated shortage of 442,000 skilled workers for public infrastructure projects in 2023, across all occupational groups.¹⁵⁹ A national skills gap of 200,000 staff by 2040 is estimated for engineering skills.¹⁶⁰

Workforce capacity constraints impact infrastructure delivery by creating cost pressures and delays. Given the pipeline is expected to remain strong in the medium to long term, opportunities will need to be created to address skills shortages, encourage industry participation, and improve productivity.



Consultation question 23

How can government and industry work together to support the supply of skilled labour needed to deliver a transparent infrastructure pipeline?

10.2 Digital technology

Productivity growth in the construction sector has been slow and improvements are needed to keep pace with change and help reduce capacity constraints. Greater adoption of digital technology offers an opportunity to drive productivity and innovation, for example, digital twins (Box 15), building information modelling, artificial intelligence, modern methods of construction and the Internet of Things can drive smarter, faster, and more cost-effective infrastructure delivery.

Box 15. Digital twins

A digital twin '...can bring together data in order to visualise, analyse and simulate services that can be performed to provide value to the nation'. For example, digital twins can:

- Avoid building a new road by simulating the performance of the existing road first
- Optimise the design of an asset before committing to building the asset
- Reduce energy consumption by up to 10% by analysing the performance of an asset and taking necessary action.¹⁶²



Digitisation also represents an opportunity to achieve greater value from existing infrastructure. By integrating digital technologies, existing infrastructure systems can benefit from data-driven insights and improved operational efficiency. While digital infrastructure may help support a more sustainable infrastructure industry, challenges relating to data sharing, the cost of adopting new technologies, lack of standardisation and interoperability and unequal access to technology remain.¹⁶¹ A holistic approach to adoption across government infrastructure projects will help address some of these challenges and ensure the productivity benefits from digital technology can be delivered.



Consultation question 24

How can we maximise the productivity benefits of digitising our infrastructure?



10.3 Effective procurement

Effective procurement can reduce risk and deliver better outcomes

The approach to procurement used by the Government of South Australia, like adopting early involvement and collaboration, can support a competitive and sustainable infrastructure industry and deliver on shared goals across risk, diversity, social procurement, decarbonisation and innovation. It's important the procurement model is fit-for-purpose for the project, sustainable, equitable and considers appropriate risk allocation amongst all parties.

Supporting industry with procurement approaches that package and sequence contracts to match market capacity and encourage participation, particularly from local, small-to-medium businesses, increases the diversity and capability across the industry to better meet needs.

To support our infrastructure delivery, the Government of South Australia aims to be a client that industry wants to contract with. Standardising and streamlining tender methods and requirements to reduce the costs and burden to industry, making tender processes clear, committing to realistic timeframes, and ensuring fair risk allocation will help achieve this.



Consultation question 25

How can government continue to encourage collaboration and innovation in procurement?

10.4 Funding and financing solutions

Infrastructure funding and financing solutions are needed to support a sustainable future

In South Australia, our public infrastructure such as transport, hospitals and schools is typically funded by the Government of South Australia. The Australian Government also directly invests in a number of our infrastructure projects. Governments finance their infrastructure investment through debt or equity. Refer to Box 16 for definitions.

Box 16. Funding and financing

Infrastructure funding refers to how investment and operational costs are repaid over time. For public infrastructure this is by users of the infrastructure through charges such as tolls, or by taxpayers.

Infrastructure financing refers to the money raised upfront for the design, construction and early operating costs of an asset, through debt or equity arrangements.¹⁶³



Given the pressure on future budgets and the need to meet fiscal targets, including sustainable levels of net debt, broader funding and financing models may be relevant. Establishing a balance between risk allocation, achieving value for money and service delivery levels would remain key considerations in any new arrangements.



Consultation question 26

What are the funding and financing options government should consider in future, to ensure its infrastructure program remains affordable and sustainable?

11. Consultation questions

Infrastructure SA seeks to understand and address key strategic infrastructure issues with the potential for wide-ranging impacts. We are keen to leverage the knowledge and experience across industry, governments and the community.

To help frame your responses, each chapter of the Discussion Paper poses a series of questions, also outlined below. Your responses to these questions will guide our considerations as we develop the new Strategy. Where possible, each response should include evidence, such as relevant data, documentation or references to support your views.

Our strategy will focus on infrastructure of a strategic or significant nature for South Australia. Infrastructure that best supports the Government of South Australia's vision for economic growth and prosperity and ensures we balances social, environmental and economic outcomes.

If your input is regarding a relatively small project or specific locality, it may be more appropriate to approach your local council or the Department for Infrastructure and Transport.

Table 2:
Consultation questions

Location	Question number	Questions
Chapter 4 The economic context		
Section 4.4 Our productivity challenge	1	What opportunities should we consider to improve South Australia's economic growth?
Chapter 5 Enabling infrastructure		
Section 5.1 Freight and supply networks	2	What infrastructure constraints are preventing a more efficient, accessible, and productive freight sector?
Section 5.2 Water supply	3	How can we enable a sustainable and affordable water supply into the future?
Section 5.3 Energy transmission	4	How do we realise the opportunities and mitigate risks with transforming our transmission and distribution infrastructure for the future?
Section 5.4 Digital connectivity	5	What are the barriers to increased adoption of digital technology to improve productivity?
Section 5.5 Resource exports	6	What investments could unlock the value of South Australia's resources?
Chapter 6 Liveable and well-planned places		
Section 6.1 Coordinated planning	7	How can South Australia better coordinate infrastructure investment to support a growing population?
Section 6.2 Affordable housing	8	What can be done to support sufficient, fit-for-purpose housing to improve housing affordability?
Section 6.3 Public transport	9	How can we improve public transport services across Adelaide and outer metropolitan areas to encourage greater patronage?

Table 2:
Consultation questions cont.

Location	Question number	Questions
Section 6.4 Health and wellbeing	10	What investments would support a more efficient and productive health system that meets our growing and changing needs?
Section 6.5 Education and skills	11	How can infrastructure support improved education and skills outcomes for South Australia?
Section 6.6 Cultural, tourism, and recreational facilities	12	How can we sustainably grow these sectors to realise greater benefits for visitors and residents?
Chapter 7 Accessible and inclusive infrastructure		
Section 7.2 Regional and remote areas	13	How can we think differently about infrastructure investment to support equitable access and a more inclusive society?
Section 7.3 Closing the Gap	14	What are the opportunities for infrastructure investment to accelerate attainment of the Closing the Gap targets?
Chapter 8 A decarbonised, sustainable economy		
Section 8.1 Green industries	15	What infrastructure investments will support industries to transition to a global net zero future?
Section 8.2 Decarbonised energy system	16	How do we maintain an affordable, reliable and secure energy system through the energy transition?
Section 8.3 Transitioning transport	17	What are the most significant challenges for decarbonising transport and how do we address them?
Section 8.4 A circular economy	18	What action is needed to achieve a circular economy in South Australia?
Section 8.5 Infrastructure delivery	19	What measures can be taken to enable the infrastructure industry to decarbonise?
Chapter 9 Improved resilience		
Section 9.1 Planned resilience	20	How do we better account for the impacts of climate change in our infrastructure, to support improved resilience?
Section 9.2 Critical infrastructure	21	What are the critical resilience issues that South Australia needs to address?
Section 9.3 Green and blue infrastructure	22	How can we better realise the resilience benefits of green and blue infrastructure to inform infrastructure planning?
Chapter 10 A stronger infrastructure industry		
Section 10.1 Planned pipeline	23	How can government and industry work together to support the supply of skilled labour needed to deliver a transparent infrastructure pipeline?
Section 10.2 Digital technology	24	How can we maximise the productivity benefits of digitising our infrastructure?
Section 10.3 Effective procurement	25	How can government continue to encourage collaboration and innovation in procurement?
Section 10.4 Funding and financing solutions	26	What are the funding and financing options government should consider in future, to ensure its infrastructure program remains affordable and sustainable?

12. How to make a submission to Infrastructure SA

We want to hear from you

Infrastructure SA welcomes submissions from anyone who would like to inform this process.

Written submissions must be received by 13 November 2023 and can be made via:



YourSAy
South Australia's 20-Year State Infrastructure Strategy



Email
infrastructure@sa.gov.au
Subject: Submission - South Australia's 20-Year State Infrastructure Strategy - Discussion Paper feedback



Post
Attention: Strategy Team
Infrastructure SA
GPO Box 2343, Adelaide SA 5001

Publication of submissions

All submissions will be published on Infrastructure SA's website as public documents.

Please make sure your submission does not include personal details or any material that you do not wish to make public.

If you wish to treat part of your submission as confidential in nature you will need to make a case for this. Confidential material should be clearly marked 'IN CONFIDENCE' and provided in a separate attachment to non-confidential material.

We will not publish any material that is deemed offensive or potentially defamatory.



Got questions?

Contact us via email: infrastructure@sa.gov.au

13. Glossary of terms

Aboriginal people	Aboriginal and Torres Strait Islander people
AEMO	Australian Energy Market Operator
AUKUS	Trilateral security pact between Australia, the United Kingdom and the United States
CBD	central business district
CCS	carbon capture and storage
CPI	consumer price index
GDP	gross domestic product
GL	gigalitre
GRP	gross regional product
GSP	gross state product
ISP	Integrated System Plan
ktCO ₂ e	kilotonnes of carbon dioxide equivalent
LULUCF	Land use, land-use change, and forestry
OECD	Organisation for Economic Co-operation and Development
pa	per annum
PPP	purchasing power parity
PV	photovoltaic
RBA	Reserve Bank of Australia
RDA	Regional Development Australia
SA	South Australia
US\$	currency in United States dollars
\$	currency in Australian dollars

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8 Reports for Noting

8.1 Drainage - Change in Methodology

Report Reference	IC231107R8.1
Originating Officer	Civil Services Unit Manager – Doug Eatts
Corporate Manager	Manager Operations - Brian Green
General Manager	General Manager City Services - Ben Keen

REPORT OBJECTIVE

The objective of this report is to advise the Infrastructure Committee on the change in delivery methodology for stormwater projects and showcase the environmental, time & cost savings, and the performance benefits of utilising recycled sand, recycled screenings, and fibre-reinforced concrete (FRC) pipes.

The report highlights the cost savings, sustainable and practical advantages of using recycled materials and FRC pipes over traditional alternatives, and provides comment on their impact on resource conservation, waste reduction, project timelines, cost efficiency, and overall project performance.

EXECUTIVE SUMMARY

The City of Marion (CoM) has taken significant strides toward sustainability in stormwater projects by adopting recycled sand and recycled screenings. This initiative aligns with environmentally responsible practices, contributing to resource conservation, waste diversion, and a lower carbon footprint.

The use of recycled materials not only meets project specifications but also accelerates project timelines by providing readily available materials sourced from existing waste streams.

In addition to recycled materials, the trench width required for drainage construction has been reduced to 150mm from 200mm from beyond the pipe wall which provides significant cost benefits.

CoM has also adopted the use of FRC pipes for stormwater projects. This strategic decision has the benefits of enhanced pipe strength and durability, superior performance under heavy loads, lightweight nature, corrosion resistance, and enhanced hydraulic performance.

RECOMMENDATION

That the Infrastructure Committee:

- 1. Notes the change in Stormwater Drainage delivery methodology and the sustainable benefits for the City of Marion.**

DISCUSSION

The typical Stormwater Drainage Cross-section for the newly adopted stormwater drainage methodology is shown in Diagram 1 below.

Using 10-14mm diameter screenings in the bedding haunch and side zones up to the spring line of the pipe allows for a reduction in trench width from 200mm to 150mm beyond the pipe wall due to the self-compact function provided by these screenings.

Recycled Sand, meeting the DIT Master Specification RD-PV-S1, is strategically placed above the spring line of the pipe and in the overlay zone, ensuring compliance with specifications.

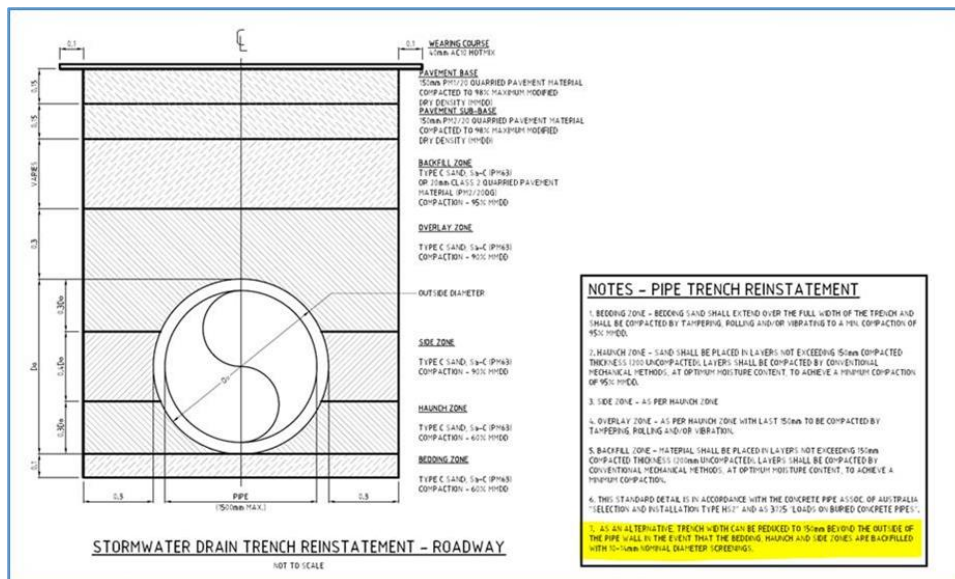


Diagram 1. Typical Stormwater Drain Cross-section

For the sub-base and base course layers, PM2/20 RG Recycled Grade backfill material from CoM southern depot is employed, contributing to sustainability and waste reduction.

The AC10 wearing course adopts sustainable asphalt, incorporating 30% Recycled Asphalt Percentage (RAP) instead of traditional hot asphalt, reflecting a commitment to eco-friendly construction practices.

The new methodology provides a range of environmental benefits and a reduction in overall costs.

Environmental benefits include:

1. Use of waste materials like recycled sand and recycled screenings contribute to resource conservation and reduce the environmental impact associated with extracting and processing raw materials.
2. Incorporating recycled materials into stormwater projects helps divert waste from landfills. This aligns with sustainable waste management practices and contributes to the reduction of overall waste volumes.
3. Using recycled sand and recycled screenings contribute to a lower carbon footprint.

An example of cost savings is shown in Table 1 below from a recent project undertaken in the CoM.

Contractor	A	B	C	D
Total Cost	\$A	\$B	\$C	\$D
% Difference to Contractor A	0.0%	100.4%	230.7%	128.8%
Avg. % Different to Beltrame	153.3%			

Table 1. Cost Comparison

In this example, Contractor A adopted the new stormwater drainage methodology and as can be seen resulted in a significantly reduced cost compared with other contractors. In this case study, the costs for Contractor A are nominally half the cost of others.

ATTACHMENTS

1. Drainage Presentation [8.1.1 - 7 pages]

CITY OF MARION



23/24 DRAINAGE CONSTRUCTION

“Changes in approach”

marion.sa.gov.au

Benefits of recycled materials



City of Marion started using recycled sand and recycled screenings for stormwater projects.

The benefits are:

- Reduced environmental impact
- Time saving
- Cost effective
- Quality
- Performance

How recycling saves money



The new methodology provides a range of environmental benefits and a reduction in overall costs. An example of cost savings is shown in Table 1 below from a recently completed project.

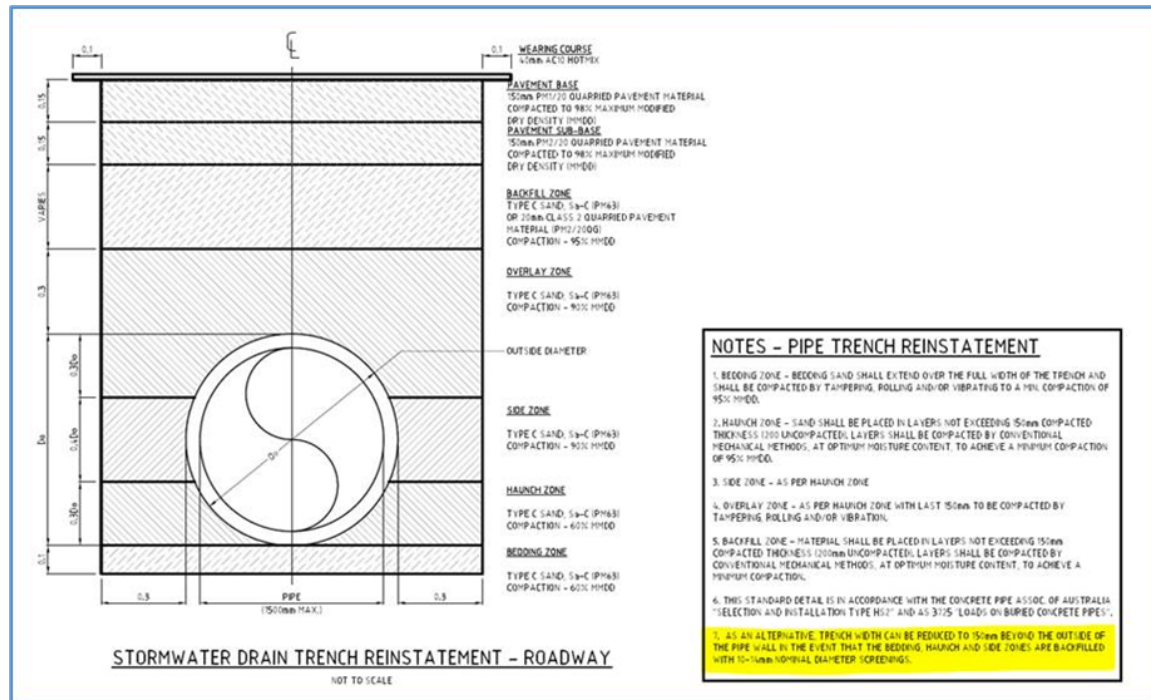
Contractor	A	B	C	D
Total Cost	\$A	\$B	\$C	\$D
% Difference to Contractor A	0.0%	100.4%	230.7%	128.8%
Avg. % Different to Contractor A	153.3%			

Description	Cost per linear meter (nominal 375mm dia FRC pipe) as per New Method	Cost per linear meter (nominal 375mm dia FRC pipe) as per Existing Method
Clean waste fill to be removed from site	\$18	\$20
Required imported materials (Type C Sand vs recycled sand & 10-14mm screen)	\$35	\$40
Asphalt to be reinstated	\$40	\$70

Revised drainage design



Typical stormwater cross-section for the newly adopted stormwater drainage



Benefits of FRC piping



The benefits of using fibre-reinforced pipes (FRC) rather than the traditional reinforced pipes are:

- Strength and durability
- Corrosion resistance
- Chemical resistance
- Improved hydraulics



CITY OF MARION



BROAD HORIZONS BRIGHT FUTURE

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9 Workshop / Presentation Items

9.1 Year in Review

Report Reference	IC231107R9.1
Originating Officer	Manager Engineering, Assets and Environment – Mathew Allen
Corporate Manager	- N/A
General Manager	General Manager City Services - Ben Keen

REPORT OBJECTIVE

This report offers the Infrastructure Committee an opportunity to provide feedback on its effectiveness in enhancing our infrastructure and public services. The Infrastructure Committee has provided valuable input into advancing infrastructure development initiatives and strategies.

EXECUTIVE SUMMARY

Throughout 2023, the Infrastructure Committee deliberated on 9 reports, each addressing various aspects and priorities related to infrastructure and public services. These reports and discussions spanned a broad spectrum of infrastructure-related topics.

The Chair of the Infrastructure Committee will lead a workshop with the committee to assess successful approaches, areas that require improvement, and determine future priorities for the Committee in the realm of infrastructure and public services.

RECOMMENDATION

That the Infrastructure Committee:

- Notes the Year in Review feedback.**

DISCUSSION

The Infrastructure Committee has played a pivotal role in the development of infrastructure strategies, which have enabled Council to progress infrastructure initiatives.

Throughout 2023, the Infrastructure Committee examined 9 reports and addressed the following agenda items:

Infrastructure Committee

DATE	REPORT	AUTHOR	SUMMARY
04/04/2023	Preliminary Draft parking management guidelines	Carl Lundborg	Draft Parking Management Guidelines for the City of Marion. This is to provide clear guidance and consistency when identifying if there is an issue and how to apply an

DATE	REPORT	AUTHOR	SUMMARY
			appropriate solution. This will also help with providing residents, Council Members, and the community with what to expect when parking within the City of Marion Road network.
06/06/2023	Stormwater management	Carl Lundborg	Overview of current stormwater management practices and other initiatives currently undertaken at the City of Marion.
5/09/2023	Footpath Strategic Review	Daniel Chan	Footpath management strategies relating to new footpath creation and provide options for strategic improvement.
05/09/2023	Marion Water Project update	Glynn Ricketts	The extension of the Marion Water distribution network and associated ancillary infrastructure will replace 144ML of portable water in the Seacliff area, Flinders University and the Women's Memorial playing field. Marion Water is expanding significantly; over 12km of high-pressure recycled water main is under construction. This, in conjunction with a new injection and extraction well at Oaklands and additional pumps to increase pressure and flow enables a step change in the operation, delivering an additional 144ML p/a (over 250ML overall) of treated stormwater for irrigation of green space.
05/09/2023	Community Gardens Policy	Anna Haygreen	This report seeks feedback on the draft City of Marion Community Gardens Policy (Attachment 1) before a final draft is presented to the General Council for endorsement. At the Forum, there was considerable discussion about how the Council can improve support for community gardens, and it was determined that further feedback and discussion was required.
05/09/2023	Draft Asset Management Strategy	Brendon Lyons	This report seeks feedback from the Infrastructure Committee on the draft Asset Management Strategy 2023-2033 and the Community Engagement Plan. The strategy has been developed through internal stakeholder engagement and approved by the Assets Steering Committee, a representative body of senior leaders and asset owners established to ensure the organisation maintains the necessary focus and energy required to drive the successful implementation and embedding of an asset management

DATE	REPORT	AUTHOR	SUMMARY
			culture that will enhance and optimise delivery of our core business. The Draft Asset Management Strategy 2023 - 2033 was presented to the Finance Risk and Audit Committee for comment at the meeting on 15 August 2023. Comments were minor and feedback was given that the strategy is a comprehensive document that is easy to read and pitched at exactly the right level
7/11/23	Civil Service Review	Brian Green	This report outlines the progress of the Civil Service Review.
7/11/23	South Australian 20 Year Infrastructure Strategy Discussion Paper.	Carl Lundborg	This report seeks the Infrastructure Committee to provide feedback on the South Australian 20 Year Infrastructure Strategy consultation.
7/11/23	Drainage – Change Methodology	Doug Eatts	This report outlines the changed construction methodology for the delivery of drainage projects.

The Chair of the Infrastructure Committee will facilitate a workshop with the committee members to evaluate the effectiveness of previous initiatives, pinpoint areas in need of enhancement, and establish the committee's future priorities.

ATTACHMENTS

Nil

10 Other Business**11 Meeting Closure**

The meeting shall conclude on or before 8.00pm unless there is a specific motion adopted at the meeting to continue beyond that time.