

Resilient Asset Management Project

Phase 1 report

Resilient South

March 2023



Contents

Sections

0 Project Background	3
1 Mission statement	5
2 Scenarios	8
3 Next steps	21

Boxes

1 The RAMP pilot mission statement	6
2 Considering the role of principles	7
3 Reading guide for pages 12 to 20	12
4 Determining level of change	14

Appendices

A 1 November 2022 workshop capture	23
B 10 February 2023 workshop capture	27

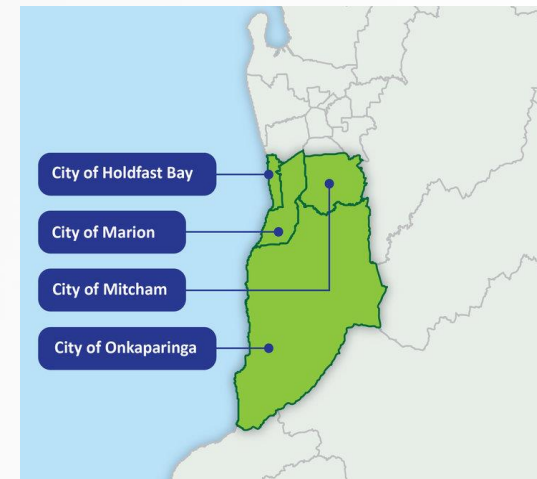
Document control

Report title	Phase 1 report					
Client	Resilient South	Project number	522543			
Client contact	A Pannell					
Rev	Date	Revision details/status	Author	Reviewer	Verifier (if required)	Approver
1	2023-03-06	Issue to Working Group	E Hendrikx	M Nolan	N/A	J Bricout
Current revision		1				

About Resilient South

Resilient South is a partnership of the Cities of Marion, Mitcham, Holdfast Bay and Onkaparinga.

It is about strengthening southern Adelaide so that our businesses, communities and environments can bounce back from the challenges of climate change, and stay productive, connected, and strong. The impacts of a changing climate are already being felt across southern Adelaide.



About the delivery team

Aurecon is a design, engineering and advisory company that brings ideas to life to create a better future for people and the planet. Aurecon is responsible for delivering the first three phases of the RAMP pilot. They will also be supporting the delivery of Phase 4.

Phase 4 will be led by **CSIRO & Value Advisory Partners**, who have developed the Enabling Resilience Investment methodology. This approach will be applied to identify the best opportunities for climate adaptation.

The RAMP has received financial support from the Resilient South councils, CSIRO, the LGA SA Research and Development Scheme, and the Disaster Risk Reduction Grants Program funded by the Australian Government and the South Australian Government*.

* Views and findings associated with this project are expressed independently and do not necessarily represent the views of the State and Commonwealth funding bodies.



0

Project background

The Resilient Asset Management Project (RAMP) pilot aims to improve the resilience of our communities by integrating climate risk into council asset management processes.

Across four phases of work, the pilot will develop an approach to assess different asset classes at different scales. Mapping resilience pathways for different asset classes will allow councils to understand the different risk and opportunities that each asset class presents.

Introducing the Resilient Asset Management Project

About the RAMP

The Resilient Asset Management Project (RAMP) is a collaborative project, between the four Resilient South councils – Cities of Marion, Mitcham, Holdfast-Bay and Onkaparinga – and the South Australian Government, in collaboration with the CSIRO and Value Advisory Partner’s Enabling Resilience Investment initiative. The RAMP pilot represents the third phase of the broader project, which began in July 2021.

The primary aim of this project is to develop an approach to assess and mitigate climate-related risks to council assets in the context of the services they provide. These approaches should be able to be adapted by other South Australian councils over time.

Research in recent years has found that a systems approach is needed to achieve resilience. This means thinking beyond the resilience of assets themselves to how assets contribute to the resilience of the system. This requires consideration of how to strengthen the asset and network as well as the place, city and region.

Aurecon is working in collaboration with

the Resilient South councils, CSIRO and Value Advisory Partners to deliver the first three phases of the RAMP pilot.

Building resilience into practice

Building resilience requires embedding it into all decisions. This requires personal, structural and cultural change. A core component of this climate change adaptation project is to upskill staff from across the four Resilient South councils, to integrate climate risk into processes across the organisations.

This work has formed the basis of the RAMP pilot’s first phase. In Phase 1, we have socialised the RAMP pilot with 73 internal stakeholders across the following council service areas:

- Asset management
- Finance/ procurement
- Risk
- Economic development / growth
- Strategy and planning
- Community Services
- Sustainability

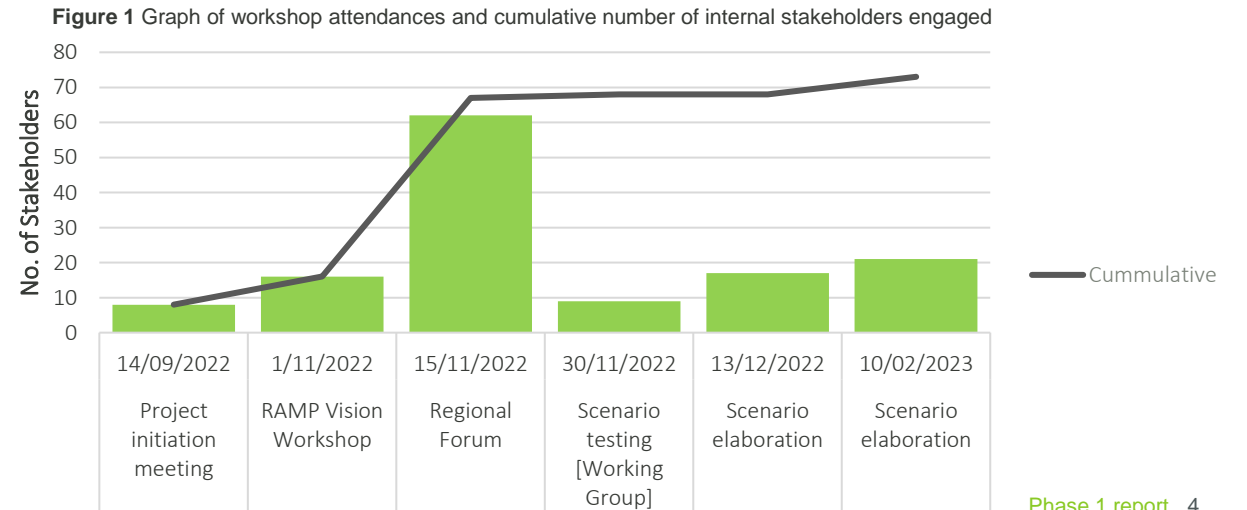
- Environmental management
- Research officer

Workshops, to develop a vision, mission statement and interrogate future scenarios, have built council staff capacities. In collaboration with council staff, Aurecon, in partnership with URPS and CSIRO hosted:

- RAMP vision workshop, 1 November 2022
- Regional Forum, 15 November 2022
- Scenario elaboration workshop, 13 December 2022
- Scenario elaboration workshop, 10 February 2023

About this report

The first phase of the pilot focused on scoping the project and engaging internal stakeholders in the project, is complete. This report summarises the process to date and outlines next steps.





1

Mission statement

Phase 1 of the Resilient Asset Management Project pilot focused on ensuring all four Resilient South councils start on the journey with a shared understanding of why the project is being undertaken. Investing in this process reflects that each council brings a diversity of approaches, size and resources to the project.

Part of this phase was developing a vision. Through the process of development, it was determined that the RAMP would benefit more from a mission statement.

This mission statement was co-developed with council representatives through several workshops. While the mission represents the goals of the pilot, the process of engaging new stakeholders in the project is as important as the end result.

A vision for the RAMP?

A **vision statement** is a long-term view of a desired future state. It differs from a **mission statement**, which describes how an organisation chooses to pursue its goals.

Does the RAMP need a vision or a mission statement?

Early in the process of developing *a shared vision for a resilient southern Adelaide*, it was identified that a regional vision had not been created during the 2014 Resilient South Regional Climate Action Plan.

The Regional Climate Action Plan (ReCAP) is currently being revised, led by planning consultancy URPS and in partnership with the four Resilient South councils. Developing this vision became part of their remit, with the project team consulting broadly within council, with communities and businesses.

In place, Aurecon became responsible for developing a vision for the RAMP. Interrogating this further, one objective of the pilot is:

to understand how asset management and funding decisions can contribute to achieving the regional vision.

With this in mind, Aurecon recommended the RAMP pilot adopted a **mission statement**, to provide the how-to framing which would enable progress towards the regional vision.

The mission statement (Box 1) was informed by workshop activities on 1 November and 15 November 2022. Preliminary options were workshopped with the RAMP Working Group before the final version was approved.

Box 1

The RAMP pilot mission statement

Making proactive, responsible decisions to deliver and manage climate-ready council assets and services, supporting a safe, connected and thriving resilient southern region



Figures 2-4 Photographs of 1 November 2022 workshop with representatives from all four Resilient South councils

Developing the mission

A workshop was held on 1 November 2022 to develop mission for the RAMP with Working Group members and council stakeholders from the following service areas:

- Asset management
- Finance
- Risk
- Sustainability

The purpose of these workshops was to provide an open forum for discussion on the vision for the RAMP and begin identifying opportunities for intervention in future phases. It was also an important opportunity to socialise the RAMP among the councils.

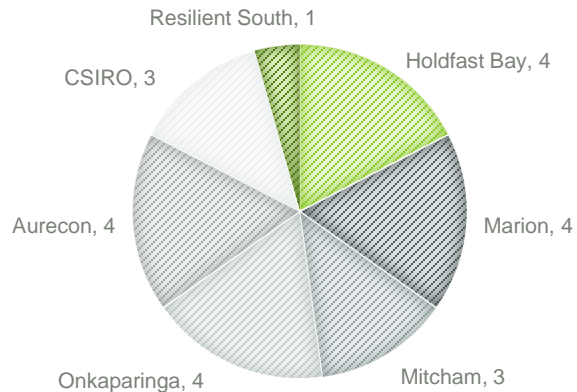


Figure 5 Summary of organisational representation, including facilitators

This initial process of project scoping and engagement is a key component of the Enabling Resilience Investment methodology, where diverse stakeholders are engaged through active learning and inclusive dialogue.

What we observed on the day

For many participants, this was the first time they had engaged with the RAMP project. These participants expressed particularly high levels of enthusiasm, and eagerness to get started.

Though councils and service group roles demonstrated a diversity of approaches, the activities showed there is a shared understanding:

- on the need for action on climate-related risks,
- that the purpose of asset management is to provide for community needs, and
- on the key elements of a RAMP vision.

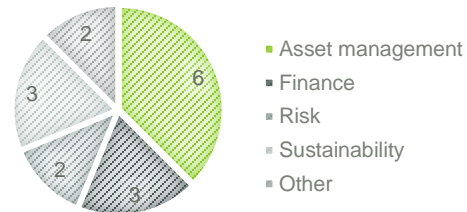


Figure 6 Summary of service groups council reps.

Themes of the pilot

In mixed groups, participants first brainstormed the RAMP's themes. The following were common to all groups.

- Community needs and expectations
- Finance and economics
- Good governance and informed decision making
- Considering climate and physical risks to assets

The who, what and why

The workshop then developed a shared understanding of:

- Who the RAMP is for?
community, society, nature, business
- What it is hoping to achieve/produce?
long-term change; continuous provision of community services; connected, empowered people and places, healthy and regenerating natural systems; effective and functioning assets and services
- Why is it happening? What is its purpose?
to enable wise spending decisions; avoid climate change impacts; leave a legacy; intergenerational equity; to value natural assets

This information was used to further develop options for a mission statement, which were further refined with the RAMP Working Group. The final version (Box 1) was adopted by the Working Group on 13 December 2022.

Box 2

Considering the role of principles

During the December Working Group meeting, a question came up around whether the RAMP mission statement should be supported by principles. Any principles should be closely developed with key stakeholders and align with work being done through the ReCAP.

Principles could help guide adaptation planning in Phase 3 of the pilot. Resilient South has previously developed principles for adaptation planning. These may be reviewed when appropriate.



Figure 7 Strategic planning pyramid



2

Scenarios

Scenarios developed for the Resilient Asset Management Project help frame decision-making in uncertain, but plausible futures. The scenarios are based on internationally recognised frameworks.

On 10 February 2023, a workshop was held to explore local and regional implications for asset management and council services in each of the four scenarios.

These scenarios, elaborated in collaboration with Resilient South stakeholders, will support future phases of analysis, risk assessment and opportunity identification.

Introduction to scenarios

Scenarios are narratives that describe **how the future could unfold depending on how different social and economic factors might change.**

Why use scenarios?

Scenarios are an important tool that can help us imagine what the future looks like in a changing climate.

Scenarios help an organisation to:

- identify and test what the future might look like
- explore uncertainties and how the future could unfold
- identify the range of options available to an organisation.

Scenarios are not predictions.

They are narratives framed by different ideas about what might change (see Figure 8), both in terms of socio-economic pathways and physical climate change impacts.

This means we can explore what the future **could** look like, based on alternative choices that could be made by governments, businesses and communities. Each of the parameters that define the difference between the scenarios align to key megatrends and the potential trajectories they might take.

Scenarios are not intended to predict or forecast the future.
They are tools we can use to stress test our current practices and gain an awareness of risks and opportunities.

Megatrends: drivers of future change

Megatrends provide a view of long-term macro patterns with the potential to transform the global future. CSIRO released an updated view of these megatrends in 2022 (Figure 7).

When we consider scenarios of how the future may evolve we can consider how these trends may shape it.

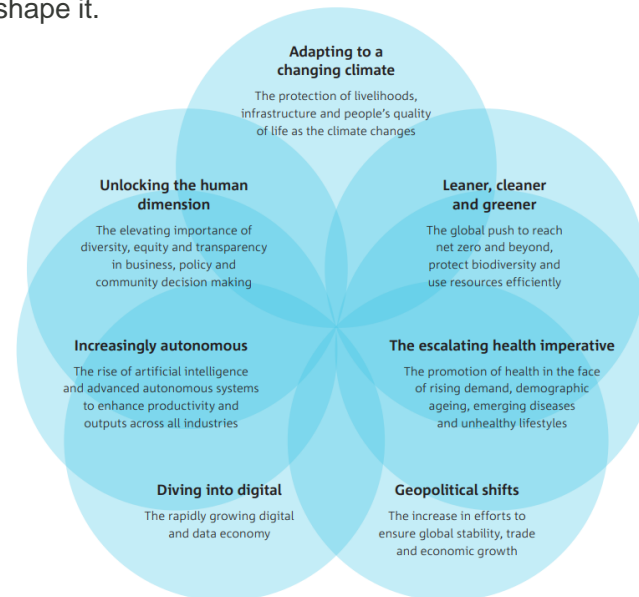


Figure 8 Global megatrends
Source: Naughtin C et al. (2022) 'Our Future World.' Brisbane, Australia: CSIRO.

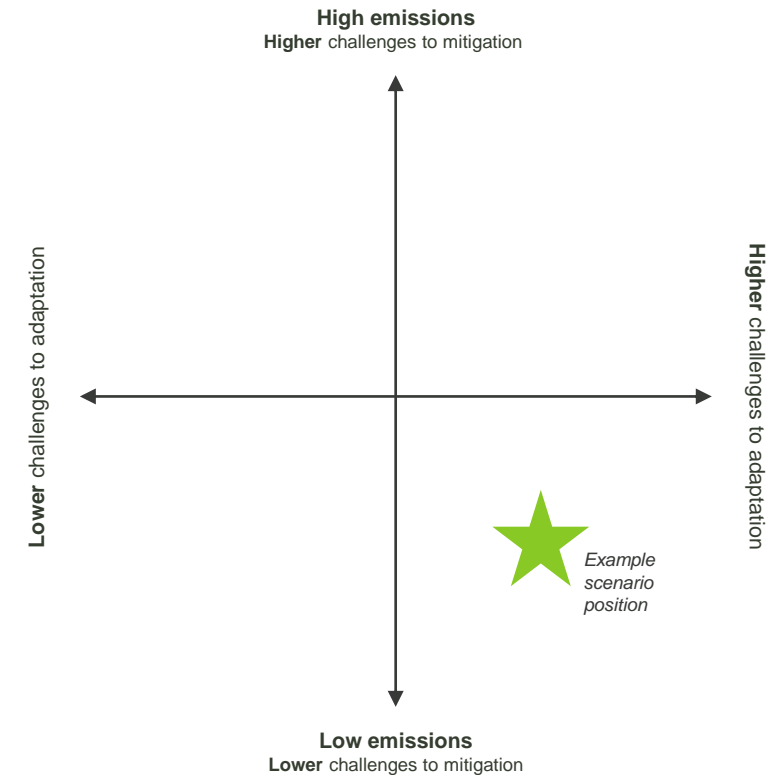


Figure 9 Example scenario axis

Quick explainer on scenario frameworks

This project uses adaptations of global Shared Socio-Economic Pathways Scenarios (SSPs), linked with Representative Concentration Pathways (RCPs).

A common starting point

Developed by the International Panel on Climate Change, Representative Concentration Pathway and the Shared Socio-economic Pathways frameworks provide a consistent source of top-down data and assumptions.

SSPs are designed to complement RCPs. The RCPs describe greenhouse gas emission pathways, and therefore the likely warming out to 2100, while the SSPs describe the socio-economic environment in which any emission mitigations will have to be achieved.

Combining these two frameworks provides the best information around future trends, giving us insights into the social, economic and climatic factors that could affect council assets and services.

About Representative Concentration Pathways (RCPs)

The RCPs make predictions of how different concentrations of greenhouse gases in the atmosphere will change future climatic conditions. They are 'emissions scenarios' that describe a set of alternative trajectories for the atmospheric concentrations of key greenhouse gases and include simulations of possible future temperature increases (Figure 9).

About Shared Socio-economic Pathways (SSPs)

SSPs are scenarios of global socioeconomic changes up to 2100. They describe different baseline worlds, defined by changes to population, education, urbanisation, technology development, and economic growth (Figure 10). Changes to these factors could lead to different future emissions and climate change outcomes, even without considering climate policy explicitly.

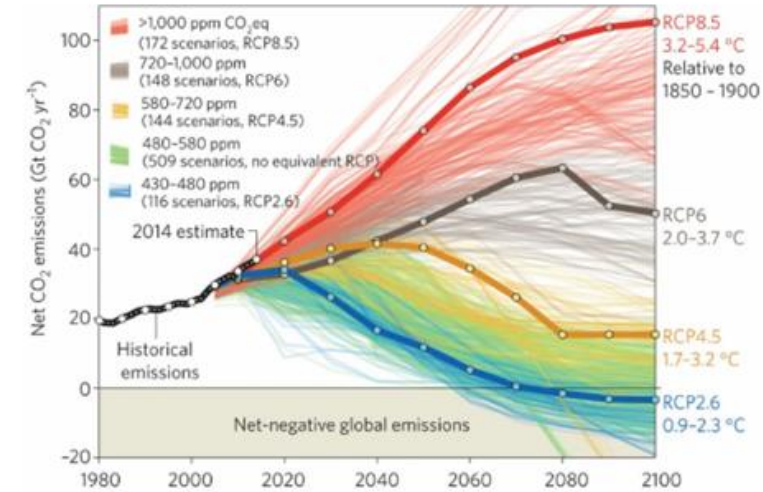


Figure 10 RCPs and temperature outcomes

Source: Sabine Fuss et al., 'Betting on negative emissions', *Nature Climate Change* 4 (10), 2014, pp. 850-853.



Figure 11 The five SSPs

Source: Brian O'Neill et al., 'The roads ahead: Narratives for shared socioeconomic pathways describing world futures in the 21st century', *Global Environmental Change* 2015.

Scenarios for the RAMP pilot

Framed around emissions on one axis (challenges to mitigation) and sustainability and equity on the other (challenges to adaptation), the four scenarios are shown in Figure 12.

Aurecon developed the initial scenario narratives, combining global megatrends, national demographics and local climate data to conduct an initial assessment of implications (Figure 11). Further elaboration of implications was driven by council staff, in a facilitated workshop on 10 February 2023.

The four scenarios align with globally validated assumptions, enabling replicability across other contexts.

They are:

- Sustainability – the green road
- Regional rivalry – a rocky road
- Fossil fuels – taking the highway
- Inequality – a road divided

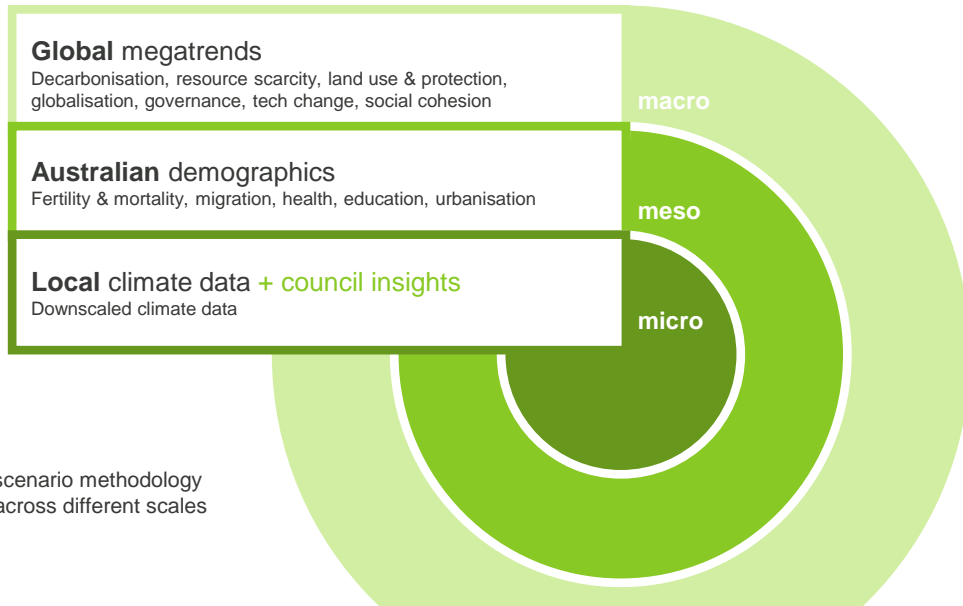


Figure 12 The scenario methodology combines data across different scales

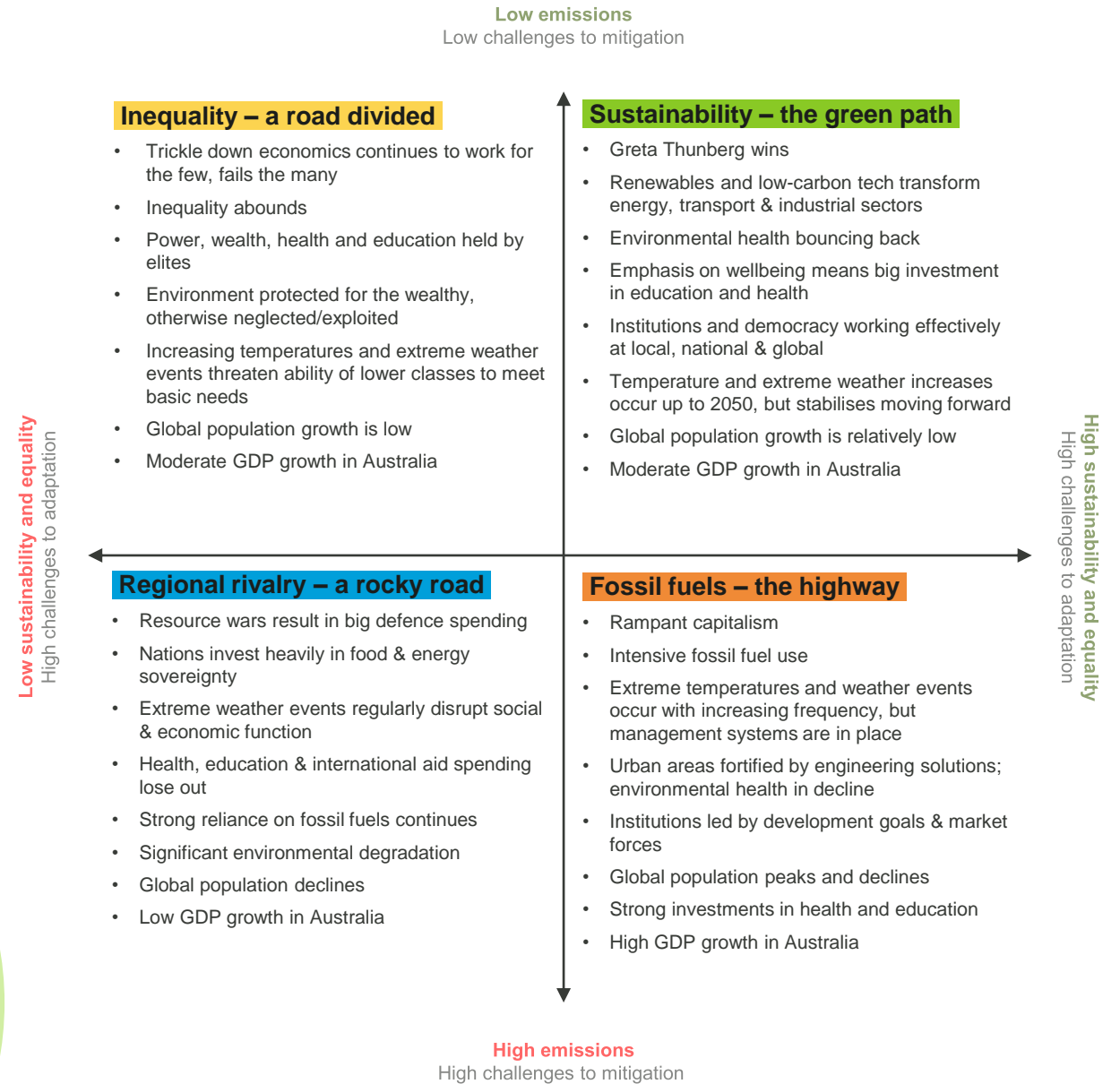


Figure 13 Summary of global socio-economic trends (SSPs) and climate projections (RCPs) adapted for the RAMP pilot
Source: Fuss et al. 2014 & O'Neill et al. 2015

Localising the global scenarios, with councils

The global set of scenarios were elaborated through a workshop, that brought together representatives from councils and RAMP delivery partners, CSIRO and Value Advisory Partners.

Ahead of the workshop, participants were provided with a short pre-reading to familiarise them with scenario thinking. The pre-read, workshop agenda and activities (see Appendix) were designed to

- develop collective understanding of plausible futures and climate risk, and
- use council knowledge to examine how recognised global megatrends will influence Adelaide's south.

This approach:

- recognised the extensive expertise in southern Adelaide councils, and that council officers know their assets, systems and risks best,
- provided a forum for training and capacity building, where Aurecon could help council staff understand the likely implications and materiality of climate impacts,
- built comfortability in decision-making in uncertain conditions, and
- developed council staff comfort assessing climate risk.

How scenarios inform the RAMP pilot

In in Phase 2 of the RAMP pilot, the scenarios will be used to sensitivity test physical and non-physical risks to identify any material influence on the risks from each scenario. In turn, this will inform any final refinement to the scenarios and inform adaptation planning in Phase 3.

Box 3

Reading guide for pages 12 to 20

For each scenario, the following pages provide:

1. an overview including a scenario narrative and key assumptions, both updated to reflect the workshop's key findings, and
2. a snapshot of workshop responses, grouped in themes, demonstrating logical and emotional explorations of how these scenarios may play out in the region.

Appendix B contains the full workshop conversation capture.



Figures 14-15 Photographs of 10 February 2023 workshop

Adelaide's south in 2050, under SSP1/RCP2.6 conditions

Sustainability – the green route

In 2050, southern Adelaide is a green and well-connected region. Following global trends of the last 25 years, it has moved away from fossil fuels and towards renewable energy sources. People live in well-connected urban and suburban areas with ample shared green spaces.

Communities have become localised. Jobs, food and recreation all are found close to home. Self-sustaining communities are linked to regional centres. This means there is less travel overall. Active transport – walking or cycling – along green corridors are the preferred mode of transport. Where longer trips are required, an electrified mass transport system services compact communities.

Improvements in energy efficiency combined with investments in decentralised renewable generation have effectively decarbonised the power supply.

Southern Adelaide's focus on environmental health and human well-being plays an important role in driving support for local adaption efforts, which also provides employment in the region. People work across industries focused on care: health, education, sustainable agriculture and horticulture. Food is grown locally, including at the community level and consumption of meat is low.

Environments recover and provide higher levels ecosystem services, supporting resilience in the region and providing locally-

sourced potable water supplies.

People value social connection, green spaces and making long-term decisions. Local government takes a collaborative approach to governance, and is well-supported by other tiers of government. Council services focus on soft infrastructure, green assets and human wellbeing. Though the worst climate change has been prevented, council still provides climate refuge hubs for those who require protection.

Average and extreme temperatures have increased rapidly to 2050 and are stabilising in the second half of the century. Looking beyond 2050, it is expected that heatwaves occur regularly outside of summer with an increase in days reaching both 35°C and 40°C posing significant health and safety risks to the community.

Moving to 2050, a small decrease in average annual rainfall is observed over time due to progressive declines in both winter and spring rainfall. Averages are expected to stabilise post 2050. However, extreme rainfall events are much more intense than previously experienced.

Sea levels rise by 31cm in 2050. A total increase of 71cm is expected by 2100. This permanently inundates areas of low-lying coastline and increases vulnerability to storm surges.

Key assumptions localised from global megatrends	
Population	↑ In Adelaide's south, local population increases due to the desirability of the area and migration of climate refugees
Income inequality	↓ Reduced across and within countries
Social cohesion & equity	↑ High
Health & education	↑ High
Urbanisation	↑ High, well-managed
Environment & land use	<ul style="list-style-type: none"> ↑ Environment is improving conditions over time ↑ Strong land use regulation to avoid environmental trade-offs
Transport	<ul style="list-style-type: none"> • Transport systems are smart and green; preference for mass transport. In urban areas few people own cars. Transport over long distances by exception.
Economics & lifestyle	<ul style="list-style-type: none"> • Medium economic growth in high-income countries
Material consumption	↓ Low
Policy orientation	<ul style="list-style-type: none"> • Towards sustainable development.
Institutions	<ul style="list-style-type: none"> • Effective at national and international levels
International cooperation	<ul style="list-style-type: none"> • Effective
Globalisation	<ul style="list-style-type: none"> • Moderate
Technology	<ul style="list-style-type: none"> • Tech development and transfer is rapid
Carbon, energy and fossil fuel use	<ul style="list-style-type: none"> ↓ Carbon & energy is low • Energy tech is renewable and efficient • Preference shifts away from fossil fuels

Adelaide's south in 2050, under SSP1/RCP2.6 conditions

Sustainability – the green route

In this scenario, there may be very significant shifts from the way we do things now. Out of all scenarios, this contains the greatest level of change according to workshop participants.

Lifestyles

Lifestyles are likely to substantially change by 2050, particularly our housing, urban spaces and social interactions.

- Housing and land use

"Housing styles/planning might undergo changes i.e. underground houses"

- Social

"Jobs have shifted, from finance to health care.
Care giving matters"

- Economic

"Everything is localised:
- local economics
- local food systems
- more communal everything"

- Prioritisation of assets

"Focus may shift from hard infrastructure to soft (social, green)"

Transport

Our transport network is likely to be completely different in 2050, with low or no-carbon options the norm.

- Public vs private

"More sophisticated public transport networks due to technology, improved network connection and less private vehicle usage"

- Alternative forms

"More active transport along shady corridors"

- Implications for assets

"Wider footpath for more bike paths which means a major retrofit (services too)"

- Fuel types

"Large uptake of EVs and solar panels that may make it more affordable"

What we value and how we govern

Values and governance may shift significantly, with localised, equitable and and holistic solutions prioritised.

- Green space

"Increase in community gardens/yards"

- Social

"More empathy and compassion"

- Governance

"There may be liquid democracy in which decisions are made collectively through participation and dynamic representation"

- Economic

"Technology has made green energy cheap"

Box 4

Determining level of change

In the workshop, participants were asked to rate whether the following scenario conditions/themes **looked the same or similar as today** or **completely different** in 2050.

What council needs to provide

Resilient and considered design and maintenance of assets and urban spaces may prevail in 2050.

- Community services

"Less dependence on council as the community may be more self-sufficient"

- Urban planning

"Redirect road spending to green infrastructure"

- Governance

"There may be constructive dialogue about losses and trade-offs"

- Asset management

"Council's focus on asset maintenance is more on less waste, more reuse and repair"

Adelaide's south in 2050, under SSP3/RCP6

Regional rivalry – a rocky road

In 2050, southern Adelaide is an insular and individualist society where the divide between rich and poor has widened since the 20s. In the past 28 years, the national government's focus on security has led to big investment in energy, water and food systems.

But this comes at a price. There has been limited public investment in education, economic development or tech innovation.

High inequality increases the differences between rich and poor. In 2050, open space and greenery are indicators of privilege, only accessible to the rich and often found only in gated communities. The rich have flocked to the coast's cooling breezes. Wealth is protected by those that have it, with increasing demand for security services including CCTV and 'safety officers'.

In other areas, poorly managed urban sprawl continued, providing cheaper homes where people could afford to live. These areas increase in density, but the public transport network cannot meet demands. Private petrol vehicles still dominate, and there are long commutes work and school. The area that Councils provide services to are wide-spread and fragmented. Managing more and more roads and stormwater catchments are an increasing burden on Council's asset management teams and flooding occurs frequently.

Governance structures are ineffective both globally and locally. Council demands

increase, while their resources base is declining. They are under increased pressure to support emergency services, including police, fire, waste management and social support. Crime is rife as people do what they can to meet their basic needs.

Poorer and migrant populations require higher levels of support from local government. Frequent climate disasters mean that assets require recent maintenance and replacement. Given this increasing demand, councils can only operate reactively. Divergent views on council, representing increasingly polarised communities mean elected members and council staff find it hard to agree or compromise.

Average and extreme temperatures have increased consistently from the 2020s, with increases expected to continue to 2090, not stabilising until the end of the century. Heatwaves occur regularly outside of summer in 2050, with increases in the number of days reaching both 35°C and 40°C significantly impacting community health and safety. Rainfall events are extremely intense when they occur, but there is an overall decrease in annual rainfall due to progressive declines in both winter and spring. Areas of the coast are permanently inundated by seas level rise, with a total increase of 71cm and 115cm expected by 2100.

Key assumptions localised from global megatrends	
Population	↑ Population in Adelaide's south grows , with the climate migrants moving into the region from other parts of Australia and around the world
Income inequality	↑ High, in and across nations
Social cohesion & equity	↓ Low
Health & education	↓ Low
Urbanisation	↓ Low, poorly managed
Environment & land use	↓ Environment is seriously degraded ↓ Limited land use regulation , with continued deforestation
Transport	• Transport systems have not reached smart or autonomous aspirations. Transport over long distances required due to urban sprawl. Low conversion to green aviation and freight fleets.
Economics & lifestyle	• Slow economic growth regionally and nationally
Material consumption	↑ High
Policy orientation	• Towards security
Institutions	• Globally weak; national governments dominate decision making
International cooperation	• Weak and uneven
Globalisation	• Strongly constrained
Technology	• Tech development and transfer is slow due to decline in investments
Carbon, energy and fossil fuel use	↑ Carbon & energy intensity are high • Energy tech is slow to change • Preference for fossil fuels

Adelaide's south in 2050, under SSP3/RCP6

Regional rivalry – a rocky road

By 2050, the scenario conditions could trigger substantial changes to socio-economic norms, decision-making processes and council asset and service provision.

Lifestyles

Climate change could affect everyday life in 2050, affecting housing options, migration and food production.

- Housing and land use

"People living out of cars or being transient"

- Social

"More climate ghettos (people living in tents e.g. Lismore)"

- Economic

"Less farming like we know it now - what are other uses of our agricultural land?"

- Prioritisation of assets

"Larger changes/differences between councils"

Transport

Transport networks may not function effectively in 2050, due to insufficient or decreased capacity to meet demands.

- Public vs private

"Public transport network unable to meet demand"

- Alternative forms

"There may be high rideshare usage with low car ownership - but still car travel"

- Implications for assets

"Some lower lying areas are periodically inundated so key transport corridors further inland are more congested"

- Fuel types

"Very small number of electric vehicles. Remain mainly similar to today"

What we value and how we govern

By 2050, values may have changed dramatically, with extreme polarisation hindering good governance.

- Green space

"Open space and greenery are indicators of privilege"

- Social

"High crime due to intergenerational inequality"

- Governance

"More identity politics, less emphasis on evidence (Trumpism)"

- Economic

"States competing against each other for resources"

What council needs to provide

Councils may be required to provide emergency management and social/natural hazard protection.

- Community services

"Community service facilities for climate refugees to improve cohesion, e.g. - community centres - adult education services etc"

- Urban planning

"Urban planning may need to focus on more social infrastructure to improve community connection"

- Governance

"Lower rates % collected = less revenue to fund services"

- Asset management

"Open space is a premium asset council holds a major asset for the community (very little private open space)"

Adelaide's south in 2050, SSP4/RCP4.5

Inequality – a road divided

In 2050, southern Adelaide is a region divided by inequalities and social fragmentation. Population has increased in the south, with climate refugees and the wealthy both seeking the cool of southern Adelaide. People exist in side-by-side in different realities, with a growing population of working poor spatially separated from the wealthy elite.

The poorer segments of the population live in small, high-density dwellings with little green space. For these communities, there is limited space for food production. Comparatively, some wealthy communities have established themselves in land-rich areas. Here, they are able to achieve security through self-sufficient, off-grid lifestyles. There is more intergenerational living amongst both rich and poor, as people support their families and close social connections before others.

Working from home is common, so daily commutes have decreased. The distributed workforce means the CBD is less important, and local economies are stronger than 25 years before. Electric vehicles are widely available, as the cast-offs of the rich have created a second hand market. However, not all can afford it – so public and active transport is the only option for many.

Conflict, crime and unrest is part of daily life in this future. This results in increased demands on council, to provide security

services like CCTV, outreach programs and 'safety officers'. Well-connected wealthy communities ensure their interests are looked after, demanding high levels of maintenance in their urban environments. Less affluent groups have weaker political power and fewer economic opportunities. In general, there is little faith in governments and institutions.

Councils invest in maintaining assets and services where the money comes from, mostly servicing the rich rate-payer base. With business and elite interests controlling policy choices, they find it hard to justify spending in lower-income areas. Council provides refuge hubs, for some community-based protection in the face of increasing hazards.

Average and extreme temperatures have increased to 2050, though they are predicted to stabilise at the end of the century.

In 2050, heatwaves in the region now occur regularly outside of summer, with an increase in days reaching both 35°C and 40°C posing significant health and safety risks to the community. Average annual rainfall has decreased, due to progressive declines in both winter and spring rainfall. Extreme rainfall is much more intense than historically experienced. Areas of the coast are permanently inundated by sea level rise, with a total increase of 71cm and 115cm expected by 2100.

Key assumptions localised from global megatrends	
Population	↑ Population grows in Adelaide's south, with migration of climate refugees contributing the region's growing population
Income inequality	↑ High within countries
Social cohesion & equity	↓ Generally low, though stratified by class
Health & education	- Unequal globally
Urbanisation	- Medium, mixed across and within cities
Environment & land use	↑ Environment is highly managed and improved near richer areas, degraded near poorer areas ↑ High land use regulation
Transport	• Changes to transport is uneven. Type of transport dependent on wealth and socio-economic status. Personal cars are the norm. Shorter commutes due to increased density.
Economics & lifestyle	• Medium economic growth
Material consumption	↑ High within elites, low in rest of population
Policy orientation	• Towards benefit of political & business elite
Institutions	• Effective for business elite, not for the rest of society
International cooperation	• Effective for globally connected economy, not vulnerable populations
Globalisation	• Moderate
Technology	• Tech development and transfer is rapid in high-income groups, slow otherwise
Carbon, energy and fossil fuel use	↓ Carbon & energy is low or medium • Energy tech is diversified and includes low-carbon sources

Adelaide's south in 2050, SSP4/RCP4.5

Inequality – a road divided

Lifestyle and transport conditions could be moderately different under this scenario in 2050, while bigger shifts could occur in our values and governance systems.

Lifestyles

Communities could be economically and spatially divided, with different parts of the region experiencing different conditions.

- Housing and land use

"More satellite cities with increased localisation of jobs and activities"

- Resources

"Wealthy may achieve food security through self sufficiency and off-grid lifestyles"

- Social

"People may divide themselves from others through gated communities"

- Urban planning

"There may need to be a change in places we (council) allow people to live"

Transport

In 2050, transport options may look fairly similar to today. There may be less daily travel as working from home dominates.

- Public vs private

"Wealthy people will have private cars, while low-income people rely on public or active transport"

- Alternative forms

"More walkable communities, by necessity"

- Implications for assets

"People may be travelling less because there is more working from home"

- Fuel types

"There will be a market for second hand EVs"

What we value and how we govern

Social mobility may have decreased by 2050, with inequalities/privileges locked in across generations.

- Social

"More inter-generational living, by necessity"

- Governance

"'Federated mega councils' may take over state responsibilities"

- Economic

"There may be a user pays systems in place"

What council needs to provide

Councils may become increasingly responsible for providing security functions, from climate refuges to CCTV.

- Safety and protection

"More security: CCTV, outreach programs, safety officers or policing"

- Community services

"Community transport - last mile services"

- Governance

"There may be less diverse representation on council"

- Asset management

"Repair and maintenance of assets occurs only wealthy areas"

Adelaide's south in 2050, under SSP5/RCP8.5

Fossil-fuelled development – the highway

Leading up to 2050, national government's have remained focused on economic growth and ongoing resource extraction. Though energy use is high, there is limited uptake of renewables with demands met by fossil fuels.

Life in southern Adelaide is not dissimilar to what it is today. The population is wealthy and able to fund material intensive lifestyles. The region has benefited from investments in health, education and high levels of migration, which result in a large, diverse and well-educated communities in southern Adelaide.

High rates of urbanisation and urban sprawl places both increase demands on transport systems. Smaller backyards mean there are less private green spaces. At least the 'McMansion' style of development means those who can afford it have cool spaces to retreat to. Where public green space exists, it is highly valued and protected.

Those who can afford it own a private electric vehicle, but petrol vehicles are also still common on the roads. Climate change means weather conditions do not favour active transport, so congestion has continued to increase.

An increased revenue base supports Council's ability to provide assets and services – but these require frequent maintenance due to extreme weather events. Asset management is responsive, rather than planned. There is increased pressure

on councils for protection: of existing infrastructure, of coastal environments and to support people affected by climate disasters.

Federal and local governments have an effective and influential role to play in this society. Together they have subsumed many of the responsibilities of the state government. Policy is orientated towards development and consumption.

Lack of global actions on climate change results in end-of-century temperature increases of 5.5°C. The climate impacts are far beyond those experienced in the present. Average and extreme temperatures have drastically increased with substantial change expected to continue in the second half of the century.

In the lead-up to 2050, heatwaves have started to occur regularly outside of summer, with a large increase in days reaching both 35°C and 40°C. Communities are struggling with staying safe and cool during these events. Average annual rainfall has decreased significantly, leading to a very dry climate, and increased severity and frequency of drought events. Rainfall events are often extreme, causing flood flashing in most urban areas. Sea level rise is expected to accelerate after 2050, with a total rise of 115cm by 2100, which will permanently inundating large areas of urban and peri-urban coastline.

Key assumptions localised from global megatrends	
Population	↑ Population growth is high
Income inequality	↓ Reduced across and within countries
Social cohesion & equity	↑ High
Health & education	↑ High
Urbanisation	↑ High, some sprawl though management improves over time
Environment & land use	<ul style="list-style-type: none"> — Environment is highly engineered, which manages local issues — Medium land use regulation, which sees slow decline in the rate of deforestation
Transport	<ul style="list-style-type: none"> • Transport is autonomous and smart with ongoing private ownership. Ongoing reliance on fossil fuels for aviation and freight. Urban congestion increases, but smart technologies reduce impacts.
Economics & lifestyle	<ul style="list-style-type: none"> • High economic growth regionally and nationally
Material consumption	↑ High
Policy orientation	<ul style="list-style-type: none"> • Towards development
Institutions	<ul style="list-style-type: none"> • Increasingly effective, orientated toward competitive markets
International cooperation	<ul style="list-style-type: none"> • Effective in development goals; limited for environmental goals
Globalisation	<ul style="list-style-type: none"> • High with regional specialization
Technology	<ul style="list-style-type: none"> • Tech development and transfer is rapid
Carbon, energy and fossil fuel use	<ul style="list-style-type: none"> ↑ Carbon & energy intensity are high • Energy tech is directed toward fossil fuels, with no active pursuit of alternatives

Adelaide's south in 2050, under SSP5/RCP8.5

Fossil-fuelled development – the highway

In this scenario, communities, transport and council activities may look fairly similar to today. Workshop participants thought this scenario contained the least change across all categories.

Lifestyles

Lifestyles are largely similar to today in 2050, with technological changes supporting high levels of consumption.

- Housing and land use

"Sprawl will happen. 'McMansions' or large houses abound."

- Resources

"There might need to be solutions to feed a growing population while there is a strain on agriculture due to climate change i.e. lab meat"

- Social

"Fire woman is the highest paid job because they are the most in-demand"

- Prioritisation of assets

"Asset life accepts likelihood of complete renewal due to more frequent fires & floods"

Transport

The transport network will undergo few changes, with private vehicles continuing as the primary mode of transport.

- Public vs private

"There might be more ride sharing subscriptions due to congestion & cost of fuel"

- Alternative forms

"People cant walk or cycle due to weather"

- Implications for assets

"Asset networks will look the same, but with different service levels"

- Fuel types

"Long haul trucks will most likely be diesel - depending on the rest of the world"

What we value and how we govern

There is a shift in values and governance by 2050. Individualism may dominate in both social and political settings.

- Green space

"Open spaces (plus roads) will be ephemeral flood mitigation structures (slows drainage)"

- Governance

"Gated green spaces operated by private owners /businesses"

- Economic

"Humans will be more selfish and focused on themselves rather than a community"

- Asset management

"Government is very lobby-able by big money. There is more competition"

What council needs to provide

In this scenario, the highest change may be in council asset management, as it responds to increased climate hazards.

- Safety

"Increased disaster recovery and support"

- Community services

"Climate refuges may influx into region which will increase population and stress on assets"

- Urban planning

"Urban planning may need to review land use planning policy for higher SLR & storm surge etc"

- Asset management

"We won't bother with asset management plans; we will need to focus on repairing them as soon as possible"



3

Next steps

..

Where to next?

With Phase 1 of the RAMP pilot complete, Aurecon is starting on the next phase of work.

Moving forward with Phase 2

The second phase of the pilot focuses on assessing the risk and vulnerability of selected council assets. This requires assessing physical risks as well as social, financial, liability and other transition risks and considering the function or service of assets to community resilience.

This phase will:

- assess physical risks to assets,
- undertake GIS mapping of risks,
- assess transition risks and opportunities,
- use scenarios to sensitivity test risk ratings, and
- continue building staff capacity through integration in the project process and workshops.





A

Appendix

This appendix captures:

- the data collected by Aurecon from the 1 November 2022 workshop,
- the mission options discussed at the 13 December workshop, and
- the high-level themes that were outputs of these activities and could help inform principles.

Appendix A

Developing the mission statement

Summary of 1 November workshop

The day's activities were facilitated by Aurecon and CSIRO. The objectives were:

- To build understanding of the RAMP among internal council stakeholders
- To seek clarity on the way council staff view the role of asset management in councils
- To align council staff from asset management, finance, procurement and risk on the purpose of the RAMP
- To provide the opportunity for relevant stakeholders to share their vision for the project

Aurecon led the following activities, with the data collected summarised in this appendix:

- Icebreaker: how we value assets
- Exploring RAMP themes (p.18)
- Building blocks of a vision
- 5 Bold Steps towards the RAMP vision



Figure A1-A2 Images of icebreaker activity: how we value assets

How we value assets

To warm-up, participants were given two sticky dots and asked to vote on their top two priorities, to answer the question: *what should council assets do?*

Overwhelmingly, the group voted that assets should firstly: *serve the needs of the community*, and secondly: *adapt to changing community needs and expectations*.

Table A1 Building blocks of a vision for the RAMP

The 'who'	The 'what'	The 'why'
<i>Who is the RAMP for?</i>	<i>What is it hoping to achieve/produce?</i>	<i>Why is it happening? What is the purpose behind it?</i>
Community Society Nature Biodiversity Businesses Humanity	Long-term change Continuous provision of community services Connected, empowered people and places Resilient places Harmony with the environment Healthy and regenerating natural systems Functioning and healthy communities Safe places for people and nature Effective and functioning assets and services	Wise spending decisions Connection with nature Avoiding climate change impacts Leave a legacy Intergenerational equity To value natural assets Needs-based decision making

Building blocks of a vision

Groups were asked to discuss and agree on elements of a vision statement summarised in Table A1.

The responses in the workshop demonstrated the scale of ambition for this project, and the importance of an integrated approach to understanding climate risk across not only asset management, but in other areas of council.

The data collected day informed:

- the adjustment to scope, from a vision for the RAMP to a mission statement, and
- the content of the proposed mission statement.

Options discussed at 13 December 2023 RAMP Working Group

These options reflect the long-term aims we heard in the November 1 activities. See Box 1 (p. 5) for final mission statement.

Proposed mission statement

- Making responsible, climate-ready decisions that systematically improve council assets and services supporting a safe, connected and thriving Resilient South

Other options

- All council decisions consider climate change and contribute to the vision for a safe and connected Resilient Southern region
- Embedding climate considerations into asset management to enable responsible decision-making that contributes to the vision for a safe and connected Resilient Southern region
- Embedding climate considerations into council processes to ensure responsible decision-making that builds resilient, sustainable and healthy communities and ecosystems
- Understanding climate risk in order to make flexible, agile, responsible asset management decisions that contribute to the vision for a Resilient Southern region

Appendix A

Exploring RAMP themes

Groups were asked to identify the themes of the Resilient Asset Management Project, using the canvas provided (Figure A2).

Each group's responses were collated and organised by Aurecon (Figure A4).

The RAMP itself is the global theme, with high-level and recurring themes structured as organising themes and further broken down into key basic themes and basic themes (Figure A3).

This structure captures the large amount of information we heard on the day and could be used to inform the development of principles (see Box 2, p. 6).

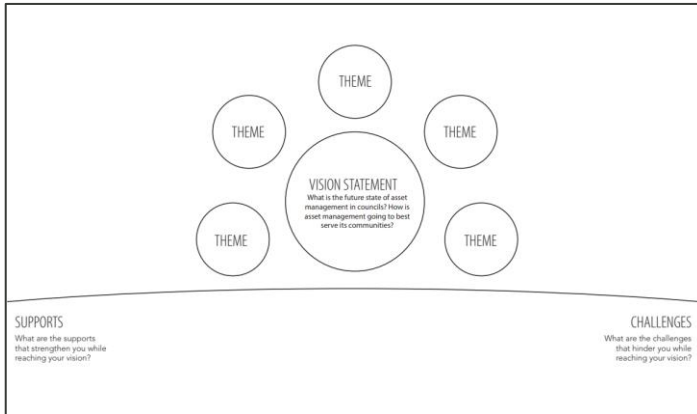


Figure A2 Themes and vision activity canvas



Figure A3 Thematic organisation (not shown, the global theme)



Figure A4 Capture and thematic organisation of RAMP themes

Appendix A

5 Bold Steps

Council groups were asked to determine their 5 Bold Steps towards the vision, focusing:

- firstly on their next step – *what they could do tomorrow*
- then their last step – *where they would like to be in 5-10 years*
- and then the steps in the middle – *how they are going to get there.*

This was designed to leave participants with a sense of purpose, and concrete actions that can be implemented with colleagues and leadership in their organization.

This task showed that councils had clear ambitions to embed the consideration of climate risk beyond asset management.

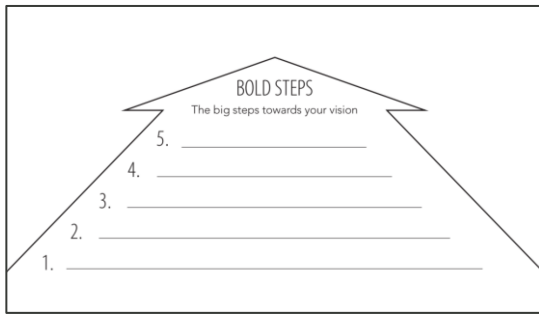
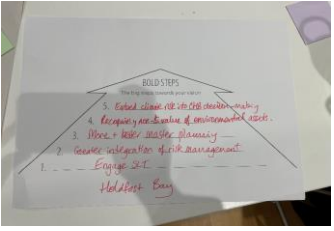
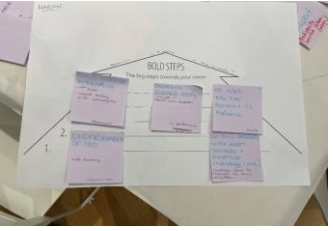
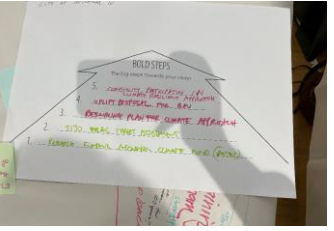
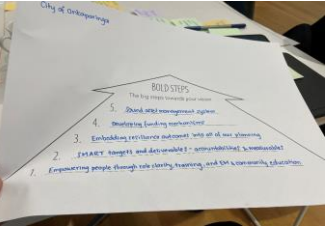


Figure A5 5 Bold Steps activity canvas

Table A2 5 Bold Steps towards the RAMP

	Holdfast Bay	Marion	Mitcham	Onkaparinga
<i>Pictures of worksheets</i>				
1 <i>What will you do tomorrow?</i>	Engage SLT	Get endorsement of the CEO	Research funding mechanisms (for climate fund)	Empowering people through role clarity, training, EM and community education
2	Greater integration of risk management	Build understanding internally	2130 target assessment	SMART targets and deliverables – creating accountability and measurability
3 <i>What step is required in-between, to get you to achieve Step 5?</i>	More – and better – master planning	Engage with council members	Resourcing plan for climate approach	Embedding resilience outcomes into all of our planning
4	Recognising non-monetary value of environmental assets	Undertake this process with asset owners and finance teams (and strategy and risk)	Uplift proposal for (BIN?)	Developing funding mechanism
5 <i>Where will you be in 5-10 years?</i>	Embed climate risk into all City of Holdfast Bay decision-making	All assets choices take into account climate change resilience	Community participation in climate resilient approach	Sound asset management system



B

Appendix

This appendix captures:

- the agenda and objectives of the scenario elaboration workshop
- the workshop pre-read, sent to participants
- the raw data collected by Aurecon from the 10 February 2023 scenario elaboration workshop

Appendix B

Scenario elaboration workshop: Pre-reading (pp. 27-32)

Pre-reading

Resilient South future scenario development

Scenario elaboration workshop
10 February 2023



The purpose of this workshop

As part of the Resilient Asset Management Pilot Project, we are exploring what the southern Adelaide region could look like in the future.

The Cities of Holdfast Bay, Marion, Mitcham and Onkaparinga are impacted by global forces, or megatrends, like

- decarbonisation
- resource scarcity
- climate change
- population growth
- digitalisation
- industry 4.0
- increasing urbanisation
- and many more.

We are using **scenarios** to explore how asset management may need respond to changes caused by these trends in the future.

In this workshop, we will explore the implications of how changes to social, economic, environmental and climatic drivers could influence how council assets and services are provided, used and managed.

What will you do?

In Friday's workshop, we will:

- support you to get familiar with scenario approaches and how they can be used in council decision-making,
- use your knowledge to explore what recognised global megatrends mean specifically for the southern Adelaide region, and
- examine implications for council asset management, including opportunities and risks in an uncertain future.

What are scenarios?

Scenarios are narratives that describe **how the future could unfold depending on how different social, economic and climate factors might change.**

Scenarios help an organisation to:

- identify and test what the future might look like
- explore uncertainties and how the future could unfold
- identify the range of options available.

Scenarios are not predictions.

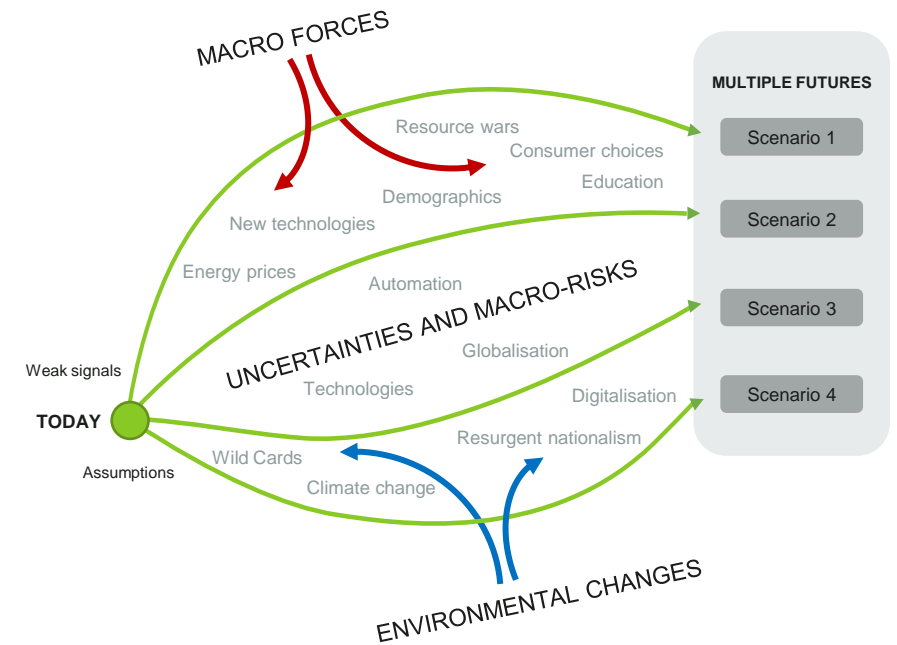
This means we can explore what the future **could** look like, based on alternative choices that could be made by governments, businesses and communities.

This project uses adaptations of global Shared Socio-Economic Pathways Scenarios (SSPs), linked with Representative Concentration Pathways (RCPs). These scenarios are internationally recognised and validated, providing clear narratives for the global economy, society and climate may change over the next 100 years.

They help to set a clear narrative of global socio-economic changes, and enable us to explore how these changes might impact council assets and services in the southern Adelaide region.

In this workshop we will surf the wave **from global to local.** Exploring what the global conditions mean future of southern Adelaide, so we can identify what this might mean for asset management in councils.

Trends and forces interact to shape, push, pull and create multiple futures.



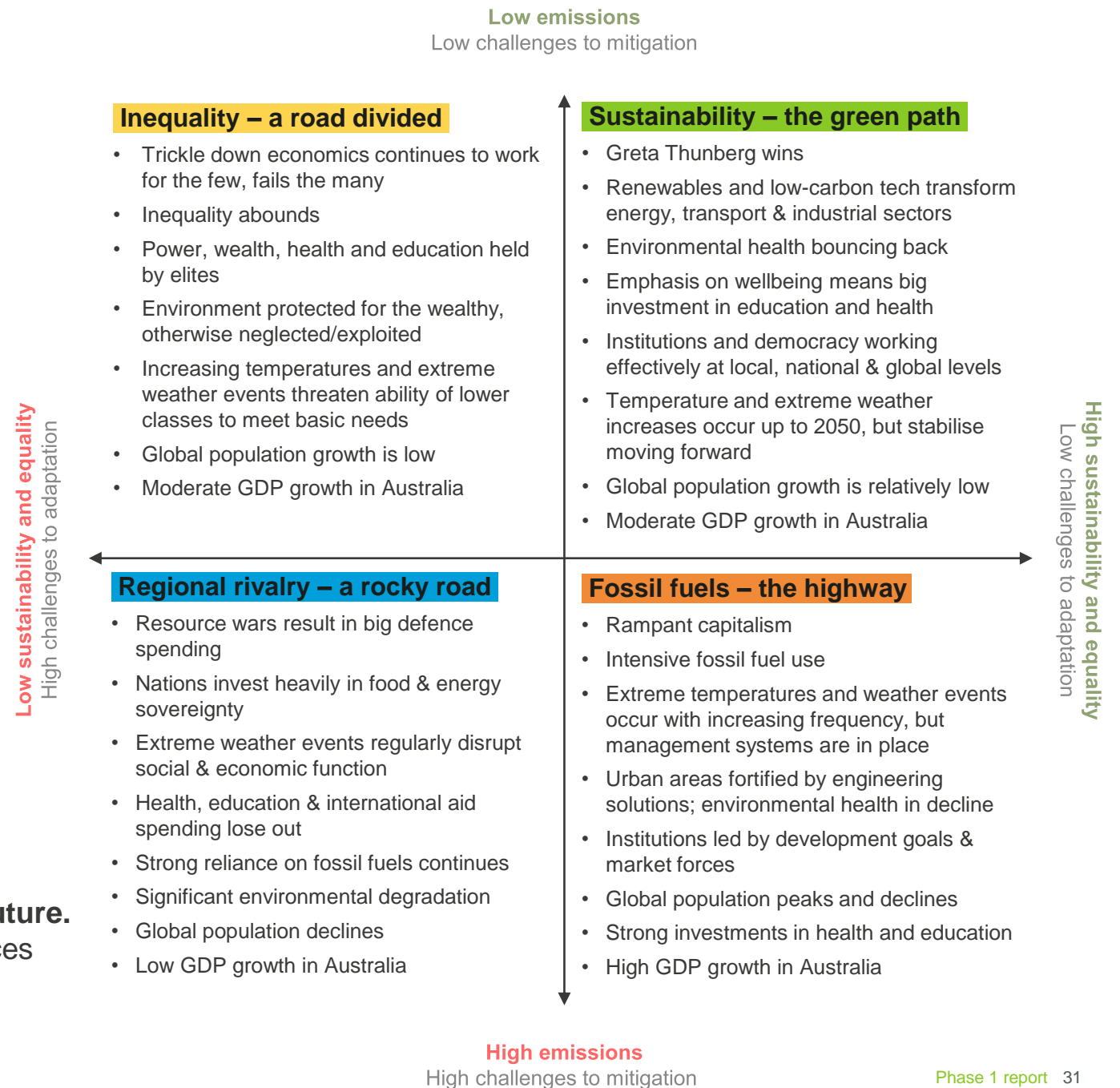
The scenarios

The Shared Socio-economic Pathways describe different futures based on changes to our economies and society. We have linked these with the Representative Concentration Pathways – greenhouse gas emissions scenarios – to show potential climate impacts along with socio-economic changes.

Together, these describe the key assumptions around how the world could change. These are **not** predictions, rather ideas about plausible futures, based on global megatrends.

Some of these scenarios might seem preferable, or the obvious choice, others might seem confronting or dystopian. **But** each represents a plausible narrative of what the future could look like.

Scenarios are not intended to predict or forecast the future. They are tools we can use to stress test our current practices and gain an awareness of risks and opportunities.



Key socioeconomic assumptions for each scenario

Key assumptions	Regional rivalry – a rocky road	Fossil-fuelled development – the highway	Inequality – a road divided	Sustainability – the green path
Population	<ul style="list-style-type: none"> ↓ Relatively low global population growth – Due to national protectionism, migration is highly regulated ↓ Relatively low fertility and high mortality 	<ul style="list-style-type: none"> ↓ Relatively low global population growth, due to low fertility rates in low- and medium-income countries ↑ Migration is high ↑ Relatively high fertility and low mortality 	<ul style="list-style-type: none"> ↑ Relatively high global population growth – Migration is average ↓ Relatively low fertility and low mortality 	<ul style="list-style-type: none"> ↓ Relatively low global population growth, due to low fertility rates in low- and medium-income countries – Migration is average ↓ Fairly average fertility and low mortality
Income inequality	↑ High, in and across nations	↓ Reduced across and within countries	↑ High within countries	↓ Reduced across and within countries
Social cohesion & equity	↓ Low	↑ High	↓ Generally low, though stratified by class	↑ High
Health & education	↓ Low	↑ High	– Unequal globally	↑ High
Urbanisation	↓ Low, poorly managed	↑ High, with some sprawl though management improves over time	– Medium, mixed across and within cities	↑ High, well-managed
Environment & land use	<ul style="list-style-type: none"> ↓ Environment is seriously degraded ↓ Limited land use regulation, with continued deforestation 	<ul style="list-style-type: none"> – Environment is highly engineered, which successfully manages local issues – Medium land use regulation, which see slow decline in the rate of deforestation 	<ul style="list-style-type: none"> ↑ Environment is highly managed and improved near richer areas, degraded near poorer areas ↑ High land use regulation 	<ul style="list-style-type: none"> ↑ Environment is improving conditions over time ↑ Strong land use regulation to avoid environmental trade-offs
Transport	<ul style="list-style-type: none"> • Transport systems have not reached smart or autonomous aspirations. Transport over long distances required due to urban sprawl. Low conversion to green aviation and freight fleets. 	<ul style="list-style-type: none"> • Transport is autonomous and smart with ongoing private ownership. Ongoing reliance on fossil fuels for aviation and freight. Urban congestion increases, but smart technologies reduce impacts. 	<ul style="list-style-type: none"> • Changes to transport is uneven. Type of transport dependent on wealth and socio-economic status. Personal cars are the norm. Shorter commutes due to increased density. 	<ul style="list-style-type: none"> • Transport systems are smart and green; preference for mass transport. In urban areas few people own cars. Transport over long distances by exception.
Economics & lifestyle	<ul style="list-style-type: none"> • Slow economic growth regionally and nationally 	<ul style="list-style-type: none"> • High economic growth regionally and nationally 	<ul style="list-style-type: none"> • Medium economic growth 	<ul style="list-style-type: none"> • Medium economic growth in high-income countries
Material consumption	↑ High	↑ High	↑ High within elites, low in rest of population	↓ Low
Policy orientation	<ul style="list-style-type: none"> • Towards security 	<ul style="list-style-type: none"> • Towards development 	<ul style="list-style-type: none"> • Towards benefit of political & business elite 	<ul style="list-style-type: none"> • Towards sustainable development.
Institutions	<ul style="list-style-type: none"> • Globally weak; national governments dominate decision making 	<ul style="list-style-type: none"> • Increasingly effective, orientated toward competitive markets 	<ul style="list-style-type: none"> • Effective for business elite, not for the rest of society 	<ul style="list-style-type: none"> • Effective at national and international levels
International cooperation	<ul style="list-style-type: none"> • Weak and uneven 	<ul style="list-style-type: none"> • Effective in development goals; limited for environmental goals 	<ul style="list-style-type: none"> • Effective for globally connected economy, not vulnerable populations 	<ul style="list-style-type: none"> • Effective
Globalisation	<ul style="list-style-type: none"> • Strongly constrained 	<ul style="list-style-type: none"> • High with regional specialization 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Moderate
Technology	<ul style="list-style-type: none"> • Tech development and transfer is slow due to decline in investments 	<ul style="list-style-type: none"> • Tech development and transfer is rapid 	<ul style="list-style-type: none"> • Tech development and transfer is rapid in high-income groups, slow otherwise 	<ul style="list-style-type: none"> • Tech development and transfer is rapid
Carbon, energy and fossil fuel use	<ul style="list-style-type: none"> ↑ Carbon & energy intensity are high • Energy tech is slow to change • Preference for fossil fuels 	<ul style="list-style-type: none"> ↑ Carbon & energy intensity are high • Energy tech is directed toward fossil fuels, with no active pursuit of alternatives 	<ul style="list-style-type: none"> ↓ Carbon & energy is low or medium • Energy tech is diversified and includes low-carbon sources 	<ul style="list-style-type: none"> ↓ Carbon & energy is low • Energy tech is renewable and efficient • Preference shifts away from fossil fuels

Key physical impacts summary for each scenario

Key assumptions	Regional rivalry – a rocky road [RCP6]		Fossil-fuelled development – the highway [RCP8.5]		Inequality – a road divided [RCP4.5]		Sustainability – the green route [RCP 2.6]	
	2030	2050	2030	2050	2030	2050	2030	2050
Temperature	17.2	17.6	17.4	18.0	17.3	17.6	17.3	17.4
Average summer max.	28.2	28.6	28.3	28.9	28.1	28.6	28.3	28.3
Hottest day	44.8	45.1	44.9	45.5	44.7	45.2	44.8	44.9
Days/year > 40°C	2.9	3.7	3.0	4.2	2.6	3.8	3	3
Average winter min.	8.1	8.4	8.2	8.8	8.1	8.4	8.0	8.2
Nights/year < 2°C	1.5	1.3	1.4	0.9	1.5	1.3	1.7	1.3
Rainfall								
Annual average rainfall (mm)	651	642	658	631	646	643	642	648
24 hour extreme rainfall (mm)	60	62	60	63	60	62	60	62
AEP 1% (mm)	105	108	105	109	105	109	105	109
Time spent in drought	No projections provided		Time spent in drought is projected (with high confidence) to increase over the course of the century, in line with projected declines in winter and spring rainfall.				Time spent in drought to increase gradually and stabilise late century	
Sea level rise (cm)	No projections provided		16	35	14	27	16	31

The key socioeconomic and climate assumptions have been adapted from the globally validated scenarios for the Resilient Asset Management Project.

What do these assumptions mean for the future of council asset management? *This is what the workshop will explore.*

There are critical uncertainties about the future that will affect how communities use council assets and services. Scenario thinking will help councils understand how asset management could change and adapt to support a resilient future for Adelaide's south.

NB Final page of pre-read

Appendix B

Scenario elaboration workshop: summary and data capture

Summary of 1 November workshop

The day's activities were facilitated by Aurecon and CSIRO. The objectives were:

- to support staff to get familiar with scenario approaches and how they can be used in council decision-making,
- to use council knowledge to explore what recognised global megatrends mean specifically for the southern Adelaide region, and
- to examine implications for council asset management, including opportunities and risks in an uncertain future.

The activities included:

- *an interactive icebreaker* to showcase the different points of view people bring to decision-making processes
- *shifting mindsets through storytelling* taking people to back to the 1990s – to imagine how much technology can change in 30 years – and then back into the future, through a ‘phone call with grandad’
- *‘World Café’-style scenario elaboration* to explore how global megatrends will play out in four different scenarios in the southern Adelaide region.

Different activities were conducted as a whole group and in tables groups (see Box B1). Table groups were divided by role and council, to facilitate open discussions and knowledge sharing between those with differing responsibilities, views and opinions.

Figure B1 shows the canvas used to guide the scenario elaboration activities. The canvas took groups through four key questions:

- What are the lifestyles of people living in Adelaide's south?
- How are people getting around?
- What does our community value? How do we govern?
- What does the community need Council to provide?

Figure B1 Scenario elaboration canvas

At the conclusion of each question discussion, groups were asked to use a sliding scale rate whether the things would be ‘the same or similar to today’ or ‘completely different’, providing a consistent point of comparison across each

scenario discussion. These slider results are captured by the pie charts in the following pages of conversation capture.

Box B1

Workshop agenda, 10 February 2023

Item	Format
Welcome and objectives	Presentation
Icebreaker – Our world in 2050	Activity
Background to the Resilient Asset Management Pilot	Presentation
‘How to think like a futurist’ – Megatrends as drivers of future change and how scenarios can be used to guide decision-making	Presentation
Adopting a futures mindset – shaping a story together	Presentation
Break	
Scenario elaboration, home base – How do global megatrends play out in Adelaide’s southern region?	Table activity
Train #1 – ‘travel’ to another scenario to explore the implications there	Table activity
Train #2 – ‘travel’ to your third scenario to explore the implications there	Table activity
Train #3 – ‘travel’ to the last scenario to explore the implications there	Table activity
Home again – Facilitated group reflection	Presentation
Next steps & close	Presentation

Adelaide's south in 2050, under SSP1/RCP2.6 conditions

Sustainability – the green route

Lifestyles



Urban spaces, land use and housing

- There may be low energy, passive designed houses.
- Housing styles/planning might undergo changes - i.e. underground houses.
- There may be an increase on the use of Misting systems.
- There may be more buildings with green roofs - vertical gardens.
- There may be more diverse tree spaces.

Social

- FUN: get out in nature, more in waters, more social in communities, growing veggies.
- Lifestyles will change to a focus on well-being. There will be less 9-5 work, afternoon social. School hours change.
- It will be safer for more active pursuits (maybe at night).
- Healthcare will be reliable and available in all communities and people will not have to travel out of their town to get health care.
- There will be a growth in technology that is really usable, smart, everywhere. More reliance on virtual reality.
- people are more in tune with (informed) environment, more data.
- Jobs have shifted from finance to health care, care giving.
- Communities will be more communal, local, more like small town.

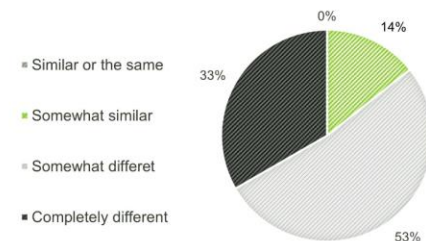
Economic

- Everything is localised - local economies, local food systems, more communal everything.
- There may be more local products, less travel because there may be local shops.

Prioritisation of assets

- Council may focus more on maintenance of green assets (trees).
- There may be a transfer from hard infrastructure to soft (social, green).

IN 2050, THE COMMUNITY LOOKS



Transport



Public vs. private transport

There may be more robust and public transport modes due to technology, improved network connectivity and less private vehicle usage.

Alternative forms

- People may cycle more.
- There may be no international travel (agreement reality). Not. There may be more migration, people will want to visit families.
- There may be more active transport along shady corridors.

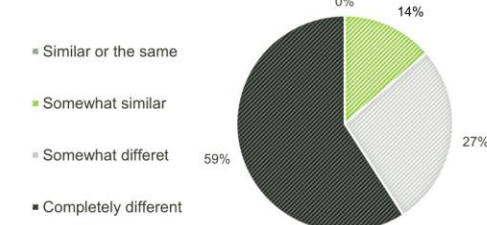
Asset management

- There may need to be a wider footprint for more like paths, which means a major retrofit (services too).
- Asset networks will look completely different: roads, stormwaters, tech influence.
- Small events fleet may almost completely be electrified. More infrastructure for charging, how will roads be financed?
- People may work from home but there may be more travel for holiday which could create carbon travel problems.
- People may be more likely to 'Work from Home' which will allow for less congestion.

Fuel type

- There may be a large uptake of EVs and solar panels and that may make it more affordable.
- Council may need to provide green mobility as a service.
- Will there be flying cars? People may focus on sharing and micro mobility.

IN 2050, THE COMMUNITY TRANSPORT NETWORK IS



What we value and how we govern



Green space

- There may be ample public open space.
- There may be an increase in community gardens/yards.

Social

- There may be more volunteering and altruism.
- There may be universal basic income.
- People may be more social.
- Humans may value transcendental / bigger than self issues.
- There may be more social connection, more utilisation philosophy & public policy.
- There may be more localism.
- There may be more curiosity.
- Humans may value ecosystem - their services more.
- There may be more empathy and compassion.
- There may be a risk of complacency "it's not so bad after all".
- There may be less waste, more reuse, repair.
- People are less worried about individual ownership (base needs are taken care of and more sharing).

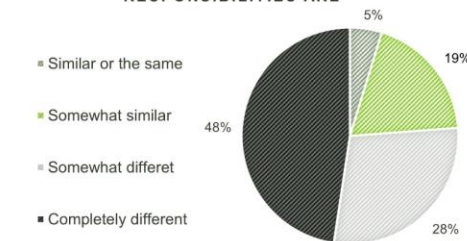
Governance

- There may be less centralised administration buildings - council operating from neighbourhood centres.
- There may be liquid democracy in which decisions are made collectively through participation and dynamic representation.
- There may be collaborative networks and partnership arrangements.
- Council may take a longer-viewed mindset.
- There may be more local forms of governance, single or some of localised work for their community, neighbourhood, business, school, heritage more than ever.
- Council may focus more on adaptive management.
- Will we still see a republic? Will we have 3 levels of government?
- There may be high trust, more community led, leaders take a long-term view.
- Council learns from disaster/risk events and use that knowledge to build back better.

Economic

- Technology has made green energy cheap.
- The aquifer recharge & De-sal will run with cheap, low carbon electricity.

IN 2050, COUNCIL'S ROLES AND RESPONSIBILITIES ARE



Council needs to provide...



Community

- As the climate crisis worsens, there may need to be refuge hubs installed in the area.
- Community members are helpful to one another i.e., helping people access services online.
- There may be less dependence on council as the community may be more self-sufficient.
- Is everything online? or still face to face?

Urban planning

- Urban planning may focus on urban cooling.
- Urban planning may need to incorporate more land for urban farms.
- There may be more green spaces which requires the use on more reliable water.
- There may be a redirect on road spending to green infrastructure.
- Urban planning may need to take on a more resilient design of public spaces.

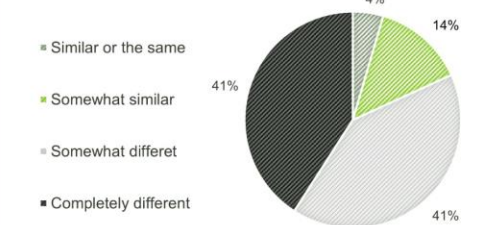
Governance

- Will councils be expected to provide more & more, or will state step up?
- There may be constructive dialogue about loss and trade-offs.

Assets

- How will councils get their revenues to maintain shared assets?
- Council's focus on asset maintenance is more on less waste, more reuse and repair.
- There may be more maintenance of everything, which will be expensive.
- There will be maintenance, maintenance, maintenance for assets.

IN 2050, COUNCIL'S ASSET MANAGEMENT PROCESSES AND SYSTEMS NEED TO BE



Adelaide's south in 2050, under SSP3/RCP6

Regional rivalry – a rocky road

Lifestyles



Urban spaces, land use and housing

- There may be more apartment blocks with more rentals and low property ownership
- People living out of cars or being transient
- Smaller residential blocks, leading to hotter living conditions & reliance on A/C.
- Increased number of visitors to coastal councils

- There may be more indoor/rooftop vertical gardens
- Open space and greenery are indicators of privilege
- The extent of environment/open space that can be used shrinks
- Less farming like we know it now - what other uses of our agricultural land?
- Affluent Holiday coastal landowners left some time ago as no one could fund sea walls

Social

- Moving towards third world conditions
- Communities are not well connected
- Increased gun ownership
- More gated communities, with private open space for the rich.

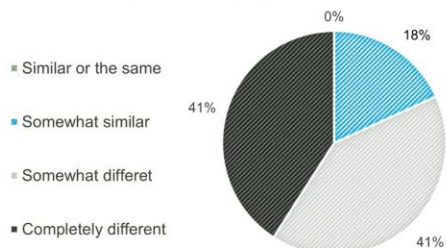
- Increased demand for social support services
- Ghettos with low education, low employment, low health care, high crime
- More climate ghettos (people living in tents e.g. Lismore)
- Refugees in from East Coast, Sydney/ Melbourne/ Brisbane unaffordable

- Climate refugees - Pacific islands - Indonesia - India Which may create high density areas of refugees
- High inequality creates high differences in lifestyle between the rich & poor.
- Marion & Onkaparinga coastlines more the areas of affluence
- Pockets of highly maintained assets (for the rich). Everything else degrades.

Governance

- Larger changes/differences between councils

IN 2050, THE COMMUNITY LOOKS



Transport



Public vs. private transport

- Public transport network unable to meet demand
- Poorly coordinated transport network. Great in small pockets, but regions not well connected e.g. Lonsdale connected to Adelaide
- Privatised transport networks
- There may be high rideshare usage with low car ownership but still car travel

- Private vehicles dominate
- Urban sprawl creates more demand for transport while less services fall to keep up/address demand
- Sustainable methods for private cars may not be well integrated

Asset management

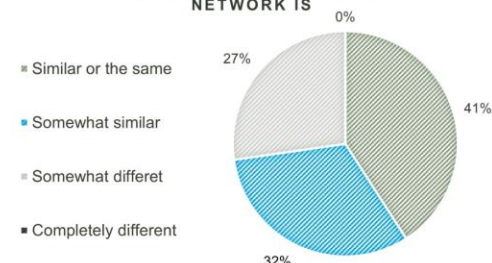
- More roads mean an impact to stormwater infrastructure & therefore there may be higher flooding impacts.
- Assets are more degraded because of low effectiveness of government
- Asset networks look similar to now just more extensive.
- No significant step change in how networks function.

- Some lower lying areas are periodically inundated so key transport corridors further inland are more congested
- High levels of congestion on roads
- There may be an increased road/asset renewal due to higher usage.

Fuel type

- Very small number of electric vehicles. Remain mainly similar to today.

IN 2050, THE COMMUNITY TRANSPORT NETWORK IS



What we value and how we govern



Nature

- Open space and greenery are indicators of privilege

Social

- Extremist groups hold power in various areas
- High 'NIMBY' thinking
- Aspiration to be rich
- Poorer people enjoying wealth more as they feel more vulnerable/less protected

- Protectionism of wealth
- Rejection of government - sovereign cities emerging
- High crime due to intergenerational inequality

Governance

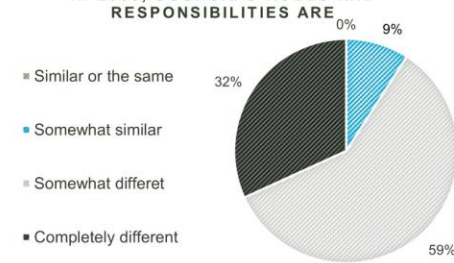
- More authoritarian government
- More polarised/binary community + councils
- Elected members can't agree or compromise
- More divergent views make decision making difficult

- Ineffective governing due to high disparity in political views
- More identity politics, less emphasis on evidence (Trumpism)

Economic

- States competing against each other for resources.

IN 2050, COUNCIL'S ROLES AND RESPONSIBILITIES ARE



Council needs to provide...



Safety

- More regular coastal and rainfall inundation has required places for people to retreat to - council providing centres for relief
- More security services e.g. CCTV + safety officers
- More protections required/greater emergency management
- Security to protect from extremists

Community

- Community service facilities for climate refugees to improve cohesion, - community centres - adult education services etc.
- More demand for services: - Police - Fire - Social support services etc.

Urban planning

- Urban planning may need to focus on more social infrastructure for improved community connection.
- Community will need more services but councils may struggle to address increased demands.

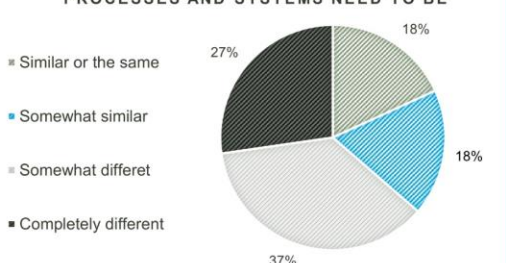
Assets

- Reduced demand for infrastructure: - Roads - Stormwater
- Open space is a premium asset council holds a major asset for the community (very little private open space)
- Asset replacement more frequently - destroyed by natural disasters
- Council services for asset networks not greatly changed, reactive services increasing.

Governance

- Lower rates % collected - Less revenue to fund services ↓
- There may be increased government corruption.
- Linking with State + Federal Government for recovering services
- Council may need to focus on coastal erosion mitigation.

IN 2050, COUNCIL'S ASSET MANAGEMENT PROCESSES AND SYSTEMS NEED TO BE



Adelaide's south in 2050, SSP4/RCP4.5

Inequality – a road divided

Lifestyles



Urban spaces, land use and housing

- There may be more satellite cities with increased localisation of jobs and activities.
- There may be limited space for gardens and home food production.
- There may be more urban sprawl.
- People may form self-sufficient gated communities located in currently land-rich areas (O'Hanrahan).
- There may be smaller houses and no or small back yards.
- There may be high density public housing, e.g. flats & apartments.

Resources

- The wealthy may be able to achieve food security through self-sufficiency and off-grid lifestyles.
- Gardens & veggies may be viewed as luxury items.
- Water recycling will likely be common due to water security concerns.
- Water use may be more efficient and more effective.

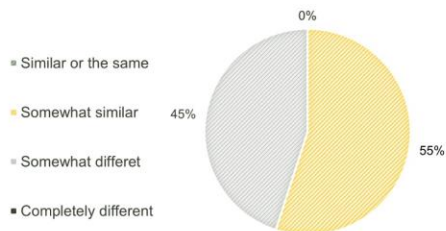
Social

- There may be more vigilantism.
- There may be more inter-community crime.
- South Adelaide may be very multicultural.
- Due to climate disasters, there may be an influx of climate refugees.
- There may be gentrification of some areas.
- The south may be a more desirable place to live.
- There may be clear dividing lines between communities.
- There may be more crime because of social breakdown and civil unrest.
- People may divide themselves from others through gated communities.
- There may be more homelessness.
- There may be lower Social Equality and less choices e.g. with schools.
- There may be more sedentary, indoor pursuits.
- Wealthy communities likely remain and increase in currently wealthy areas.
- Working from home may be more common.
- Jobs may be closer to home which makes the CBD less relevant.

Governance

- What is happening to Holdfast? Are they retreating?
- There may need to be a change in places we (councils) allow people to live.
- Water use, water recycling, water security, housing on or near water.

IN 2050, THE COMMUNITY LOOKS



Transport



Public vs. private transport

- Wealthy people will have private cars, while low-income people rely on public or active transport.
- There may be flying cars (for some).
- For private vehicles, the rich people will have EVs while lower income people will be in fossil fuels, or no car.
- Regional high speed trains may replace short flights.

Alternative forms

- It may be too hot for bikes.
- We may have more walkable communities, by necessity.
- There may be more deliveries & service traffic than private commuting.

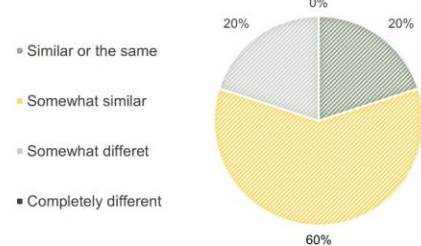
Asset management

- People may be travelling less because there is more working from home.
- There may be a more distributed workforce which makes the CBD less important.
- There may be less travel to work and university.

Fuel type

- There may be hydrogen - heavy vehicles.
- There will likely be a market for second hand EVs.

IN 2050, THE COMMUNITY TRANSPORT NETWORK IS



What we value and how we govern



Social

- People's views may become increasingly radicalised.
- There may be less meaningful relationships amongst differing social groups.
- There may be more inter-generational living, by necessity.
- There may be reduced social mobility.
- There may be less home ownership.
- Life could mimic "The Handmaid's Tale".
- There may be high expectations from wealthy, which are met (in some areas).
- Wealthy communities may pay for private security.
- There may be more renter rights.

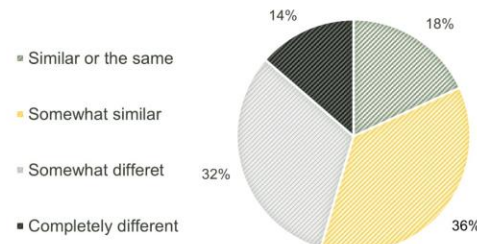
Governance

- Council governance structures may reach tipping points, where current (high) levels of controls are rolled back.
- Democratic & compulsory voting will likely stick around.
- Councils may become bigger to keep providing similar levels of services/assets.
- Potential reduction in tiers of government (no state).
- "Federated mega councils" may take over state responsibilities.

Economic

- There may be a user pays systems in place.
- The rich may pay a lot more in rates.

IN 2050, COUNCIL'S ROLES AND RESPONSIBILITIES ARE



Council needs to provide...



Safety

- There may be more security CCTV, outreach programs, safety officers or policing.
- There may need to be for refuge areas & hubs for extreme events.

Community

- The rich may provide for their own needs, while the Council may be more responsible for the vulnerable.
- There may be differential rates.

Urban planning

- Community transport - last mile services

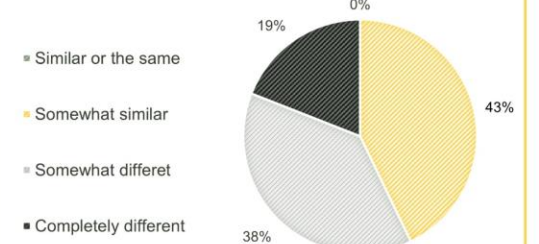
Assets

- Council may need to look after the trees, green open space.
- Repair and maintaining of assets occur only in the areas of the wealthy.
- Council will need to provide waste management.
- Council may need to maintain communications infrastructure.
- Council will need to maintain roads.

Governance

- There may be less diverse representation on council.
- Local government gets more direction from above.
- Councils may service more wealthy areas more frequently.
- There will be less scope to provide direction.

IN 2050, COUNCIL'S ASSET MANAGEMENT PROCESSES AND SYSTEMS NEED TO BE



Adelaide's south in 2050, under SSP5/RCP8.5

Fossil-fuelled development – the highway

Lifestyles



Urban spaces, land use, and housing

- Smaller backyards, much less private green space
- Sprawl will happen and there will be "McMansions" or large houses abound
- coasts still attract aged people
- The urban form will have to change to facilitate urban sprawl

Resources

- There might need to be solutions to feed a growing population while there is a strain on agriculture due to climate change, i.e., lab meat
- Increase in material processors and carbon emitting vehicles
- High levels of resource consumption

Social

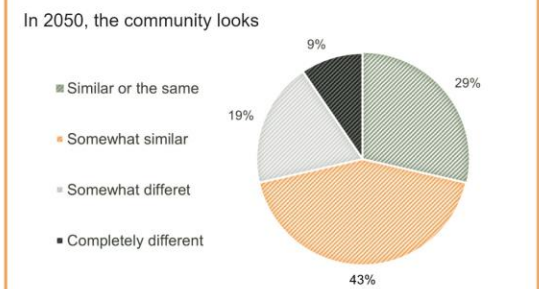
- Humans will be more selfish and focused on themselves rather than a community.
- People are more concerned on capital and monetary gain than anything else - Hedonism.
- Fire woman is the highest paid job because they are the most in-demand
- Lifestyles will be similar to current as we don't bother to make changes. We will be selfish in terms of not much action in terms of climate change.

Economic


- low economic people feeling increased financial stress
- Nature will be privatised & available to wealthy only

Governance

- Asset life accepts likelihood of complete renewal & more frequent fires & floods



Transport



Public vs. private transport

- There might be more ride sharing subscriptions due to congestion & cost of fuel.
- Most people who can afford it will own a private vehicle.
- On the roads there will either be air-conditioned electric cars or very old petrol bombs ("classic" vehicles)
- Internal combustion engines are more efficient but are still prevalent.

Alternative forms

- People cant walk or cycle due to weather.
- More drone deliveries to do increased consumption (electric charged by diesel generators).
- More need for shared hot spots & wireless data services (remote work) - people without cars will walk everywhere - public transport not good enough.

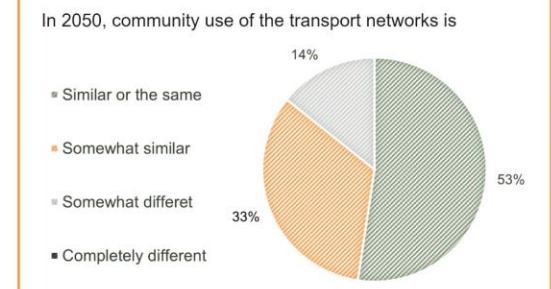
Asset management

- Asset networks will look the same, but with different service levels.
- There will be crowded congested roads.


Fuel type

- local trucks will move to EV.
- Private cars will shift to electric.
- Increase in material processors and carbon emitting vehicles.
- Long haul trucks will most likely be diesel-dependent on the rest of the world.

Increase in variety of low/no emissions transport solutions.



What we value and how we govern



Nature

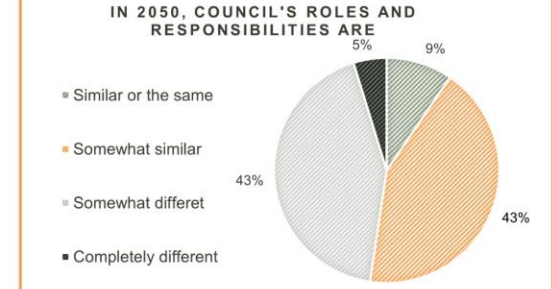
- Open spaces (plus roads) will be ephemeral flood mitigation structures (slows drain)
- Gated green spaces operated by private owners/businesses.
- Green Space is highly valued as there is little of it left.

Social

- People will be doing what they want, when they want.
- Community values themselves and there is no collectivism.

Governance

- Council will be influenced by lobby groups & vested economic interests.
- Government is very lobby-able by big money. There is more competition.
- What they want to be able to be bought. (There will be huge financial influence on council members)
- Potentially larger federal and local government at the expense of state government.



Council needs to provide...



Safety

- Increased disaster recovery and support.
- There will need to be more support for protections from climate disasters.
- Councils will need to focus on keeping residents safe from extreme events and will have to take a disaster recovery role.

Community

- There may be a shift in what nature looks like "NR nature experience to you don't need to leave your house."
- Due to Population growth, there may be urban hills & cooler drainage and urban sprawl with old housing stock and McMansions.
- There may be more indoor activities because outdoor areas are less hospitable.
- Climate refugees may influx into region which will increase population and stress on assets.

Urban planning

- Urban planning may need to review land use planning policy for higher SLR & storm surge ect.
- The community may insist on really livable denser housing designed for passive heat/cool and possibly affordable.

Governance

- To support those facing climate disasters council will need to provide financial support & discounted rates.

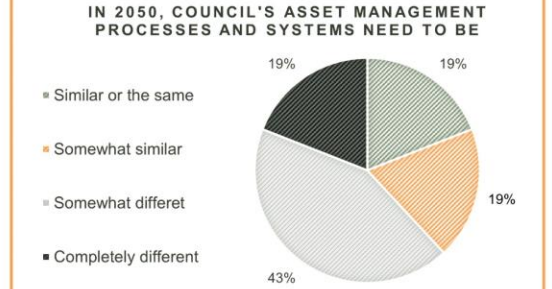
Assets

- We won't bother with asset management plans, we will need to focus on repairing them as soon as possible.
- There will be pressure on indoor facilities maintained by council.
- Due to increased consumption, there will be more pressure on waste and recycling services.
- Migration into Southern Adelaide will put more pressure on assets.

There will be an increased pressure on all public infrastructure.

There will need to be more protections in coastal infrastructure.

Climate issues will make it harder to provide nature services.



aurecon
Bringing ideas to life