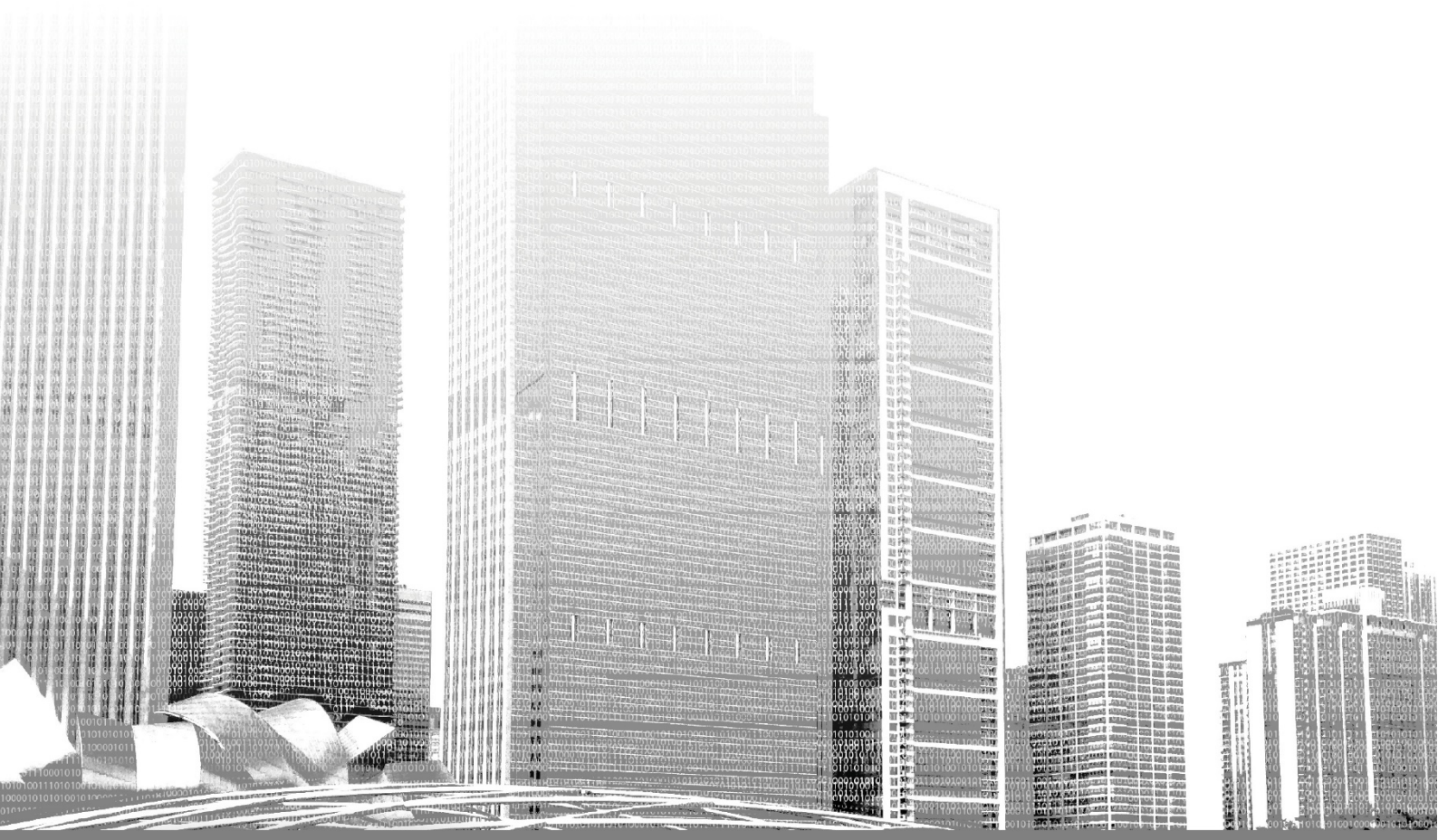
SOUTH AUSTRALIA PILOT CLIMATE CHANGE ADAPTATION GOVERNANCE ASSESSMENT

Climate Change Adaptation Governance Assessment Report for the City of Marion



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Executive Summary

Resilient South and Resilient Hills & Coasts collaborated to run the first trial of Informed.City™ in South Australia. Under this collaboration Adelaide Hills Council, the City of Marion, Mount Barker District Council and the City of Onkaparinga engaged Climate Planning and Seed Consulting Services to undertake a pilot assessment of climate change adaptation governance in these councils. This government assessment will provide an indicator as to how well South Australian local governments are incorporating climate change adaptation governance into their corporate processes and frameworks. The project aims to continue the strong collaborative working relationships between Resilient South, and Resilient Hills and Coasts partner councils.

This report presents the methodology and results of an analysis about the extent of climate change adaptation governance for the City of Marion, which was undertaken as part of a South Australian Pilot Climate Change Adaptation Governance Assessment. It includes the information collected from an online staff survey, results of the governance assessment, and findings from face-to-face meetings with representatives of the City of Marion. The report also provides a range of recommendations to assist the City of Marion in improving their climate change adaptation governance.

Methodology

The Project Team used Climate Planning's Informed.City™ platform to implement the project. The governance assessment for the City of Marion was undertaken in two stages:

- **Quantitative Assessment** - typology-based review of local government inclusion and influence of climate change in publicly available corporate documents. Also includes a survey of staff members' understanding of climate change impacts, their department's capacity to adapt and their perceived barriers and enablers to improved consideration of climate change in Council decision-making. The quantitative assessment was completed on the 29th of May 2019.
- **Qualitative Assessment** - qualitative analysis of local government consideration of climate change adaptation governance face-to-face meetings with key council staff members. These meetings were used to glean information about barriers and enablers to mainstreaming consideration of climate change. The qualitative assessment was conducted on the 30th of April 2019.

Results and Specific Recommendations

The findings of this report bring together information obtained from the above two stages, with a summary of the key insights from the governance assessment presented below.

Quantitative assessment

The Project Team conducted a governance assessment of the City of Marion to explore how climate change was considered in their corporate documents. The City of Marion was assessed against ten quantitative governance indicators, with Figure 1 displaying Council's performance.

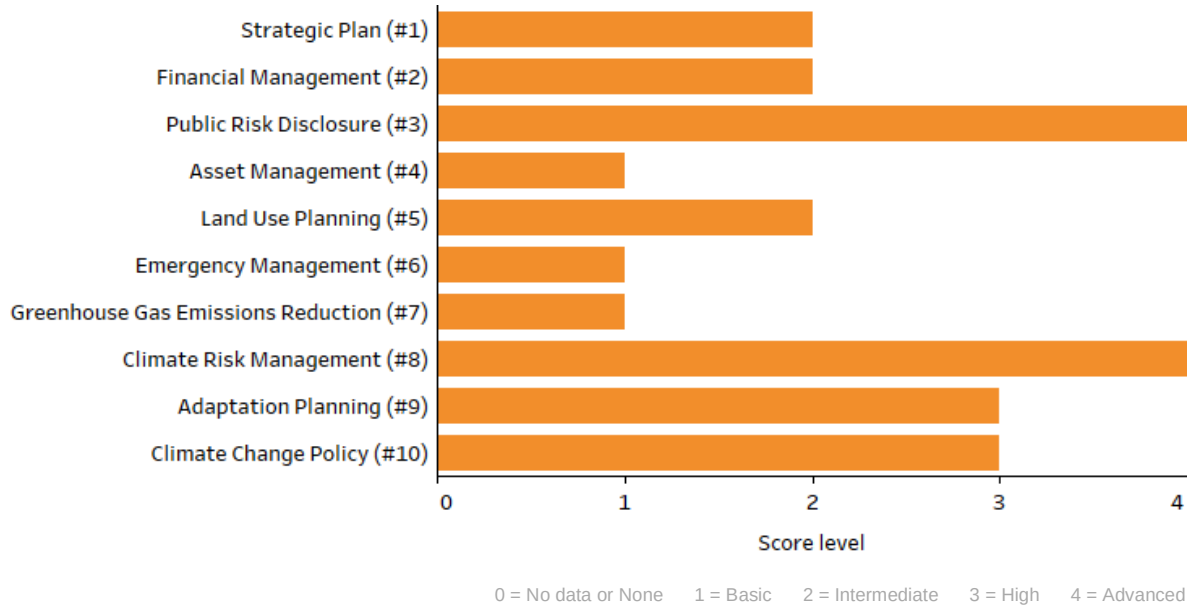

Figure 1: The City of Marion's quantitative scores for climate change adaptation governance

Table 1 provides the recommended 'first steps' which council should consider implementing for each indicator to improve their climate change adaptation governance scores.

Table 1: Recommended 'first steps' which the City of Marion should implement to improve their governance scores

Indicator Type Tag	Level	Recommendation
Strategic Plan (#1)	Intermediate	To increase the score for this indicator (to 'High') the next revision of the Strategic Management Plan requires some examples of specific climate change actions spanning more than one council department. General terminology that will support a 'High' score includes: "Council will explore how climate change adaptation and mitigation can be mainstreamed into decision making. Specifically, Council will be focusing on sea level rise (if it is a coastal Council) or heatwave risk (or bushfire etc.)". Some resources should be allocated to staff capacity (e.g. conferences and training) as well as some specific technical support which may be required for some elements. However, the majority of support able to be gained from State Government guidelines and information reports as well as gleaning information from other councils through peer-to-peer learning.

Indicator Type Tag	Level	Recommendation
Financial Management (#2)	Intermediate	To increase the score for this indicator (to 'High') Council should undertake a review of key financial planning documents as soon as possible. As well as having general statements about climate change (e.g. in the introduction) ensure that some recognition of at least two specific risks and/or Council function (e.g. sea level rise and asset depreciation). An example of phrases in financial management plans and/or policies that will support an 'Intermediate' score include: "Council recognises that climate change may affect its financial performance and will seek to identify the most suitable means for identifying how climate change may affect financial management" and "Council will explore the financial ramifications that climate change may present on its asset value, depreciation and exposure to increased extreme events" and "Council will explore how climate change may affect the resourcing needs for operations (e.g. employment of a climate change officer, hiring of consultants, trialling innovative engineering measures, etc.)." Implementing this action requires minimal resourcing. However, the effect of financial management issues on other council functions (e.g. assets) are important to consider. For example, understanding whether staff capacity, capability and training needs are a barrier to understanding climate change and its financial implications in your council.
Public Risk Disclosure (#3)	Advanced	Council has received an 'Advanced' score for this indicator. Achieving this score sees the organisation in the top fraction of Australian local governments for this indicator and enables it to share its journey with other local governments seeking to improve their consideration of climate change. To ensure that this indicator is maintained at this level it will be important to monitor any new IPCC reports, government regulations and emerging standards which may affect adaptation actions. Furthermore, ensure that the council maintains sufficient staff capacity and resourcing to maintain this score for this indicator.
Asset Management (#4)	Basic	In order to achieve an improvement in this governance score (to 'Intermediate') Council should include climate change in the introduction of the asset management planning documents and/or policies as well as give some specific reference to one of the known risks or assets that may be exposed to the effects of climate change. An example of the text that would help improve consideration is: "Council recognises that climate change is likely to affect asset life and functionality. As such, in future reports and analysis, Council will explore how climate change will affect assets". The asset management plan should also specify a prescribed response to one of the climate change issues. For example, "All council buildings in areas exposed to sea level rise will be retrofitted to handle short term inundation risks, through elevation of 600mm (this height is just an example) above the flood level and to manage the risks Council will undertake studies to identify alternative locations of the building/s to maintain adequate service delivery".
Land Use Planning (#5)	Intermediate	To increase the score for this indicator (to 'High') Council should have a detailed consideration of climate change in the Development Plan. A detailed consideration of climate change would be one that considers multiple physical climate change risks, preferably with a good consideration in the general provisions. The most suitable action is for Council to glean information from a Council with a similar geography or population which has scored a minimum of 'Intermediate' in the Informed.City™ governance analysis. It is possible that Council may be constrained by State policies and legislation to implement the above. If that is the case, then Council should lobby the State to enable it to have greater flexibility to incorporate climate change into its Development Plan.

Indicator Type Tag	Level	Recommendation
Emergency Management (#6)	Basic	To increase the score for this indicator (to 'Intermediate') the Council Emergency Management Plan (or similar instrument) must be amended to ensure that climate change is referred to in the introduction and one element of climate change is considered in the plan. An example of phrases in an Emergency Management Plan that will support an 'Intermediate' score include: "Climate change is likely to exacerbate many of the known disaster risks and affect those already especially vulnerable to natural hazards". Issues that will be relevant are the increased heatwave risk (i.e. present information on the current number of heatwave days for selected locations and then how that may change in 2030 / 2050 etc.). The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have reasonable scores in the indicators that you need help in improving.
Greenhouse Gas Emissions Reduction (#7)	Basic	The 'Basic' score means that Council is concerned about global greenhouse gas emissions. To increase the score for this indicator (to 'Intermediate') Council should now formally identify a target that is achievable through energy efficiency and minimum outlay (e.g. a 20% -30% reduction on current emissions established to 2030). Council should state how it intends to broadly meet the targets. Ensure that energy savings are captured in financial reporting and inform the public of the return on investment.
Climate Risk Management (#8)	Advanced	Council has received an 'Advanced' score for this indicator. Achieving this score sees you in the top fraction of Australian local governments for this indicator and you will be in a position to share your journey with other councils seeking to improve their consideration of climate change. To ensure that this indicator maintains at this level Council will need to monitor any new IPCC reports, government regulations and emerging standards which may affect adaptation actions. Furthermore, it will be necessary to ensure that Council maintains sufficient staff capacity and resourcing.
Adaptation Planning (#9)	High	This recommendation focusses the need for on a Council climate change adaptation strategy (or similar) as a local instrument (not just regional). A detailed local plan ensures ownership and can better align to internal governance and reporting. Ensure that a comprehensive Council adaptation strategy and/or action plan exists (for Council and the community). As a minimum include all of the following: key performance indicators, identified roles and responsibilities, timing for delivery, linked to governance (mainstreaming), includes information from the community, and other key stakeholders. There will be an initial outlay of resources required to achieve this level of adaptation planning (e.g. Undertake climate change risk assessments. Quantify economic, social, environmental and Council assets exposed to risk. Identify, cost and prioritise adaptation actions. Clearly assign roles and responsibilities).
Climate Change Policy (#10)	High	A climate change policy will help ensure Council's method for adapting to climate change is consistent and robust. If council is to implement a climate change policy then it should include all of the following: specific IPCC climate change scenarios it is aligning to (preferably RCP 8.5 as a minimum), identified roles and responsibilities, timing for delivery, triggers for review (e.g. within 6 months of each IPCC assessment report), activities for improving governance scores, (mainstreaming), and commitment to community and/or stakeholder engagement. The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have an advanced climate change policy.

Qualitative assessment

During the face-to-face meetings, The Project Team asked representatives of the City of Marion a series of questions about climate change. These questions were used in a qualitative analysis to understand the issues, barriers and enablers for considering climate change in decision making for the City of Marion. The results for the qualitative assessment are categorised into the seven indicators. From these results, the Project Team have devised the following specific recommendations to assist the City of Marion in improving their climate change adaptation governance.

Indicator 11: Climate Risk Assessments

11.1 Undertake whole of organisation climate risk assessment that enables the identification of priority risks across all functions within Council.

11.2 Agree on a process by which high priority projects, especially large-scale infrastructure projects or new developments, are subject to climate risk assessments prior to approval.

11.3 Identify the process by which climate risk assessment results can feed into the Strategic Risk Register.

Indicator 12: Climate Legal Risk

12.1 Identify priority areas for climate legal risk advice, especially in relation to the relative role of Council versus residents and the State Government.

12.2 Establish a service provider relationship for accessing legal advice.

Indicator 13: Staff Capacity and Resource Allocation

13.1 Review opportunities to embed capacity building into existing staff training, such as new employee inductions.

13.2 Develop a capacity building program to continue to raise staff awareness about climate change impacts and how they can be managed within different Council functions. This should be an ongoing program similar to how workplace health and safety (WHS) training is conducted across the organisation.

Indicator 14: Community/ Stakeholder Engagement

14.1 Develop a Climate Change Stakeholder Engagement Strategy, which identifies engagement objectives, target audiences, engagement channels, a schedule of activities, and key performance indicators (KPIs). This should include issue specific engagement (e.g. in relation to coastal risks) as well as general awareness raising.

Indicator 15: Institutional/ Intergovernmental Relationships

15.1 Seek to clarify the role of Council as compared with State Government in relation to managing climate risk.

Indicator 16: Climate Change Information

16.1 Develop a register of information requirements needed to inform key decisions that will be impacted on by climate change to identify where information gaps exist. This should be done as part of implementing a monitoring and evaluation plan.

Indicator 17: Information Systems

17.1 Sponsor GovHacks and local hackathons with the focus being solely on climate change adaptation.

17.2 Provide an annual publication of data collected in Council's accounting system on post extreme event/ disaster clean-up costs/ resource use. This will enable the community to see the changes over time.

Conclusion

The City of Marion has considerable inclusion of climate change in its formal governance documents. This meant that not only could staff identify key physical climate risks to the functions of Council, they could also identify clear corporate strategic drivers for decision making. There was also consistent understanding of climate change risks from an officer to senior executive level.

The fact that climate change has been considered in all of the ten key governance indicators sees it placed as the leader in Australia (compared to the 200 councils who have been assessed), although significant gaps associated with asset, financial and emergency management require further attention.

Although the City of Marion has an excellent climate change adaptation governance score, it does not have a target to reduce greenhouse gas emissions. This presents a potential political risk to the City, as the public would most likely assume a proactive council to show leadership in greenhouse gas emissions reductions. A long-term plan for emissions reduction is in line with the UNFCCC Paris Agreement, to which Australia has already made a commitment at a national level. It is recommended that Council commit to net zero emissions by or before 2050.

For the City of Marion to have an improved climate change adaptation governance score and a better understanding of the issues, Council needs to undertake a detailed climate change risk assessment of Council operations and assets. This needs to consider specific climate change projections rather than general trends of change such as warmer and drier conditions. Without an understanding of the value of assets exposed, and potential changes to the cost of maintaining these assets, it would be challenging for the organisation to monitor and evaluate its adaptation progress. It would also be difficult to undertake long-term asset and financial management planning.

Regardless of the gaps identified the City of Marion should be congratulated for its consideration of climate change in its governance arrangements to date.

On a final note, the Project Team cannot stress enough the importance and value of disclosing these governance scores to the wider community and other local governments. The quantitative assessment is based on publicly available information and there are considerable benefits associated with disclosure. By sharing information at the very least with other local governments the framework for community of practice can be established and benefit all participants.

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SMP: strategic management plan..... 10
TCFD: Task Force on Climate-related Financial Disclosures..... ix, 2, 44, 9
UNFCCC: United Nations Framework Convention on Climate Change..... vi, 15, 41
WSUD: Water Sensitive Urban Design..... 15, 32, 36
ZEMC: Zone Emergency Management Committee..... 21
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1 Introduction

1.1 Responding to Climate Change

Climate change is a pressing issue for local government that is already manifesting as a legal, social, economic and environmental risk. Local governments make decisions that span generations (e.g. roll-out of infrastructure, planning for future settlements) and as such need to be actively assessing and responding to the direct and indirect risks that climate change presents. However, since climate change presents a plethora of direct and indirect challenges that are likely to change over time, it will be impossible to effectively manage the issue in an ad-hoc and reactive manner.

Climate change requires a focus on both mitigation and adaptation activities. Mitigation limits the long-term contribution of greenhouse gas emissions to global environmental change and adaptation responds to the impacts that will already be locked into the climate system. The integration of mitigation and adaptation activities act as drivers for a low carbon economy, accessing economic and social opportunities.

Robust decision-making frameworks minimise future uncertainty as issues and information emerge and become important. In fact, this has been identified as the priority for Australian local governments:

> *Local governments will better respond to the challenges of climate change in an environment where adaptive responsibilities are clear, response and evaluation frameworks are consistent across jurisdictions, approaches to mainstreaming climate change adaptation are implemented, and decisions are made on the basis of the best data and information. (*National Climate Change Adaptation Research Facility (NCCARF), 2013)

1.2 A South Australian Context

South Australia was the first jurisdiction in Australia to introduce climate change-specific legislation – the *Climate Change and Greenhouse Emissions Reduction Act 2007* (the Act). The Act promotes climate change mitigation and adaptation action within South Australia that provides consistency with national and international schemes. In response to the Act, the Local Government Climate Change Adaptation Program was developed with the support of the Local Government Association Mutual Liability Scheme. This led to the first comprehensive assessment of climate risks across councils in South Australia, which were mostly undertaken over the period 2010 to 2011.

This initial experience with climate risk planning was built on following the release in 2012 of South Australia's adaptation framework "Prospering in Changing Climate: A Climate Change Adaptation Framework for South Australia". The framework outlined a consistent approach for the development of regional adaptation plans and delivery of integrated vulnerability assessments for all parts of the State. The resulting integrated vulnerability assessments and regional plans were completed over the period 2014 to 2017 and have been progressively implemented in most regions with the support of region wide or council specific adaptation action plans.

1.3 Assessing Climate Change Adaptation Governance

The extent to which climate change risk and adaptation is considered in a local government's core governance documents may affect the implementation of the organisation's approach to climate change adaptation.

Measuring and monitoring indicators for climate change adaptation and mitigation governance provide a platform for a consistent approach. This allows local governments the ability to monitor and improve their performance over time. Initial focus and emphasis should be on a council's adaptation governance. Unless it can be ensured that a council's internal adaptive capacity is robust, that is its ability to respond to potential climate change impacts, then there is a risk that specific adaptation actions will be ad-hoc and constrained by limited resourcing and political support.

> *[Climate change] governance is not about the specific measure but the system and framework that supports the decision-making process…given the complexities and rapid emergence of regulations, evolving information and market responses, implementing [climate change] governance is the only way an organisation can truly maintain an effective response* (Edwards, Burton, & Baker-Jones, 2017).

Understanding climate change governance may help decision-makers to estimate the vulnerability of a system to stress and address underlying causes of vulnerability over time. It may help to support proactive decision-making by assisting organisations to identify both the risks and possible responses in advance and develop the capacity to implement the required actions.

The need to focus on climate change governance is gaining momentum in academic literature, United Nations publications and approaches, as well as in corporate disclosure frameworks (Clos, 2015). For example, disclosure of governance arrangements around climate-related risks and opportunities is a key component of the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD) (see Figure 2).

Figure 2: Core Elements of Recommended Climate-Related Financial Disclosures (TCFD, 2016)

2 About This Report

This report presents the methodology and results of an analysis about the extent of climate change adaptation governance for the City of Marion, which was undertaken as part of a South Australian Pilot Climate Change Adaptation Governance Assessment. It includes the information collected from an online staff survey, results of the governance assessment, and findings from face-to-face meetings with representatives of the City of Marion. The report also provides a range of recommendations to assist the City of Marion in improving their climate change adaptation governance.

This assessment predominantly focuses on adaptation governance. Mitigation has been considered only in regard to formal greenhouse gas emissions reduction targets. A detailed greenhouse gas emissions governance assessment requires an audit of baseline emissions data and data recording protocols (e.g. emissions scope, alignment to Australian standards etc.) – which is outside the scope of this project.

3 Methodology

The South Australia Pilot Climate Change Adaptation Governance Assessment project uses Climate Planning's climate change adaptation governance assessment framework to understand how effectively climate change considerations are integrated into the corporate operations and governance of South Australian local governments. The governance assessment for the City of Marion was undertaken in two stages:

- **Quantitative Assessment** - typology-based review of local government inclusion and influence of climate change in publicly available corporate documents. Also includes a survey of staff members' understanding of climate change impacts, their department's capacity to adapt and their perceived barriers and enablers to improved consideration of climate change in Council decision-making (see Appendix A for survey questions).
- **Qualitative Assessment** - qualitative analysis of local government consideration of climate change adaptation governance based on face-to-face meetings with key council staff members. These meetings were used to glean information about barriers and enablers to mainstreaming consideration of climate change.

3.1 Quantitative Assessment

The aim of the quantitative assessment was to identify publicly available corporate documents for the City of Marion and undertake a deeper exploration into how climate change is considered in those governance documents. These corporate documents are the key governance documents that either drive the organisational decision-making or report on the effectiveness of those processes. The documents were assessed against ten quantitative indicators for climate change adaptation governance (see Table 2).

Table 2: Justification of climate change adaptation governance indicators for the quantitative assessment

Indicator	Justification
 Strategic Plan	The Strategic Management Plans direct how decision-makers in local government must discharge their responsibility under the *Local Government Act 1999*. Including considerations of climate change here will likely result in better likelihood for mainstreaming the issue in the council's operations and financial structures.
 Financial Management	If ignored, the effects of climate change are likely to have a considerable impact on a council's financial performance. This includes costs associated with asset management, service delivery, legal risk and insurance. Climate change may also affect rateable property value and therefore have the potential to affect council's primary income stream.
 Public Risk Disclosure	There is an increasing demand in the private sector for a transparent approach to addressing climate-related risk. A transparent approach means public disclosure of risks. Over time councils can expect insurers and finance providers, amongst others, to request councils to disclose how they are addressing climate-related risk.
 Asset Management	Local governments have hundreds of millions (and in some cases billions) of dollars invested in assets. Some of the assets that councils maintain have a long life expectancy and as such may be exposed to direct and indirect climate change risks. This generates a potentially unexplored or under-quantified financial risk for local governments.
 Land Use Planning	Land use planning can play a critical role in climate change adaptation. Strategic and local planning decisions can both increase or decrease the exposure of human settlements to climate change impacts. If done well effective land use planning can support climate-resilient and low energy development.
 Emergency Management	There are significant opportunities to drive climate change adaptation decision making through emergency management planning. Adaptation has numerous supporting benefits for emergency management including the implementation of risk planning for disaster mitigation and preparedness, response capacity and minimising exposure to reoccurring situations.
 Greenhouse Gas Emissions Reduction	Climate change mitigation actions allow for an exploration and promotion of resilient energy systems and passive solar design that may reduce human health-related issues as well as considerable energy savings. Furthermore, it is very likely that climate change adaptation will need to occur in a carbon-constrained economy.
 Climate Risk Management	Climate change is a complex issue that will exacerbate existing risks and present new ones. Often climate change risk management is undertaken in an ad hoc way – resulting in inconsistent approaches within an organisation. Some direction that defines how climate change risk is identified and disclosed will greatly improve council's adaptation planning.
 Adaptation Planning	Best practice adaptation plans identify the actions required to mitigate specific risks and have mechanisms in place to respond to physical, transitional and liability risks. Adaptation planning helps to set key performance indicators and establish roles and responsibilities across council and more broadly.
 Climate Change Policy	An internal Climate Change Policy (or corporate standard / statement of intent) allows the organisation to place a climate change lens over all of council's activities and use the existing system to drive adaptation, risk minimisation and transition to a lower-carbon economy. It can allow for the agreed use of information sources and specific triggers for change.

The quantitative assessment focusses specifically on an assessment of Council's corporate document which are publicly availably which means they are accessible through an online platform (e.g. Council's website). An analysis of only public documents supports the growing recognition that disclosure of climate risk is an important element in climate change management. This is reinforced by Edwards et al. (2017) who state that "it is not enough to do the right thing, one must also be seen to be doing the right thing." The Paris Agreement recognises transparency as a fundamental principle in climate change management (both in actions and in governance). There is also an increasing call for local government disclosure of risk and governance responses by those who re-

insure local government risk. Proactive disclosure aids market decisions and also increases public trust in the government (Kim & Kim, 2007).

3.1.1 Keyword Analysis

The Project Team has identified 19 publicly available corporate documents from the City of Marion which align with the ten quantitative indicators of climate change adaptation governance (see Table 3). The team conducted a keyword analysis to identify how many words associated with climate change were present in Council's documents. Some of the words reviewed include 'climate change', 'sea level rise', 'adaptation' and 'greenhouse gas emissions' (a complete list of words can be found in Appendix B). If any of these words were identified, the Project Team undertook a closer analysis of the context to assess the extent of how they were considered in the documents.

Table 3: The City of Marion's corporate documents identified for the quantitative assessment

Indicator	Document Name
Strategic Plan (#1)	▪ Strategic Management Plans, collection includes: [1] o Amalgamated Asset Management Plan 2015 o Building Asset Management Plan 2015 o Development Plan 2018 o Long-Term Financial Plan 2018-2028 o Open Space Asset Management Plan 2015 o Strategic Plan 2017-2027 o Transport Asset Management Plan 2015 o Marion Coast Park Walking Trail Management Plan 2015
Financial Management (#2)	▪ Annual Business Plan 2018-2019 ▪ Long-Term Financial Plan 2018-2028
Public Risk Disclosure (#3)	▪ Annual Corporate Risk Report 2019 [2]
Asset Management (#4)	▪ Amalgamated Asset Management Plan 2015 ▪ Asset Management Policy 2018 ▪ Building Asset Management Plan 2015 ▪ Open Space Asset Management Plan 2015 ▪ Transport Asset Management Plan 2015 ▪ Marion Coast Park Walking Trail Management Plan 2015
Land Use Planning (#5)	▪ Development Plan 2018
Emergency Management (#6)	▪ Community Emergency Management Plan 2018 ▪ Southern Adelaide Zone Emergency Management Plan 2018 (regional)
Greenhouse Gas Emissions Reduction (#7)	▪ Energy Efficiency and Renewable-Energy Plan 2018
Climate Risk Management (#8)	▪ Annual Corporate Risk Report 2019 ▪ Risk Management Policy 2016
Adaptation Planning (#9)	▪ Resilient South Regional Climate Change Adaptation Plan 2014 (regional) ▪ Southern Region Local Government Implementation Plan 2015-2019 (regional)
Climate Change Policy (#10)	▪ Climate Change Policy 2016

[1] identified in Council's Strategic Plan (City of Marion, 2017)

[2] A corporate document from the Climate Risk Management (#8) indicator which presented risks in the ISO AS31000 format

3.1.2 Evaluation Matrices

The Project Team assessed the corporate documents for each governance indicator using a scoring system developed by Climate Planning. The method is relatively simplistic as it uses scaled matrices with descriptions on a continuum between no consideration and an advanced consideration of climate change. The Project Team scored the corporate documents using a five-point scale which was tailored to each governance indicator in the quantitative assessment (these evaluation matrices are provided in Section 4.2).

Since the quantitative assessment relies on an analysis of the corporate documents, Council staff were not directly engaged for the quantitative indicators. Although, some findings obtained from the face-to-face meetings may inform and/ or provide context about some of the quantitative indicators and will therefore be presented in the results where relevant. However, they are not given any weight in the final conclusions of this report (other than limitations/ barriers to mainstreaming noted by the staff).

The findings in this report are based on a quantitative assessment of the City of Marion that was completed on the 29th of May 2019.

3.2 Qualitative Assessment

The purpose of the qualitative assessment was to build a more complete representation of climate change adaptation by focussing on the complex drivers which could not be understood through an assessment of public corporate documents in the quantitative assessment. These drivers are captured in seven qualitative governance indicators (see Table 4).

Table 4: Justification of climate change adaptation governance indicators for qualitative assessment

Indicator	Justification
 Climate Risk Assessments	Climate change risk assessments are useful for identifying and quantifying the potential effects of climate change. They provide organisations with the critical information they need to understand the impacts that climate change may present. Risk assessments also help to identify and prioritise issues that require further investigation and/ or adaptation actions.
 Climate Legal Risk	Climate change is emerging more and more as a climate legal risk problem that governments, organisations and the community are attempting to understand, avoid and manage. The nature of climate legal risk for local governments is a minefield that can manifest itself in many ways. There is the potential that one lawsuit could erode a council's financial resilience.
 Staff Capacity and Resource Allocation	Monitoring councils' resource and staffing commitment to climate change is critical to supporting ongoing climate change adaptation. If a council only relies on external consultants for adaptation research and responses, then it is doing very little to support the improved internal adaptive capacity of its organisation. The overarching goal for adaptation should be to mainstream consideration of climate change across all council activities.
 Community/ Stakeholder Engagement	Connecting to the community is a core component for developing a safer, more resilient community. It is a local community who will bear the brunt of climate change impacts as they directly or indirectly contribute towards adaptation efforts (e.g. through increased insurance costs, taxes, and voluntary community actions).

Indicator	Justification
 Institutional/ Intergovernmental Relationships	Climate change is a trans-boundary issue. Adaptation action (or inaction) by one stakeholder can both improve and erode the resilience of another. Economies of scale and collectively sharing knowledge can improve adaptation governance. The actions by a range of organisations have the potential to affect councils' resilience.
 Climate Change Information	Understanding the impacts of climate change requires access to climate change information. Whilst institutions such as NCCARF, CSIRO, and universities freely provide valuable publications on climate change risk and adaptation, obtaining climate change projections (e.g. from climate change models) is often a time consuming and expensive task, or one that can misalign with councils' timing needs.
 Information Systems	As the information technology age continues to shape our society it comes as no surprise to see that information services are playing an increasing role in supporting council operations and providing a new interface with the community it serves. Information communication technology networks such as social media platforms, websites and information portals have the potential to contribute significantly to councils' climate change adaptation ambitions.

The Project Team undertook face-to-face meetings with representatives from the City of Marion. During the meeting conversations, representatives were asked a series of questions which the Project Team later used in a qualitative analysis to understand the issues, and barriers and enablers for considering climate change in decision making for the City of Marion. The information was obtained through a set of consistent questions aligned to the relevant themes. The series of core questions are provided at the end of this report (see Appendix C).

The results collected through the qualitative assessment are not directly attributed a 'score'. The findings from this assessment are used to build a better understanding about some areas of this indicator that may not become evident through a reading of the documents in isolation. While findings will not be attributed a score, the outcome will inform any discussion or recommendations. They will also be recorded for comparative review of future assessments.

The face-to-face meetings for Council were conducted on the 30th of April 2019.

4 Results and Specific Recommendations

The results focus on interesting findings of the governance assessment as well as possible links drawn from a survey of staff members. This section first provides an overview of the results for the staff governance survey. It then addresses the results and specific recommendations for the quantitative and qualitative assessment separately. Any interesting findings from the face-to-face meetings or the staff governance survey which relate to a specific governance indicator have also been integrated into the results.

4.1 Results for Staff Governance Survey

Of the 120 staff members in the City of Marion who participated in the staff governance survey, a large proportion work in the Community and Recreation department (25 staff members, 21%). This is closely followed by the Customer Service department which had 23 staff members (19%) participate in the online survey (see Figure 3). Interestingly, a good representation was found across

Council in the results, with at least one response from each department. This means that every department in the City of Marion has provided input for the online survey.

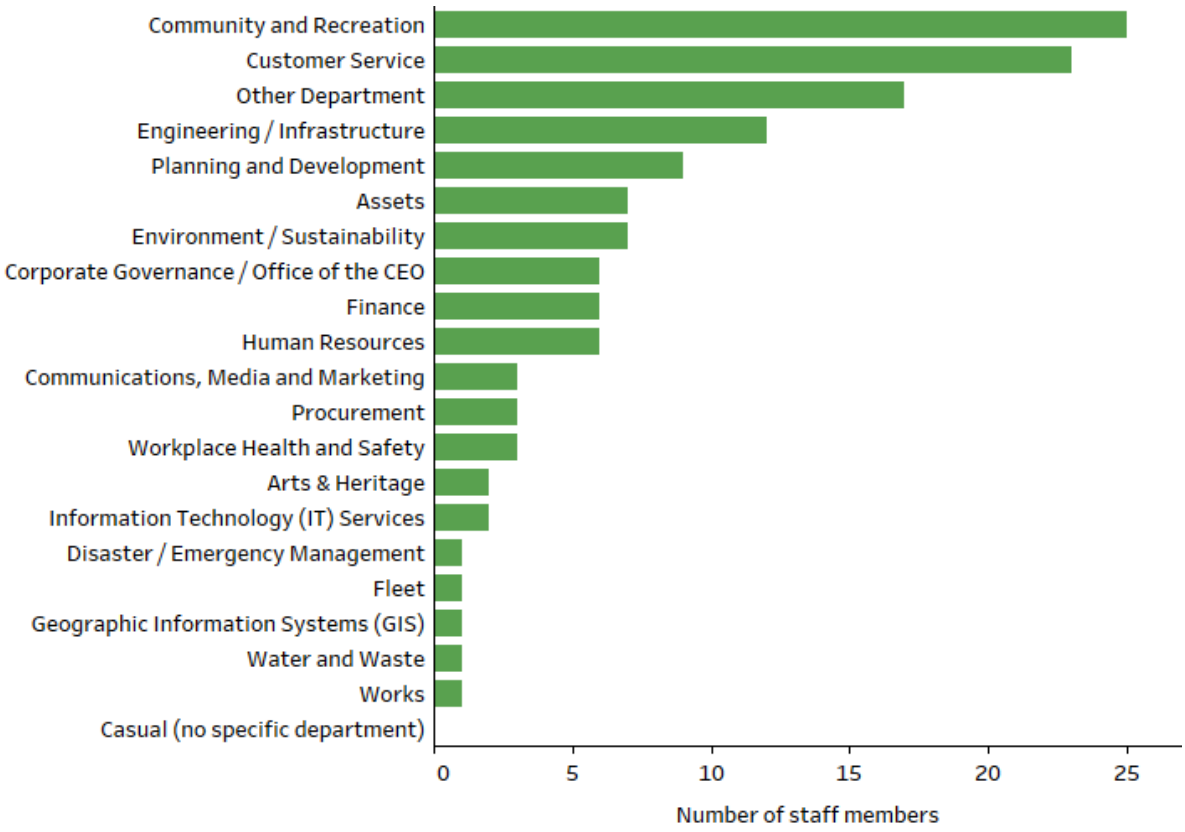

Figure 3: Number of the City of Marion staff members from each department who participated in the staff governance survey

The online survey found that 85% of respondents have some level of understanding of climate change impacts and adaptation. 47 staff members stated that their understanding is limited, and 55 staff members believed that they could comfortably incorporate/ consider climate change in their job (see Table 5). In addition, 78 respondents (72%) identified a good understanding of climate change as an enabler to Council's ability to plan for climate change.

Table 5: Understanding of climate change impacts and adaptation for the City of Marion staff members

	Number of staff members	% of staff members
I am not sure of my understanding	8	7%
I have no understanding	9	8%
My understanding is limited	47	39%
I could comfortably incorporate/ consider climate change adaptation	55	46%
Total	**119**	**100%**

4.2 Results and Recommendations for Quantitative Assessment

The specific results of the quantitative assessment have been divided into the ten quantitative indicators of climate change adaptation governance. This section will elaborate on the City of Marion's results for each governance indicator and provide specific recommendations for how council can transition to a higher score level. The analysis of each indicator will discuss the importance of the indicator, staff survey results, quantitative assessment results, and specific recommendations. Findings from the face-to face meetings will be provided for relevant indicators.

Please note that only one recommendation has been provided for each indicator as a 'first step' for Council to transition to the next score level. These recommendations are specific to each level which means that completing one recommendation will only improve Council's score by one level. For this reason, there may be a range of recommendations which Council can implement to achieve a desired indicator score. For example, there are three specific recommendations which a council can implement to transition from 'Intermediate' to 'Advanced' for a particular indicator. For more information about how to transition to a higher score level see the collection of recommendations provided for each indicator in Appendices E – N.

4.2.1 Overview of Quantitative Assessment Results

The Project Team conducted a governance assessment of the City of Marion to explore how climate change was considered in their corporate documents. The City of Marion was assessed against ten quantitative governance indicators, with Figure 4 displaying Council's performance.

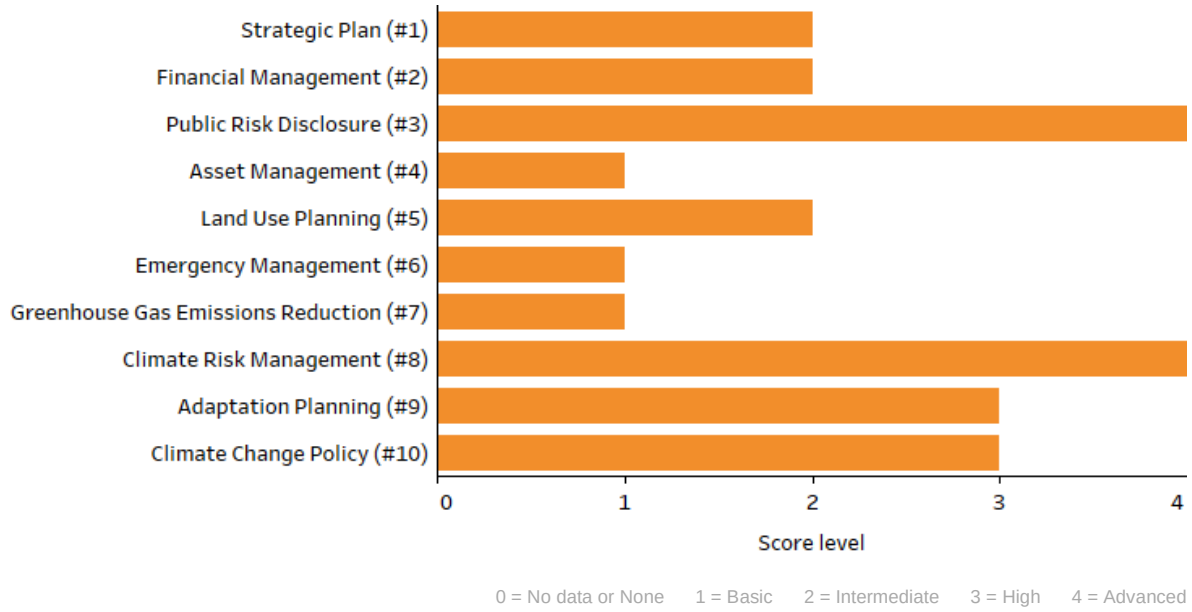

Figure 4: The City of Marion's quantitative scores for climate change adaptation governance

The evaluation matrix (see Table 6) provides a summary of the City of Marion's for each governance indicator including descriptions to explain how the indicators were assessed.

Table 6: The City of Marion's quantitative evaluation for climate change adaptation governance

Indicator	Level	Description
Council Plan (#1)	Intermediate	Prescribed responses/ guidance for one climate change issue (e.g. sea level rise) AND/OR one council function (e.g. land use planning) only.
Financial Management (#2)	Intermediate	Prescribed responses/ guidance for one climate change issue (e.g. sea level rise) AND/OR one council function (e.g. land use planning) only.
Public Risk Disclosure (#3)	Advanced	Climate change is well considered and includes responses to direct and indirect impacts.
Asset Management (#4)	Basic	General statements about climate change (e.g. in the introduction) OR includes other key words associated with managing climate change in a general context (e.g. greenhouse gas emissions).
Land Use Planning (#5)	Intermediate	Brief inclusion of climate change for one or more climate change issue AND/OR planning theme. Also includes objectives or desired outcomes for specific climate change considerations. May have some general strategies or suggested responses.
Emergency Management (#6)	Basic	General statements about climate change (e.g. in the introduction) OR includes other key words associated with managing climate change in a general context (e.g. greenhouse gas emissions).
Greenhouse Gas Emissions Reduction (#7)	Basic	Climate change target established to 2030 (or one other single date) but minimal information on existing greenhouse gas emissions. No target for carbon neutrality.
Climate Risk Management (#8)	Advanced	Climate change issues AND/OR climate change risks should be considered in all risk decision-making. Must include responses to indirect impacts of climate change.
Adaptation Planning (#9)	High	Detailed responses for adaptation actions for both the Council and community. Does not have all the attributes listed in the 'Advanced' score level.
Climate Change Policy (#10)	High	A specific climate change policy exists and considers numerous climate change issues. Must also reflect the latest science - most recent IPCC assessment report from date of publication. Does not have all the attributes listed in the 'Advanced' score level.

4.2.2 Indicator 1: Strategic Plan

Justification for this indicator

The strategic management plans (SMPs) are local government's core guiding documents that combine the community's aspirational vision, together with Council's commitments to actions to achieve these goals. Under Section 122 (1) of the *Local Government Act 1999*, "A council must develop and adopt plans (which may take various forms) for the management of its area, to be called collectively the strategic management plans" (Government of South Australia, 2019). These plans aim to identify the council's objectives for the area over a period of at least 4 years.

SMPs establish the vision, goals and objectives for a local government, as well as help shaped formal management processes. There is no prescribed format for Council SMPs and as such the information contained in them varies from council to council. Given the influence of the SMP, any

consideration of climate change in the document/s is likely to assist local government adaptation decision-making.

Staff survey results

The online survey showed that 69 staff members (59%) believe that climate change is impacting Council's operations and procedures now and around 14% of respondents (16 staff members) believe it will be felt within the next 15 years (see Figure 5).

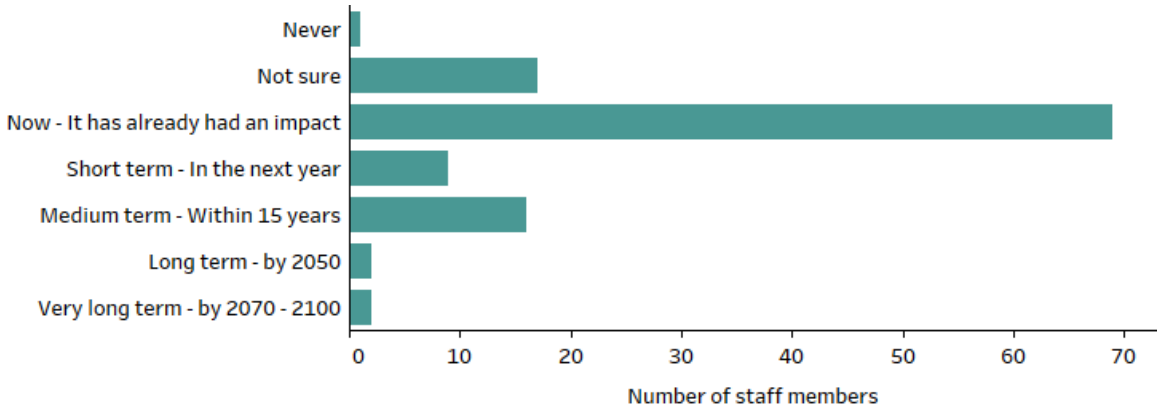

Figure 5: Impact of climate change on the City of Marion's operations and procedures

Quantitative assessment results

The Project Team reviewed eight corporate documents which can be classed as Strategic Management Plans for the purposes of assessing against the Strategic Plan indicator. Three of the corporate documents provided general statements about climate change and prescribed responses for climate change where found in the Development Plan 2018. The City of Marion have also developed a Strategic Plan 2017-2027 which is currently focussed on "a healthy and climate resilient urban environment and community" (City of Marion, 2017). Council seeks to achieve this through one of their 10-year strategies to "build community resilience to the impacts of climate change" (City of Marion, 2017). This sees the City of Marion score 'Intermediate' for the Strategic Plan indicator (see Table 7).

Table 7: The City of Marion's indicator score for Strategic Plan

Level (Score)	Indicator Description
No data	No publicly available Strategic Management Plan/s were found.
None (0)	No consideration of climate change (or associated key words) in the Strategic Management Plan/s.
Basic (1)	General statements about climate change (e.g. in the introduction) OR includes other key words associated with managing climate change in a general context (e.g. greenhouse gas emissions).
Intermediate (2)	Prescribed responses[1]/ guidance for one climate change issue[1] (e.g. sea level rise) AND/OR one council function[1] (e.g. land use planning) only.
High (3)	Detailed inclusion of climate change, but is limited to two climate change issues (e.g. sea level rise) AND/OR two council functions (e.g. land use planning).
Advanced (4)	Climate change is well considered and includes responses to direct and indirect impacts[1].

1 See Appendix D for definitions of prescribed responses, climate change issues, council functions, and direct and indirect impacts

Specific recommendations for quantitative assessment

The Project Team recommend the following as a first step for the City of Marion to transition from 'Intermediate' to 'High' in the Strategic Plan indicator:

To increase the score for this indicator (to 'High') the next revision of the Strategic Management Plan requires some examples of specific climate change actions spanning more than one council department. General terminology that will support a 'High' score includes: "Council will explore how climate change adaptation and mitigation can be mainstreamed into decision making. Specifically, Council will be focusing on sea level rise (if it is a coastal Council) or heatwave risk (or bushfire etc.)". Some resources should be allocated to staff capacity (e.g. conferences and training) as well as some specific technical support which may be required for some elements. However, the majority of support able to be gained from State Government guidelines and information reports as well as gleaning information from other councils through peer-to-peer learning.

Findings from the face-to-face meetings

There was general awareness amongst most participants that climate change was referred to in the Strategic Plan, however, there was limited understanding of specifically how this links with Council's vision and priorities and the broader implications of this for different Council functions. Participants suggested that a clear strategic direction is required that applies to procurement, facilities and community services.

4.2.3 Indicator 2: Financial Management

Justification for this indicator

Climate change is increasingly seen as a financial management issue. The cost of direct and indirect impacts will cascade through the economy and affect costs associated with a local government's activities and responsibilities. For example, at a local level, changes in the productivity of the wine sector could impact wine and tourism businesses, while homes at risk from flood and fire could lead

to reduced property values in some areas. At an international level, increased extreme weather in Asia may disrupt global supply chains and affect the availability of certain goods and services for local governments, or increased litigation may affect local government insurance costs (general insurance and liability cover). The *Local Government Act 1999* requires local governments to prepare a Long-Term Financial Management Plan (s.122)(1a) and an Annual Business Plan (s. 123)(1) as part their system of financial management.

Furthermore, climate change adaptation requires initial and ongoing outlay of resources and commitment of staff time. Resource constraints and/or lack of financial commitment from local governments are often identified as a primary barrier to implementing climate change adaptation. In Climate Planning's experience, it involves minimal resourcing for a council to achieve a 'Basic' or 'Intermediate' score for Financial Management, however, to reach the upper score ranges ('High' and 'Advanced') requires a more formal and strategic commitment.

Staff survey results

In the online survey, 64 staff members (58%) identified limited assigned funding as a barrier hindering Council's ability to plan for climate change, which ranked first in the collection of barriers (see Figure 6). On the other hand, 64% of respondents (70 staff members) acknowledged that understanding the costs/ benefits of climate change adaptation actions is an enabler for climate change. Other enablers identified were external funding (50 staff members, 46%) and avoiding future unbudgeted costs (33 staff members, 30%).

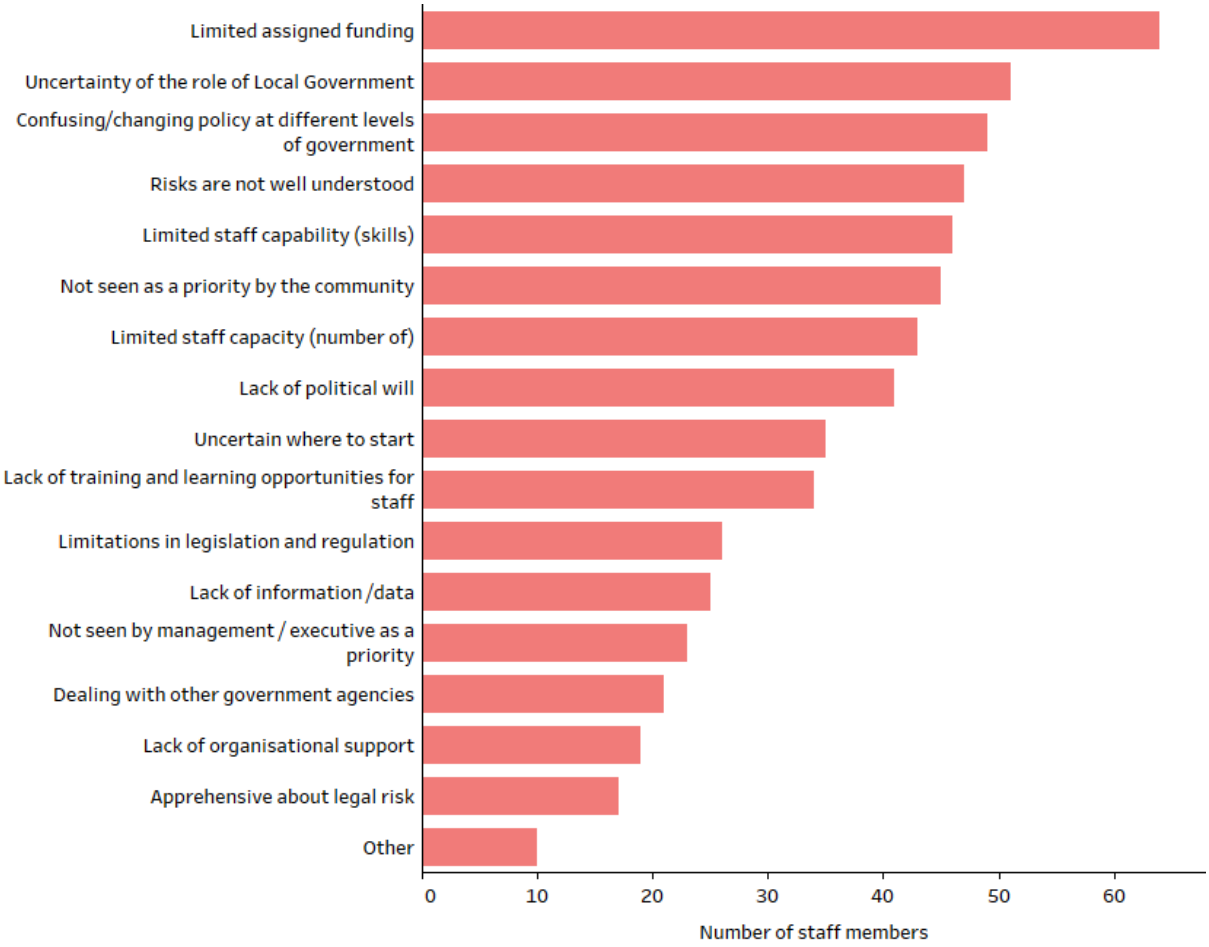

Figure 6: Barriers hindering the City of Marion's ability to plan for climate change

Quantitative assessment results

The Project Team assessed two documents for the Financial Management indicator, the Long-Term Financial Plan 2018-2028 and the Annual Business Plan 2018-2019. A review of the financial plan found only words related to greenhouse gas emissions and no mention of climate change. However, the Annual Business Plan 2018-2019 considered climate change in its 2018/19 initiatives which include implementing the Climate Change Policy and Plan - Resilient South Program (City of Marion, 2018a). The plan also provides funding estimates for developing a Coastal Management Plan which focusses on "building on existing coastal climate change planning and identifying key hotspots for close management." (City of Marion, 2018a). This sees the City of Marion score 'Intermediate' for the Financial Management indicator (see Table 8).

Table 8: The City of Marion's indicator score for Financial Management

Level (Score)	Indicator Description
No data	No publicly available financial management documents[1] were found.
None (0)	No consideration of climate change (or associated words) in the financial management documents[1].
Basic (1)	General statements about climate change (e.g. in the introduction) OR includes other key words associated with managing climate change in a general context (e.g. greenhouse gas emissions).
Intermediate (2)	Prescribed responses[1]/ guidance for one climate change issue[1] (e.g. sea level rise) AND/OR one council function[1] (e.g. land use planning) only.
High (3)	Climate change adaptation is recognised in financial planning (more than one climate change issue AND/OR council function). But the financial management documents do not guide innovative finance or investment policies.
Advanced (4)	Climate change adaptation is well-budgeted for and resources allocated for mainstreaming. Consideration for climate change in investments and/or investment policies etc. is stated. Innovated finance mechanisms may also be encouraged.

1 See Appendix D for definitions of documents, prescribed responses, climate change issues and council functions

Specific recommendations for quantitative assessment

The Project Team recommend the following as a first step for the City of Marion to transition from 'Intermediate' to 'High' in the Financial Management indicator:

To increase the score for this indicator (to 'High') Council should undertake a review of key financial planning documents as soon as possible. As well as having general statements about climate change (e.g. in the introduction) ensure that some recognition of at least two specific risks and/or Council function (e.g. sea level rise and asset depreciation). An example of phrases in financial management plans and/or policies that will support an 'Intermediate' score include: "Council recognises that climate change may affect its financial performance and will seek to identify the most suitable means for identifying how climate change may affect financial management" and "Council will explore the financial ramifications that climate change may present on its asset value, depreciation and exposure to increased extreme events" and "Council will explore how climate change may affect the resourcing needs for operations (e.g. employment of a climate change officer, hiring of consultants, trialling innovative engineering measures, etc.)." Implementing this action requires minimal resourcing. However, the effect of financial management issues on other

council functions (e.g. assets) are important to consider. For example, understanding whether staff capacity, capability and training needs are a barrier to understanding climate change and its financial implications in your council.

Findings from the face-to-face meetings

Some meeting participants were of the view that the greatest impact of climate change on Council will be financial. Despite this there is currently no requirement to specifically consider climate change in procurement decisions and it was believed that there is currently little consideration of climate change in Council's long-term financial management planning.

A broad question discussed during some meetings was whether Council will continue to adopt a 'protect at all cost' approach to asset management, noting that in some cases a retreat or abandon option may be more suitable, especially from a cost-benefit perspective. This also led onto general discussion about the extent to which Council is willing to cover the costs of changing servicing levels for assets, especially where this cost may be increasing as a result of climate risks.

Specific examples of the financial management implications of climate change for Council identified during the meetings included the:

- increasing need to fund Water Sensitive Urban Design (WSUD) features to provide passive watering for green infrastructure. It was noted that 5% of Council's asset management budget is already allocated for this purpose;
- impacts on waste management through the Southern Region Waste Resource Authority (SWRMA);
- requirement to buy additional potable water to ensure that open spaces remain green during periods of low rainfall; and
- cost of lost revegetation plantings, which has been estimated at 30% of the value for some projects.

4.2.4 Indicator 3: Public Risk Disclosure

Justification for this indicator

There is considerable evidence to suggest that climate change will have a material impact on a local government's operations and as such it would be prudent to assess the consideration of climate change in Council's public risk registers. Currently there is no regulatory requirement to maintain a public risk register however the *Local Government Act 1999* requires councils to manage their risks. However, Section 48 (aa1) of the *Local Government Act 1999* requires each Council to have prudential management "policies, practices and procedures" that must be applied to all Council projects, not just large ones (Government of South Australia, 2019).

There is increasing pressure for organisations to disclose their climate change related risks (e.g. Carbon Disclosure Project programs – which encourage organisations to publicly disclose climate risks). Over time councils can expect insurers and finance providers, amongst others, to request councils to disclose how they are addressing climate-related risk. Furthermore, the United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement (which Australia is a signatory to) maintains a strong focus on transparency and disclosure.

This level of transparency helps to inform businesses and the community about the emerging risks and control measures that a council is implementing (or intends to implement). Council should seek advice on which elements of climate change risk can be effectively disclosed.

Quantitative assessment results

The City of Marion's website was searched for a strategic risk register although no publicly available risk register was found. However, the Project Team located a risk register in the ISO AS31000 format within the Annual Corporate Risk Report 2019. The risk register considers the "failure to understand, plan and act to respond to the projected impacts of climate change" to be a core risk for Council (City of Marion, 2019). It identifies the causes for this risk (i.e. lack of awareness and understanding for climate change issues); provides a range of direct and indirect impacts (i.e. infrastructure damage, reduced rates revenue) and list the current controls in place. Council have also suggested the following further actions to manage climate change risks:

- "Review of climate change projections/observations & use of pathways approaches in adaptation planning;
- Evaluating the progress of the Regional Implementation Plan with program partners
- Develop & implement a Climate Risk Governance program;
- Implement findings of Coastal Climate Adaption Plan;
- Elected Member engagement & education;
- Undertake a skills/capability audit & document training gaps in the TNA; and
- Provide training & capability building opportunities with identified staff." (City of Marion, 2019)

As a result, the City of Marion achieved an 'Advanced' for the Public Risk Disclosure indicator (see Table 9).

Table 9: The City of Marion's indicator score for Public Risk Disclosure

Level (Score)	Indicator Description
No data	No publicly available risk register OR risk disclosure documents[1] were found.
None (0)	No consideration of climate change (or associated key words) in the public available risk register OR risk disclosure documents.
Basic (1)	General statements about climate change (e.g. in the introduction) OR includes other key words associated with managing climate change in a general context (e.g. greenhouse gas emissions).
Intermediate (2)	Prescribed responses[1]/ guidance for one climate change issue[1] (e.g. sea level rise) AND/OR one climate change risk[1] (e.g. infrastructure risk) only.
High (3)	Detailed inclusion of climate change (more than one climate change issue AND/OR climate change risk), but is limited to responses to direct impacts[1] of climate change.
Advanced (4)	Climate change is well considered and includes responses to direct and indirect impacts[1].

1 See Appendix D for definitions of documents, prescribed responses, climate change issues, climate change risks, and direct and indirect impacts

Specific recommendations for quantitative assessment

The Project Team recommend the following as a first step for the City of Marion to maintain an 'Advanced' score in the Public Risk Disclosure indicator:

Council has received an 'Advanced' score for this indicator. Achieving this score sees the organisation in the top fraction of Australian local governments for this indicator and enables it to share its journey with other local governments seeking to improve their consideration of climate change. To ensure that this indicator is maintained at this level it will be important to monitor any new IPCC reports, government regulations and emerging standards which may affect adaptation actions. Furthermore, ensure that the council maintains sufficient staff capacity and resourcing to maintain this score for this indicator.

Findings from the face-to-face meetings

Council demonstrated a proactive approach to sharing its Risk Register, noting that it was accessible to all staff and the general public. Aside from what is already recorded on the risk register, staff were not confident that other climate related risks identified at an officer or team level could ultimately progress to being recorded on the Risk Register.

Despite the transparency regarding the Risk Register, there was concern expressed that many assets are approaching the end of their useful life and that there is concern about the potential for multiple asset failures in close succession.

4.2.5 Indicator 4: Asset Management

Justification for this indicator

Local governments have hundreds of millions (and in some cases billions) of dollars invested in assets. Some of the assets that councils maintain, or are likely to install and maintain, have a long life-expectancy and as such may be exposed to direct and indirect climate change risks. A failure of asset management consideration generates a potentially unexplored or under-quantified financial risk for local governments. The *Local Government Act 1999* requires local governments to prepare an Infrastructure and Asset Management Plan (s.122)(1a).

In 2013, the Australian Standards released the voluntary standard AS5334-2013 Climate Change Adaptation Standard for Settlements and Infrastructure – a Risk-Based Approach. The fact that this standard has recently been developed signals that organisations are anticipating compliance requirements. Over time it is likely that government agencies that provide infrastructure funding or co-funding to councils will require climate change to be considered in the delivery of projects. How a local government manages assets under climate change will be a key determinant in understanding a settlement's limits to adaptation.

Quantitative assessment results

The Project Team reviewed the following five asset management documents for the Asset Management indicator:

- Asset Management Policy 2018
- Amalgamated Asset Management Plan 2015
- Building Asset Management Plan 2015

- Open Space Asset Management Plan 2015
- Transport Asset Management Plan 2015
- Marion Coast Park Walking Trail Management Plan 2015

There was no consideration of climate change in the Asset Management Policy 2018. However, general statements about climate change were identified in the asset management plans for buildings, open space and transport. In addition, the Amalgamated Asset Management Plan 2015 provided summary information about climate change however there were no prescribed responses for climate change. This sees the City of Marion score 'Basic' for the Asset Management indicator (see Table 10).

Table 10: The City of Marion's indicator score for Asset Management

Level (Score)	Indicator Description
No data	No publicly available asset management documents[1] were found.
None (0)	No consideration of climate change (or associated key words) in the asset management documents.
Basic (1)	General statements about climate change (e.g. in the introduction) OR includes other key words associated with managing climate change in a general context (e.g. greenhouse gas emissions).
Intermediate (2)	Prescribed responses[1]/ guidance for one climate change issue[1] (e.g. sea level rise) AND/OR one council function[1] (e.g. land use planning) only.
High (3)	Detailed inclusion of climate change, but is limited to two climate change issues (e.g. sea level rise) AND/OR two council functions (e.g. land use planning).
Advanced (4)	Climate change is well considered and includes responses to direct and indirect impacts[1].

1 See Appendix D for definitions of documents, prescribed responses, climate change issues, council functions, and direct and indirect impacts

Specific recommendations for quantitative assessment

The Project Team recommend the following as a first step for the City of Marion to transition from 'Basic' to 'Intermediate' in the Asset Management indicator:

In order to achieve an improvement in this governance score (to 'Intermediate') Council should include climate change in the introduction of the asset management planning documents and/or policies as well as give some specific reference to one of the known risks or assets that may be exposed to the effects of climate change. An example of the text that would help improve consideration is: "Council recognises that climate change is likely to affect asset life and functionality. As such, in future reports and analysis, Council will explore how climate change will affect assets". The asset management plan should also specify a prescribed response to one of the climate change issues. For example, "All council buildings in areas exposed to sea level rise will be retrofitted to handle short term inundation risks, through elevation of 600mm (this height is just an example) above the flood level and to manage the risks Council will undertake studies to identify alternative locations of the building/s to maintain adequate service delivery".

Findings from the face-to-face meetings

During the face-to-face meetings, staff members with asset management responsibilities commented that there was no formal, mandated consideration of climate change in the Council's asset management planning process. This was partly being driven by a lack of understanding of what Council's responsibility was in relation to managing climate change impacts on assets. Participants said that the need to better understand this responsibility will be heightened as assets approach the end of their design life and the understanding about the magnitude of the unfunded adaptation debt grows.

Participants could not identify any instances where Council considers climate change in operating expenses (e.g. rent, utilities, salaries, research and development, or business travel) and noted that design standards did not specially consider climate risk factors such as flood risk and extreme heat.

While there was limited specific mandated consideration of climate change in the Council's asset management planning, some general monitoring does occur that assist with asset manage relevant to climate risks. For example, sections of the Coastal Walking Trail are monitored after storms and there is hotspot checking of drain blockage points before major rainfall events are forecast. There was also a view that transport and stormwater management infrastructure are likely to require the greatest attention in terms of manage physical climate risk.

4.2.6 Indicator 5: Land Use Planning

Justification for this indicator

Land use planning can play a critical role in climate change adaptation. Strategic and local planning decisions can both increase or decrease the exposure of human settlements to climate change impacts. Climate change is a risk multiplier for local government. The primary risk extends well beyond just sea level rise (which is conventionally exclusively considered) and can include increased riverine and urban flood risk, increased heatwaves, increased bushfire risks and the potential for increased intensity of extreme storm events to name a few. These risks can be minimised by effective land use planning.

Under South Australian legislation, "a development plan is a statutory policy document which guides the type of development that can occur within a council area" (Government of South Australia, 2018). Part 4 (s.9) of the *Planning Development and Infrastructure Act 2016* states that:

> *Until 1 July 2020, a Development Plan under the repealed Act (as in force at a relevant time) will have effect for the purposes of this Act as if it formed part of the Planning and Design Code (subject to the operation of this clause).* (Government of South Australia)

Whilst councils' influence on a development plan may be constrained by overarching South Australian polices and/or legislation there is still a broad array of responses that local government can implement to manage the challenges associated with climate change.

Staff survey results

In the online survey, 63 staff members (61%) believe that statutory planning support is very helpful in adapting to climate change impacts.

Quantitative assessment results

The Project Team assessed Council's Development Plan 2018 for the Land Use Planning indicator. Climate change and sea level rise was mentioned in the following two objectives of the Coastal Areas theme:

- "Development only undertaken on land which is not subject to or that can be protected from coastal hazards including inundation by storm tides or combined storm tides and stormwater, coastal erosion or sand drift, and probable sea level rise.
- Development that can accommodate anticipated changes in sea level due to natural subsidence and probable climate change during the first 100 years of the development." (City of Marion, 2018b)

For this reason, the City of Marion scored 'Intermediate' for the Land Use Planning indicator (see Table 11).

Table 11: The City of Marion's indicator score for Land Use Planning

Level (Score)	Indicator Description
No data	No publicly available Development Plan was found.
None (0)	No consideration of climate change (or associated key words) in the Development Plan.
Basic (1)	General statements about climate change (e.g. in the introduction) OR includes other key words associated with managing climate change in a general context (e.g. greenhouse gas emissions).
Intermediate (2)	Brief inclusion of climate change for one or more climate change issue[1] AND/OR planning theme[1]. Also includes objectives or desired outcomes for specific climate change considerations. May have some general strategies or suggested responses.
High (3)	Detailed inclusion of climate change for one or more climate change issue AND/OR planning theme (including detailed strategies or suggested responses). May need updating to reflect the most recent IPCC assessment report from date of publication. May have also considered other planning instruments (e.g. guidelines).
Advanced (4)	Significant consideration is given to climate change. Importantly, the Development Plan also includes responses to indirect impacts[1] of climate change. Must also reflect the latest science - most recent IPCC assessment report from date of publication.

1 See Appendix D for definitions of prescribed responses, climate change issues, planning theme, and direct and indirect impacts

Specific recommendations for quantitative assessment

The Project Team recommend the following as a first step for the City of Marion to transition from 'Intermediate' to 'High' in the Land Use Planning indicator:

To increase the score for this indicator (to 'High') Council should have a detailed consideration of climate change in the Development Plan. A detailed consideration of climate change would be one that considers multiple physical climate change risks, preferably with a good consideration in the general provisions. The most suitable action is for Council to glean information from a Council with a similar geography or population which has scored a minimum of 'Intermediate' in the Informed.City™ governance analysis. It is possible that Council may be constrained by State

policies and legislation to implement the above. If that is the case, then Council should lobby the State to enable it to have greater flexibility to incorporate climate change into its Development Plan.

Findings from the face-to-face meetings

Meeting participants believed that the land use planning function in Council has limited ability to insist on how climate change risks should be addressed beyond the minimum requirements of the Development Plan and the Building Code. Council currently alerts development approval (DA) applicants about potential climate risks, primarily flood, by means of a note on the DA consent form, however, there is no ability to mandate action.

Concerns were raised about the new State Planning and Design Code, with some participants indicating that they believed Council would lose control of its ability to inform decision making that could otherwise lead to better outcomes with respect to climate risk management, especially in owner builder homes.

There was an expectation amongst staff that flood risk data already includes climate change considerations, however, this was not known for certain. As such the extent to which flood risk is being increased by climate change is not being communicated to DA applicants.

4.2.7 Indicator 6: Emergency Management

Justification for this indicator

There are some great opportunities to drive climate change adaptation decision making through local government emergency management planning. Adapting to the effects of climate change has numerous supporting benefits for emergency management including the implementation of risk planning for disaster mitigation and preparedness, building appropriate response capacity and minimising exposure to reoccurring situations. Consideration of the long-term trends of climate change is fundamental for assessing risks, while still maintaining the ability to respond to unanticipated events, and ensuring that emergency management is approached from a planning and mitigation perspective rather than purely as a responsive entity.

In accordance with Section 9 (1e) of the *Emergency Management Act 2004*, the State Emergency Management Plan (SEMP) establishes eleven Zone Emergency Management Committees (ZEMCs) which are responsible for ensure effective emergency risk management at the zone level. A key role of the ZEMCs is to develop a Zone Emergency Management Plan (ZEMP) to address residual risk and evaluate treatment options (Government of South Australia, 2016). As well as having a ZEMP some councils also have local emergency management plans or business interruption plans. In order to achieve the 'Advanced' score in this assessment a council must have a local emergency management plan (or similar) that comprehensively considers climate change.

Staff survey results

The online survey revealed that 31% of respondents (36 staff members) believe that the City of Marion is prepared for responding to climate change impacts which is less than the 41 staff members (35%) who believe that Council is not prepared (see Figure 7). Interestingly, there are another 38 staff members (33%) who were unsure of Council's level of preparedness for climate

change. It should also be noted that there was only one staff member from the Disaster/ Emergency Management department who participated in the online survey.

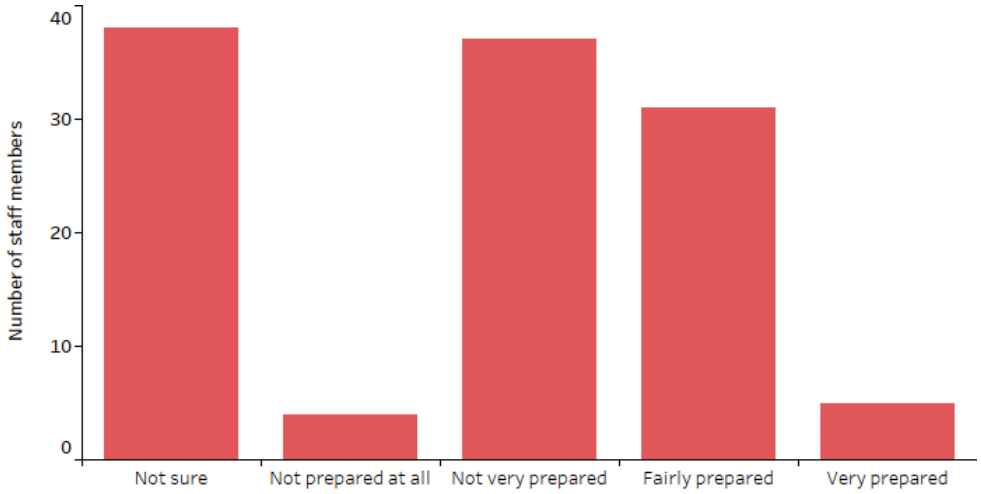

Figure 7: The City of Marion's level of preparedness for responding to climate change impacts

Quantitative assessment results

The Project Team assessed two corporate documents for the Emergency Management indicator, the Southern Adelaide Zone Emergency Management Plan 2018 and Council's Community Emergency Management Plan 2018. A review found only a single reference to 'sea level rise' in the regional emergency management plan.

Council's emergency management plan provided a summary statement about their approach to climate change adaptation and mitigation however it doesn't consider climate change issues in any element of emergency management. For this reason, the City of Marion scored 'Basic' for the Emergency Management indicator (see Table 12).

Table 12: The City of Marion's indicator score for Emergency Management

Level (Score)	Indicator Description
No data	No publicly available emergency management plan/s was found.
None (0)	No consideration of climate change (or associated key words) in the emergency management plan/s*.
Basic (1)	General statements about climate change (e.g. in the introduction) OR includes other key words associated with managing climate change in a general context (e.g. greenhouse gas emissions).
Intermediate (2)	Considers climate change issues[1] in at least one element of emergency management (e.g. plan for increased heatwaves) in either a council or regional emergency management plan.
High (3)	Considers climate change issues in two or more elements of emergency management (e.g. plan for increased heatwaves) in a council emergency management plan.
Advanced (4)	A council emergency management plan exists and considers climate change issues in all elements of emergency management (e.g. provides climate scenarios, links to international and national leading standards, includes other council climate studies etc).

1 See Appendix D for definitions of climate change issues

* If a regional document is searched then a localised adjustment is applied for coastal hazards. This may mean that a coastal council may score differently to an inland council for the same regional plan.

Specific recommendations for quantitative assessment

The Project Team recommend the following as a first step for the City of Marion to transition from 'Basic' to 'Intermediate' in the Emergency Management indicator:

To increase the score for this indicator (to 'Intermediate') the Council Emergency Management Plan (or similar instrument) must be amended to ensure that climate change is referred to in the introduction and one element of climate change is considered in the plan. An example of phrases in an Emergency Management Plan that will support an 'Intermediate' score include: "Climate change is likely to exacerbate many of the known disaster risks and affect those already especially vulnerable to natural hazards". Issues that will be relevant are the increased heatwave risk (i.e. present information on the current number of heatwave days for selected locations and then how that may change in 2030 / 2050 etc.). The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have reasonable scores in the indicators that you need help in improving.

Findings from the face-to-face meetings

Participants generally demonstrated a strong general knowledge of potential physical climate risks such as extreme heat, flooding and cliff instability caused by storm surge driven erosion. However, the analysis from the face-to-face meetings identified few emergency management processes or plans that were directly considering climate change.

Although council staff participate in emergency management exercises, participants could not identify any instances where these have integrated climate change forecasts or scenarios. There is limited emergency management consideration during long-term land use planning or asset management decision-making (i.e. where climate change is more likely to be discussed).

4.2.8 Indicator 7: Greenhouse Gas Emissions Reduction

Justification for this indicator

Climate change mitigation actions are listed as a core governance process for adaptation, as they allow for an exploration and promotion of resilient energy systems and passive solar design that may reduce human health-related issues (e.g. heat stress), as well as considerable energy savings. Furthermore, it is likely that all climate change adaptation will need to occur in a carbon-constrained economy.

Understanding the nexus between the two is an important element of adaptation. Many infrastructure-based adaptation actions (e.g. sea walls) are carbon intensive and as such local governments will need to consider this in any cost-benefit analysis.

Quantitative assessment results

The Project Team searched for a climate change target in Council's greenhouse gas emissions documents, other core governance documents identified in the quantitative assessment, and on Council's website. The Energy Efficiency and Renewable-Energy Plan 2018 shows Council's "ongoing commitment to reducing local carbon emissions, building resilience to climate change and publicly tracking and reporting on progress" (City of Marion, 2018c), however it does not specify an emissions reduction target.

Similarly, the Climate Change Policy 2016 shows a consideration to reduce greenhouse gas emission, stating that "the City of Marion recognises… the urgent need to mitigate the production of greenhouse gas emissions and adapt to climate change that cannot be avoided." (City of Marion, 2016). The Project Team reviewed all corporate documents from the other governance indicators however were unable to locate an emissions reduction target. For this reason, the City of Marion scored 'Basic' for the Greenhouse Gas Emissions Reduction indicator (see Table 13).

Table 13: The City of Marion's indicator score for Greenhouse Gas Emissions Reduction

Level (Score)	Indicator Description
None (0)	No publicly available greenhouse gas emissions documents were found. Also, climate change target or consideration to reduce greenhouse gas emissions was not found in any of the core governance documents OR displayed on Council's website.
Basic (1)	A commitment or consideration to reduce greenhouse gas emissions is generally mentioned (either in greenhouse gas emissions documents, other core governance documents OR displayed on Council's website). Climate change target established to 2020* only.
Intermediate (2)	Climate change target established to 2030 (or one other single date) but minimal information on existing greenhouse gas emissions. No target for carbon neutrality.
High (3)	Climate change target established out 2050 but no target for carbon neutrality. Information on council's current/ historical greenhouse gas emissions is provided.
Advanced (4)	Climate change target and aim for carbon neutrality by or before 2050.

* If in a future assessment the year 2020 has past, then the emissions reduction target MUST be established to 2025

Specific recommendations for quantitative assessment

The Project Team recommend the following as a first step for the City of Marion to transition from 'Basic' to 'Intermediate' in the Greenhouse Gas Emissions Reduction indicator:

The 'Basic' score means that Council is concerned about global greenhouse gas emissions. To increase the score for this indicator (to 'Intermediate') Council should now formally identify a target that is achievable through energy efficiency and minimum outlay (e.g. a 20% -30% reduction on current emissions established to 2030). Council should state how it intends to broadly meet the targets. Ensure that energy savings are captured in financial reporting and inform the public of the return on investment.

Findings from the face-to-face meetings

The meetings indicated that there was widespread understanding by staff that Council does not currently have a greenhouse gas emissions reduction target. However, it was well understood that Council is undertaking a range of actions that are contributing to reduced overall emissions, such as:

- installation of solar panels on building roofs;
- small plant transitioning from petrol to electric motors;
- choosing vehicles with lower emissions via the fleet policy; and
- using GPS on works vehicles to monitor fuel consumption.

4.2.9 Indicator 8: Climate Risk Management

Justification for this indicator

The Climate Risk Management indicator assesses the extent to which climate change is embedded into Council's traditional risk management policies or strategies. While complementary, it is different from the information captured in Indicator 3: Public Risk Disclosure by taking a more high-level approach to risk management.

Climate change is a complex issue that will exacerbate existing risks and present new ones. Some direction that mandates how climate change risk is identified and disclosed will greatly improve Council's adaptation planning. If a local government does not know what is at risk and the consequences of those risks, then they are unlikely to implement adaptation actions.

Staff survey results

In the online survey, 47 staff members (42%) believe that misunderstood risks are barriers to Council's ability to plan for climate change. Nevertheless, 43% of respondents (47 staff members) recognised that effective risk management practices would better enable the City of Marion to plan for climate change.

Quantitative assessment results

The Project Team reviewed the Risk Management Policy 2016 however there was no mention of climate change in this policy. The team also assessed the Annual Corporate Risk Report 2019 because it provides an overview of Council's Risk Management Program and shows how Council is managing its corporate risks. The report identifies 'Natural Catastrophes / Climate Change' as one of the Local Government CEO's top ten risk in the sector (City of Marion, 2019). It also provides a comprehensive risk register which considers 'Environmental Management and Climate Change' as a core risk. From the information presented in the Annual Corporate Risk Report 2019 it is evident that climate change is considered to large extent in corporate risk decision-making. For this reason, the City of Marion achieved an 'Advanced' score for the Climate Risk Management indicator (see Table 14).

Table 14: The City of Marion's indicator score for Climate Risk Management

Level (Score)	Indicator Description
No data	No publicly available risk management documents[1] were found.
None (0)	No consideration of climate change (or associated key words) in the risk management documents.
Basic (1)	General statements about climate change (e.g. in the introduction) OR includes other key words associated with managing climate change in a general context (e.g. greenhouse gas emissions).
Intermediate (2)	Prescribed responses[1]/ guidance for one climate change issue[1] (e.g. sea level rise) AND/OR one climate change risk[1] (e.g. infrastructure risk) only.
High (3)	Detailed inclusion of climate change (more than one climate change issue AND/OR climate change risk), but is limited to responses to direct impacts[1] of climate change.
Advanced (4)	Climate change issues AND/OR climate change risks should be considered in all risk decision-making. Must include responses to indirect impacts[1] of climate change.

1 See Appendix D for definitions of documents, prescribed responses, climate change issues, climate change risks, and direct and indirect impacts

Specific recommendations for quantitative assessment

The Project Team recommend the following as a first step for the City of Marion to maintain an 'Advanced' score in the Climate Risk Management indicator:

Council has received an 'Advanced' score for this indicator. Achieving this score sees you in the top fraction of Australian local governments for this indicator and you will be in a position to share your journey with other councils seeking to improve their consideration of climate change. To ensure that this indicator maintains at this level Council will need to monitor any new IPCC reports, government regulations and emerging standards which may affect adaptation actions. Furthermore, it will be necessary to ensure that Council maintains sufficient staff capacity and resourcing.

Findings from the face-to-face meetings

Awareness of climate risk to assets, services and Council operations were discussed during most meetings. This revealed a variety of insights into the extent to which climate risk is considered to be an issue and how it is currently assessed. Most staff were of the view that more could be done to improve climate risk management and develop a more coordinated and embedded approach across Council functions.

With respect to risk management processes, participants were unclear as to how physical climate risks could feed into the Risk Register and there was a suggestion the risk descriptions need to be reviewed to better account for climate change. There was also a view expressed that current risk identification processes were siloed and that it was necessary to develop an approach that can provide a 'birds eye view' of climate risk management.

4.2.10 Indicator 9: Adaptation Planning

Justification for this indicator

A Climate Change Adaptation Plan helps council implement a staged process for adapting to climate change. Good practice adaptation plans also identify the actions required for specific risks and has mechanisms in place to respond to direct and indirect climate change risks. In particular, good practice adaptation planning helps to:

- clarify roles and responsibilities,
- identify prioritised activities and focus areas,
- allocate resourcing,
- identify triggers for action or change/review,
- establish monitoring and evaluation mechanisms, and
- effectively manage any maladaptation risks.

South Australia's Strategic Plan (recently repealed) specifies "the development of regional climate change adaptation plans in all State Government regions by 2016" (Government of South Australia, 2012). This is also supported by South Australia's adaptation framework, 'Prospering in Changing Climate: A Climate Change Adaptation Framework for South Australia' which:

> *recognises that climate change and its economic, social and environmental impacts will vary across South Australia and therefore provides for the development of locally relevant adaptation responses across the 12 existing State Government regions.* (Government of South Australia, 2012)

Staff survey results

In the online survey, 19 staff members acknowledged having training for climate change adaptation (18% of respondents surveyed). There was some diversity in where staff members received their adaptation training, with it being from a consultant (10), other training (6), peak body training package (4), university degree in climate change adaptation (3), university diploma/ certificate in climate change adaptation (1), and a university or TAFE subject (1). Interestingly, 75% of respondents (77 staff members) believe that case studies in effective adaptation planning, strategies and implementation would be very helpful in adapting to climate change impacts.

Quantitative assessment results

The Project Team assessed only the Resilient South Regional Climate Change Adaptation Plan 2014 for this indicator as a publicly available Council adaptation plan was not found for the City of Marion. This plan is Council's regional climate change adaptation plan developed for the cities of Holdfast Bay, Marion, Mitcham, and Marion. The Resilient South partnership aims to build a region "that is resilient to natural hazards associated with climate change, is focused on preparedness and crisis avoidance and has captured opportunities in innovation in adapting to climate change" (Resilient South, 2014). The plan achieves this by proposing a range of preferred adaptation options which "reduce or address key vulnerabilities that are presented by climate change, or equally, build on areas of resilience and take advantage of opportunities" (Resilient South, 2014). This sees the City of Marion score 'High' for the Adaptation Planning indicator (see Table 15).

Table 15: The City of Marion's indicator score for Adaptation Planning

Level (Score)	Indicator Description
None (0)	No publicly available climate change adaptation strategy and/or action plan* (or similar council-wide strategy/ action plan that drives adaptation planning) were found.
Basic (1)	Focussed on one specific climate change issue[1] AND/OR one council function[1] with only summary statements for adaptation provided (not whole of Council).
Intermediate (2)	Summary statements for more than one climate change issue AND/OR council function provided but only for Council activities (not community). Time frames for adaptation actions also allocated.
High (3)	Detailed responses for adaptation actions for both the Council and community. Does not have all the attributes listed in the 'Advanced' score level.
Advanced (4)	A council adaptation strategy and/or action plan exists. It must include ALL of the following: key performance indicators, identified roles and responsibilities, timing for delivery, linked to governance (mainstreaming), includes information from the community, and other key stakeholders.

1 See Appendix D for definitions climate change issues and council functions

* If a regional document is searched then a localised adjustment is applied for coastal hazards. This may mean that a coastal council may score differently to an inland council for the same regional plan.

Specific recommendations for quantitative assessment

The Project Team recommend the following as a first step for the City of Marion to transition from 'High' to 'Advanced' in the Adaptation Planning indicator:

This recommendation focusses the need for on a Council climate change adaptation strategy (or similar) as a local instrument (not just regional). A detailed local plan ensures ownership and can better align to internal governance and reporting. Ensure that a comprehensive Council adaptation strategy and/or action plan exists (for Council and the community). As a minimum include all of the following: key performance indicators, identified roles and responsibilities, timing for delivery, linked to governance (mainstreaming), includes information from the community, and other key stakeholders. There will be an initial outlay of resources required to achieve this level of adaptation planning (e.g. Undertake climate change risk assessments. Quantify economic, social, environmental and Council assets exposed to risk. Identify, cost and prioritise adaptation actions. Clearly assign roles and responsibilities).

Findings from the face-to-face meetings

There was widespread awareness of the existence of the Regional South Climate Change Adaptation Plan and the general content contained in that plan with respect to physical risks for the Council and potential impacts. There were also strong references to specific programs of work that have followed on from that Plan and Council's specific adaptation action plan, such as better understanding the urban heat island, greening initiatives to assist with urban cooling, and assessing coastal hazards and how they could be impacted on by climate change. There was limited commentary on key performance indicators, roles and responsibilities, and timing for delivery of priority adaptation actions.

4.2.11 Indicator 10: Climate Change Policy

Justification for this indicator

An internal climate change policy (or corporate standard) allows the organisation to place a climate change lens over all of a council's activities and use the existing system to drive adaptation. It can allow for the consistent application of standards, agreed use of information sources and specific triggers for change. Staff members in local government have a range of viewpoints regarding the existence of climate change. Adopting a formal policy places limitations on the extent that personal viewpoints affect the professional judgments of people who may be sceptical or deny the existence of climate change.

A formal policy can also drive concerted action for staff members who are complacent regarding the effects of climate change. There is evidence to suggest that the creation of a policy has helped other local governments to affect change. This has been an effective trigger for change in other local government' such as Kingborough Council (TAS), Mackay Regional Council (QLD) and Whitsunday Regional Council (QLD).

Staff survey results

Staff members from the City of Marion identified a good understanding of climate change (78 staff members, 72%) and as a core enabler contributing to Council's ability to plan for climate change - which ranked second the collection of enablers assessed (see Figure 8).

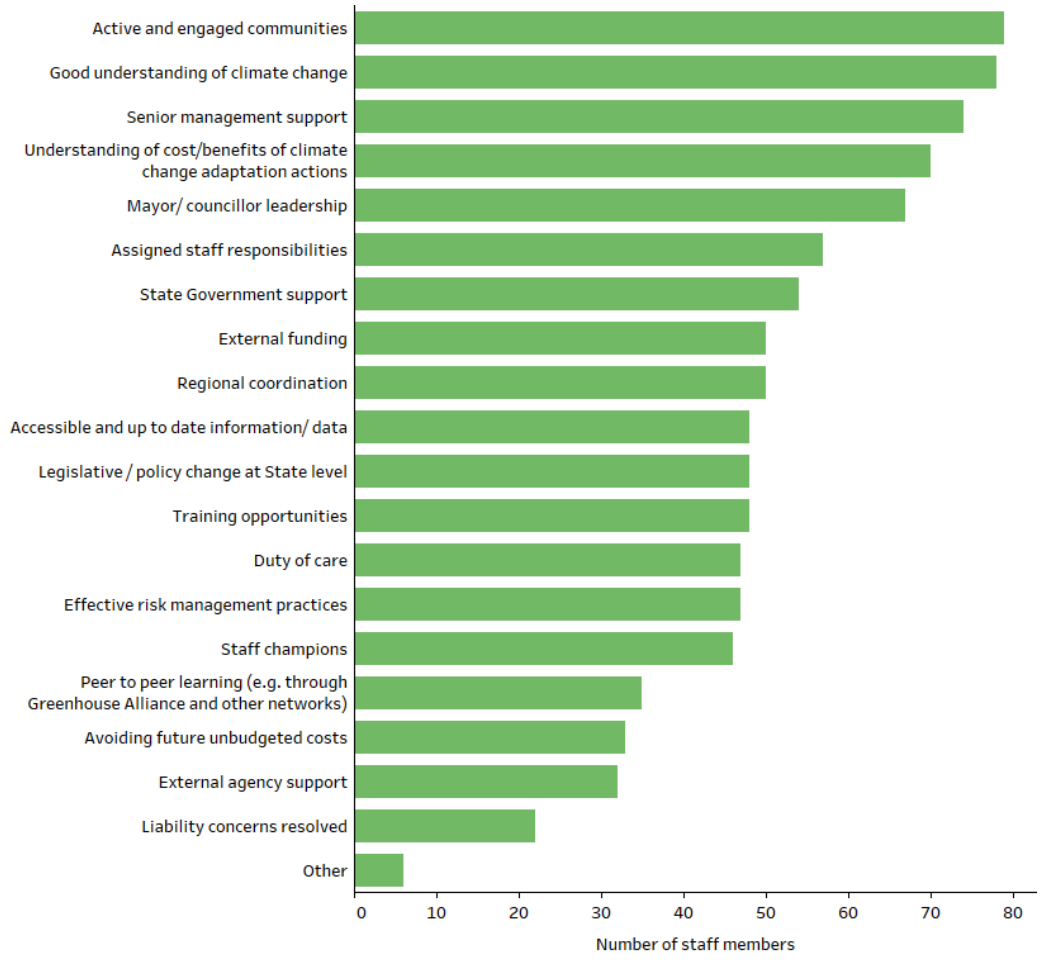

Figure 8: Enablers contributing to the City of Marion's ability to plan for climate change

Quantitative assessment results

The Project Team reviewed the Climate Change Policy 2016 for the purposes of assessing against the Climate Change Policy indicator. The policy provides five key principles on how Council will acknowledge and respond to the impact of climate. It considers a range of responses to climate change which are linked to both governance and community engagement, however, does not identify specific responsibilities or timeframes. Although the policy follows an "evidence based approach founded on the best available science" (City of Marion, 2016) it does not make reference to any scientific publications (i.e. IPCC fifth assessment report). This sees the City of Marion score 'High' for the Climate Change Policy indicator (see Table 16).

Table 16: The City of Marion's indicator score for Climate Change Policy

Level (Score)	Indicator Description
None (0)	No publicly available (council endorsed) climate change policy was found. There may be an environment/ sustainability policy however it does not mention climate change.
Basic (1)	Climate change is considered in either a climate change policy OR environment/ sustainability policy. There are prescribed responses[1]/ guidance for one climate change issue[1] (e.g. sea level rise) AND/OR one council function[1] (e.g. land use planning) only.
Intermediate (2)	Climate change is considered in either a climate change policy OR environment/ sustainability policy. Detailed inclusion of climate change, but is limited to two climate change issues (e.g. sea level rise) AND/OR two council functions (e.g. land use planning).
High (3)	A specific climate change policy exists and considers numerous climate change issues. Must also reflect the latest science - most recent IPCC assessment report from date of publication. Does not have all the attributes listed in the 'Advanced' score level.
Advanced (4)	A comprehensive climate change policy exists. It must include ALL of the following: key performance indicators, identified roles and responsibilities, timing for delivery, linked to governance (mainstreaming), community and/or stakeholder engagement.

1 See Appendix D for definitions of prescribed responses, climate change issues and council functions

Specific recommendations for quantitative assessment

The Project Team recommend the following as a first step for the City of Marion to transition from 'High' to 'Advanced' in the Climate Change Policy indicator:

A climate change policy will help ensure Council's method for adapting to climate change is consistent and robust. If council is to implement a climate change policy then it should include all of the following: specific IPCC climate change scenarios it is aligning to (preferably RCP 8.5 as a minimum), identified roles and responsibilities, timing for delivery, triggers for review (e.g. within 6 months of each IPCC assessment report), activities for improving governance scores, (mainstreaming), and commitment to community and/or stakeholder engagement. The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have an advanced climate change policy.

Findings from the face-to-face meetings

It was clear from the meetings that most staff are aware that Council has a Climate Change Policy that is publicly available. The policy provides five key principles that are intended to define Council's response to climate change. During the face-to-face interviews the Council Senior Leadership Team stated that they were very supportive of the Policy, indicating that it provides a consistent strategic driver for climate change action within Council.

4.3 Results and Recommendations for Qualitative Assessment

The results for the qualitative assessment focus on the seven indicators that are identified as key drivers for implementing climate change adaptation governance. The analysis of each indicator will discuss the importance of the indicator, staff survey results, qualitative assessment results, and specific recommendations.

4.3.1 Indicator 11: Climate Risk Assessments

Justification for this indicator

Climate change risk assessments provide organisations with the critical information they need to understand the impacts that climate change may present. Risk assessments take many forms, although in Australia most of them tend to follow the ISO Risk Assessment Framework AS31000.

Understanding specific risks is a complex task, and undertaking detailed risk assessments can be expensive, time consuming and involve numerous experts and stakeholders. Because of these limitations many local governments have opted for scoping or high-level risk assessments. Scoping risk assessments involve a smaller number of climate change scenarios and local governments are usually focussed on Council's corporate risks (as opposed to also understanding environmental, social and economic risks).

Although scoping assessments are always useful for quickly identifying general risks and areas that require further investigation, their ability to accurately reflect the level of risk is limited by the investment in time and resources that goes into them.

Staff survey results

In the online survey, respondents were asked if their department uses climate change risk assessments to inform decision making (see Figure 9). The results indicate more staff members who do not use climate change risk assessments, with 44% responding 'No' (51 staff members). In addition, nine staff members (8%) stated that their department uses climate change risk assessments regularly, and another 22 staff members (19%) identified using risk assessments only sometimes. Interestingly, there are 68 staff members (65%) who believe that guidance on risk assessment and reducing risk exposure for councils would be very helpful in adapting to climate change impacts.

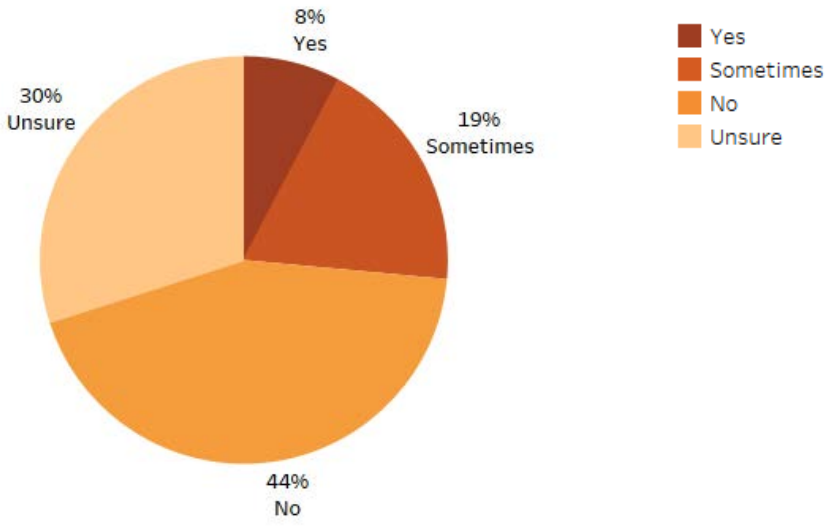

Figure 9: Use of climate change risk assessments in the City of Marion departments

Qualitative assessment results

Participants in meetings did not identify a single approach to climate risk assessment across Council, noting that no comprehensive risk assessment has been done and there was no direction on how this should be done in a consistent manner. Furthermore, Council staff indicated that the project management system did not specifically address climate risk.

Despite the absence of a Council wide climate risk assessment process, staff discussed numerous climate change related risks and were especially focussed on:

- extreme heat and heat wave impacts and how they could impact staff, the community of trees;
- the impact of the urban heat island and how it could be exacerbated by extreme heat;
- the importance of green infrastructure for cooling the landscape; and
- the role of WSUD in supporting green infrastructure and how water availability may change under a warmer and drier climate.

Participants believed that more information was also required on the potential risk of bushfires, extreme storms and dust storms, noting that potential health impact of the latter.

Specific recommendations of the qualitative assessment

11.1 Undertake whole of organisation climate risk assessment that enables the identification of priority risks across all functions within Council.

11.2 Agree on a process by which high priority projects, especially large-scale infrastructure projects or new developments, are subject to climate risk assessments prior to approval.

11.3 Identify the process by which climate risk assessment results can feed into the Strategic Risk Register.

4.3.2 Indicator 12: Climate Legal Risk

Justification for this indicator

Climate change is emerging more and more as a climate legal risk problem that governments, organisations and the community are attempting to understand, avoid and manage. The nature of climate legal risk for local governments is a minefield that can manifest itself in many ways.

There has been a marked increase in legislation associated with managing climate change, - especially in coastal regions (e.g. sea-level rise and land use planning). How a Council interprets new regulations can become a point of conflict, especially if there is the potential for legislation to affect the value of property or the rights to development.

The climate legal risk facing local governments is not just limited to land use planning decisions. The ramifications of ignoring climate legal risk can include:

- Risk of increased planning challenges and negligence. (Baker-Jones, Burton, Bell, & Chang Seng, 2013)
- Risk of criminal negligence if a person is harmed due to a council's action (or inaction).
- Risk of unplanned financial expenditure defending legal challenges. There is anecdotal evidence of councils in Australia spending millions of dollars on single lawsuits.
- Risks associated with releasing or withholding information about projected climate change risks. (Productivity Commission, 2012)

All the above have the potential to have a considerable negative impact on a council's financial sustainability. There is the very real potential that just one lawsuit could erode a council's financial resilience.

Staff survey results

In the online survey, 15% of respondents (17 staff members) stated that they see apprehension about legal risk as a barrier to implementation of climate change adaptation actions (e.g. legal risk associated with undertaking climate change adaptation). On the other hand, staff members acknowledged that a better understanding of the legal risks would help to incorporate climate change in their work, with respondents identifying 'duty of care responsibilities' (47 staff members, 43%) and 'resolved liability concerns' (22 staff members, 20%) as enablers to climate change adaptation.

Qualitative assessment results

The assessment found that the City of Marion has not sought independent legal advice for any climate related risks and that the respective role of Council versus residents in responding to climate risks is unclear. There was a strong interest in better understanding what Council's statutory requirements are in relation to risk management. This was reflected in queries about the extent to which Council has responsibilities for managing climate risk beyond general community awareness raising. There was interest in this issue especially in relation to managing coastal risks such as in relation to the Coastal Walking Trail.

The City of Marion has not been required to attend court or a tribunal for any specific climate change planning issues (e.g. related to development applications). Furthermore, Council's insurer

(the Local Government Association Mutual Liability Scheme) has not requested any specific information about how Council is managing its climate change risk.

Participants could not identify any instances where Council had refused developments based on climate change risks, noting that Council was only required to meet the minimum requirements as set out in the Development Plan and the Building Code.

Specific recommendations of the qualitative assessment

12.1 Identify priority areas for climate legal risk advice, especially in relation to the relative role of Council versus residents and the State Government.

12.2 Establish a service provider relationship for accessing legal advice.

4.3.3 Indicator 13: Staff Capacity and Resource Allocation

Justification for this indicator

Monitoring Council's resource and staffing commitment to climate change is critical to supporting ongoing climate change adaptation. If a council only relies on external consultants for adaptation research and responses, then it is doing very little to support the improved internal adaptive capacity of its organisation. Furthermore, without a permanent adequate annual budget a council will only be able to undertake adaptation actions in an ad hoc manner. The overarching goal for adaptation should be to mainstream consideration of climate change across all council activities.

Staff survey results

In the online survey, 46 staff members (41%) identified 'staff capability – skills' as a barrier to the implementation of climate change adaptation actions. Other barriers identified include limited staff capacity – number of staff (43 staff members, 39%), and lack of training and learning opportunities for staff (34 staff members, 31%). On the other hand, assigned staff responsibilities was recognised as enablers of climate change adaptation actions by 57 staff members (52%). Respondents also identified other enablers including training opportunities (48 staff members, 44%), staff champions (46 staff members, 42%), and peer-to-peer learning (35 staff members, 32%). In addition, 62% of respondents (64 staff members) believe that capacity building is very helpful in adapting to climate change impacts.

Qualitative assessment results

There was broad understanding of the importance of climate change as an issue presenting both risks and opportunities for the region. This awareness was driven by past involvement of staff in the Resilient South Regional Climate Change Adaptation Plan, the work of key staff in raising general awareness and Council's Climate Change Policy.

Multiple participants indicated an understanding of climate change adaptation activities related to coastal hazard management, biodiversity, emergency management, heat stress management, and urban forest management. In particular, Council staff recognised that increased urbanisation and development, due to population growth and housing infill, is exposing the area to the challenge of the Urban Heat Island Effect and additional runoff due to increasing areas of impervious surfaces.

Meeting participants identified a number of specific instances where Councillors have sought to provide specific direction regarding the management of climate change issues.

Participants were confident that executive members of Council have provided clear direction and leadership regarding the management of climate change. This was illustrated during the meeting with the Senior Leadership Team, where numerous managers were able to identify how climate change risk was relevant to works areas and how it could be considered.

Specific recommendations of the qualitative assessment

13.1 Review opportunities to embed capacity building into existing staff training, such as new employee inductions.

13.2 Develop a capacity building program to continue to raise staff awareness about climate change impacts and how they can be managed within different Council functions. This should be an ongoing program similar to how workplace health and safety (WHS) training is conducted across the organisation.

4.3.4 Indicator 14: Community/ Stakeholder Engagement

Justification for this indicator

Connecting to the community is a core component for developing a safer, more resilient community. It is the local community who will bear the brunt of climate change impacts as they directly or indirectly contribute towards adaptation efforts (e.g. through increased insurance costs, taxes, and voluntary community actions). Given the fact that climate change is a contentious issue and one that is open to misinterpretation and misinformation, there is a strong imperative for Council to ensure that the community is appropriately informed of the issue.

As well as being informed, it is also essential that the community become active participants in the climate change adaptation process. According to Gardner et al. (2009), there are a number of considerable benefits associated with actively including the wider community in the decision-making process. These include:

- Facilitating clear communication and exchange of information, with all parties involved developing a more thorough understanding of issues, potential solutions and alternative perspectives.
- Improving the effectiveness of decision-making processes, by gaining better insight into potential equitable outcomes, solutions to conflicts and effective planning.
- Strengthening the resources of involved groups, by increasing awareness, confidence, skills and co-operation.
- Improving the sustainability of any initiatives, by increasing the quality of decisions and their acceptance amongst stakeholders. (Gardner, Dowd, Mason, & Ashworth, 2009)

Councils need to commence a dialogue with the private sector and better understand how businesses and local governments can learn from each other's understanding of the risks and approaches to adaptation.

Staff survey results

In the online survey, 41% of respondents (45 staff members) agreed that climate change not being seen as a priority for the community is a barrier to the implementation of climate change adaptation actions. The results also highlighted the importance of the local community – with 72% of respondents (79 staff members) stating that having an active and engaged community is a core enabler for improving Council's ability to plan for climate change. When asked about the helpfulness of adaptation tools, 66% of respondents (68 staff members) believe that education and community engagement tools and strategies would be very helpful in adapting to climate change impacts.

Qualitative assessment results

Community awareness about climate change has become an important driver for action within Council. Examples of where the Council has engaged key stakeholders and the community in relation to climate change include the:

- Resilient South Regional Climate Change Adaptation Plan, which was released in 2014;
- Climate Ready Communities initiative, which is being led by the Australian Red Cross; and
- Feeling Hot Hot Hot event, which had a focus on extreme heat impacts and responses options.

There was a strong view amongst participants that past efforts to raise awareness about climate change impacts amongst key stakeholders and the community should continue to be built on. This needs to include raising awareness about current actions being undertaken by Council that are already assisting with adaptation (e.g. WSUD measures that support green infrastructure and urban heat island mitigation).

In addition to general awareness raising, engagement was also required in relation to specific adaptation challenges, such as:

- Council versus residents' responsibilities for managing impacts from climate hazard;
- Council's role in providing community services, such as access to libraries during periods of extreme heat; and
- managing expectations regarding continued access to community assets such as the coastal walking trail or green open space.

Some concerns were raised about how climate change was discussed with the community and key stakeholders. This focused on how to manage the political dimensions of the climate change debate in some parts of the community, with suggestions that the 'climate emergency' concept, which has recently become popular in some communities around the world, is too divisive. There was also a view that there is a low level of understanding about what constitutes adaptation as opposed to greenhouse gas emission reduction.

Participants could not identify any instances where Council has worked with Indigenous traditional owners of the land regarding climate change issues.

Specific recommendations of the qualitative assessment

14.1 Develop a Climate Change Stakeholder Engagement Strategy, which identifies engagement objectives, target audiences, engagement channels, a schedule of activities,

and key performance indicators (KPIs). This should include issue specific engagement (e.g. in relation to coastal risks) as well as general awareness raising.

4.3.5 Indicator 15: Institutional/ Intergovernmental Relationships

Justification for this indicator

Climate change is a trans-boundary issue. Adaptation action (or inaction) by one stakeholder can both improve and erode the resilience of another. Furthermore, economies of scale and collectively sharing knowledge can improve adaptation governance. The actions by a range of organisations have the potential to affect councils' resilience. An important part of the institutional arrangements and engagement with external stakeholders is the clarification of roles and responsibilities that are associated with climate change adaptation.

Staff survey results

In the online survey, 19% of respondents (21 staff members) recognised that dealing with other government agencies is a barrier hindering Council's ability to plan for climate change. Conversely, respondents also identified regional coordination (50 staff members, 46%) and external agency support (32 staff members, 29%) as enablers to the implementation of climate change adaptation actions. Interestingly, staff members from the City of Marion recognised senior management support (74 staff members, 68%) and as a core enabler contributing to Council's ability to plan for climate change.

Qualitative assessment results

There was a strong view among some participants that the relative roles and responsibilities of local government as compared with State Government in relation to responding to climate change was unclear at present. It was suggested that this issue requires clarification as part of the next phase of climate change planning within Council.

Representatives of Council have participated in events and conferences by NCAARF. NCCARF works to support decision makers throughout Australia as they prepare for and manage the risks of climate change and sea-level rise.

The City of Marion is part of the Resilient South climate change partnership. Projects cited as areas of collaboration with other councils included water, urban forest and bushfire management.

Specific recommendations of the qualitative assessment

15.1 Seek to clarify the role of Council as compared with State Government in relation to managing climate risk.

4.3.6 Indicator 16: Climate Change Information

Justification for this indicator

Understanding the impacts of climate change requires access to climate change information. While institutions such as NCCARF, Commonwealth Scientific and Industrial Research Organisation (CSIRO) and universities freely provide valuable publications on climate change risk and adaptation, obtaining climate change projections (e.g. from climate change models) is often a time consuming and expensive task, or one that can misalign with Council's timing needs. Council can obtain relevant climate change information from several sources including government databases, university/ institutional relationships, desktop research, consultants and software (SimCLIM).

Understanding the information that goes into climate change models greatly helps the user understand the uncertainty associated with the climate modelling process. The differing greenhouse gas emissions scenarios, models chosen, downscaling and climate sensitivity can all yield differing results. This has the potential to confuse end-users at best and at worst lead to poorly informed decision making.

Staff survey results

The results also show that the City of Marion staff members recognise the roles information can play as barriers and enablers to implementation of climate change adaptation actions. Around 23% of respondents identified a lack of information/ data (25 staff members) as barrier to climate change adaptation actions and 48 staff members (44%) considered access to accessible and up to date information/data as an enabler. This supports respondents' preference of support tools for adapting to climate change impacts, since 84% of respondents (88 staff members) believe that the provision of consistent, high quality information, knowledge and tools about climate change is very helpful in adapting to climate change impacts. Similarly, localised climate data and information was found to be very helpful for 68 staff members (69%).

Respondents of the online survey identified the internet, traditional media, and social media as being the top three information sources commonly used by staff members to understand climate change impacts (see Figure 10). There are also a range of other information sources which Council staff members use including someone in Council, State Government, CSIRO and peak body associations. Interestingly, 17% of respondents (18 staff members) acknowledged that they do not look for information about climate change.

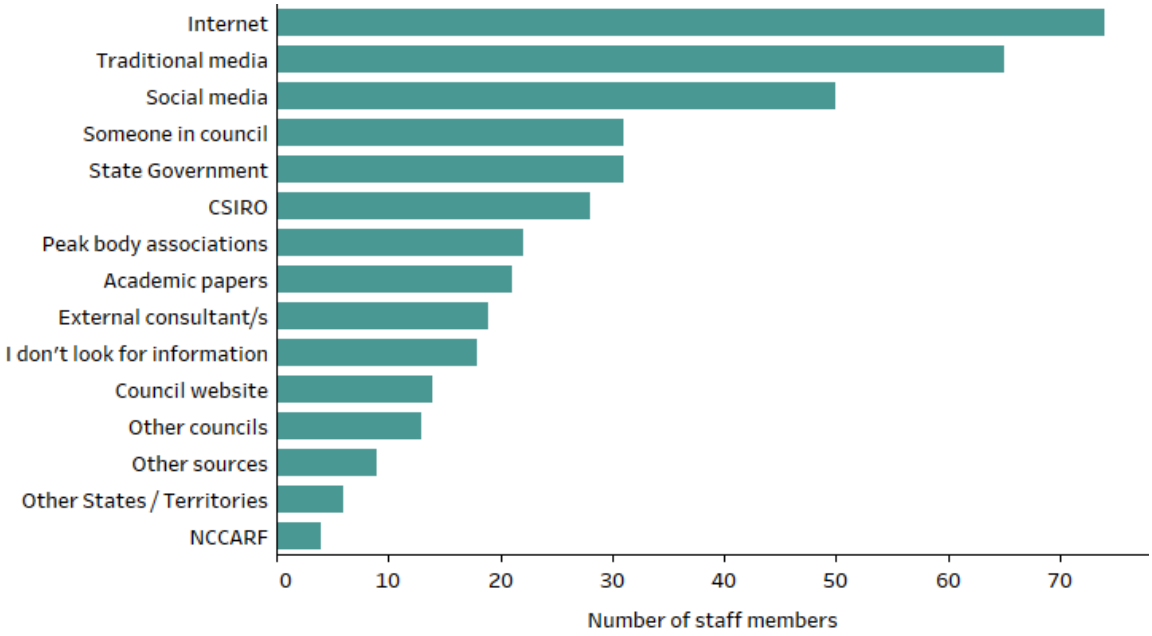

Figure 10: Information sources commonly used by the City of Marion staff members to understand climate change impacts

Staff members were also asked what types of information would help them to better incorporate climate change into their job. The most popular response was 'knowing what to actually do' (70 staff members, 67%), followed by the 'anticipated impacts for my department' (55 staff members, 52%). Around half the participants (53 staff members) also agreed that local climate projections/ forecasts would help in the implementation of climate change actions (see Table 17).

Table 17: Types of information which would help the City of Marion staff members incorporate climate change into job

	Number of staff members	% of staff members
Knowing what to actually do	70	67%
The anticipated impacts for my department	55	52%
Local climate projections / forecasts	53	50%
Understanding what other councils are doing	48	46%
Knowing who to turn to for help	47	45%
Knowing who should be managing the issue in council	45	43%
Regional climate projections / forecasts	43	41%
Understanding the regulatory requirements	41	39%
Knowing when we should start implementing adaptation actions	38	36%
Knowing which level of government should be responsible for action	37	35%
Understanding legal implications	24	23%
Understanding potential trade-offs	24	23%
Not sure	15	14%
Other	5	5%

Qualitative assessment results

The City of Marion has previously gathered information about climate change from the IPCC, CSIRO, the Bureau of Meteorology, and various other scientific organisations. However, no specific reference was made during any meetings about which future climate projections are being used to inform decision making.

Aside from direct changes in climate, Council has the ability to collect a broad range of data to inform decision making. Participants were of the view that data collection, management and reporting through to the Senior Leadership Team could generally be improved. A good example of where this is already occurring is across the coastal zone, where elevation data is being collected to inform future decision making about management of coastal processes and hazards.

The City of Marion has not made a formal whole-of-council decision regarding the sharing of information with the community or business owners regarding areas or assets that may be at higher risk due to climate change hazards.

Specific recommendations of the qualitative assessment

16.1 Develop a register of information requirements needed to inform key decisions that will be impacted on by climate change to identify where information gaps exist. This should be done as part of implementing a monitoring and evaluation plan.

4.3.7 Indicator 17: Information Systems

Justification for this indicator

As the information technology age continues to shape our society it comes as no surprise to see that information services are playing an increasing role in supporting council operations and providing a new interface with the community it serves.

Information communication technology (ICT) networks such as social media platforms, websites and information portals have the potential to contribute significantly to Council's climate change adaptation ambitions. For example, ICT systems can be used for the monitoring and control of critical infrastructure and assets. According to a research report by Arup et al. (2013), 'improved monitoring and control capabilities for all infrastructure can enhance resilience by providing detailed and rapid information to utility managers and city leaders regarding operating conditions and performance'.

Furthermore, during extreme events the ICT network are emerging as a natural agglomeration for concerned community members seeking information when disaster strikes. For example, Brisbane City Council maintains a social media hub (based on the social media aggregation site Stackla). This site became a main focal point for community engagement with Brisbane City Council and between residents who were able to upload information about the risks in real time (Stackla, 2013).

Managing social media, however requires constant attention as poor management of social media during extreme events can also cause confusion and do more harm than good.

Qualitative assessment results

Council's website was analysed for climate change and its integration with other information systems. The website includes working connections to four social media platforms including

Facebook, Twitter, Instagram and YouTube. In addition, the website has a dedicated page for climate change which explains the issue and its risks as well as lists the Council's current climate change actions. Interestingly, the City of Marion have established a dedicated community consultation website called 'Making Marion'. This website is a place where the community can contribute ideas and comment on some of the issues being considered by Council.

The City of Marion have an active Facebook account which has 6,503 'likes' and 7,039 people following the page. Council have also been a member of Twitter for nine years and 10 months (joined in August 2009). Social analytics show that Council's Twitter feed has 3,525 tweets, 3,683 followers and 521 likes. There is a presence of climate change on both platforms which focusses on awareness and engagement for the Resilient South partnership, Council's climate change survey, presentations by climate change experts, 3D aerial mapping and Earth Hour. These results suggest that the City of Marion has a high level of social media presence with considerable reach, particularly on Twitter, which is starting to be used to communicate climate change issues.

Specific recommendations of the qualitative assessment

17.1 Sponsor GovHacks and local hackathons with the focus being solely on climate change adaptation.

17.2 Provide an annual publication of data collected in Council's accounting system on post extreme event/ disaster clean-up costs/ resource use. This will enable the community to see the changes over time.

5 Conclusions

The City of Marion has considerable inclusion of climate change in its formal governance documents. This meant that not only could staff identify key physical climate risks to the functions of Council, they could also identify clear corporate strategic drivers for decision making. There was also consistent understanding of climate change risks from an officer to senior executive level.

The fact that climate change has been considered in all of the ten key governance indicators sees it placed as the leader in Australia (compared to the 200 councils who have been assessed), although significant gaps associated with asset, financial and emergency management require further attention.

Although the City of Marion has an excellent climate change adaptation governance score, it does not have a target to reduce greenhouse gas emissions. This presents a potential political risk to the City, as the public would most likely assume a proactive council to show leadership in greenhouse gas emissions reductions. A long-term plan for emissions reduction is in line with the UNFCCC Paris Agreement, to which Australia has already made a commitment at a national level. It is recommended that Council commit to net zero emissions by or before 2050.

For the City of Marion to have an improved climate change adaptation governance score and a better understanding of the issues Council needs to undertake a detailed climate change risk assessment of Council operations and assets. This needs to consider specific climate change projections rather than general trends of change such as warmer and drier conditions. Without an understanding of the value of assets exposed, and potential changes to the cost of maintaining these assets, it would be challenging for the organisation to monitor and evaluate its adaptation

progress. It would also be difficult to undertake long-term asset and financial management planning.

Regardless of the gaps identified the City of Marion should be congratulated for its consideration of climate change in its governance arrangements to date.

On a final note, the Project Team cannot stress enough the importance and value of disclosing these governance scores to the wider community and other local governments. The quantitative assessment is based on publicly available information and there are considerable benefits associated with disclosure. By sharing information at the very least with other local governments the framework for community of practice can be established and benefit all participants.

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7 Appendices

Appendix A: Questionnaire from staff governance survey

Introduction

The City of Onkaparinga, Adelaide Hills Council, Mount Barker District Council, and the City of Marion are participating in a climate change governance assessment. This will help councils determine how they best respond to, or adapt, to climate change and manage current and future climate risks.

As part of the project we have prepared a very short (7 minutes max) survey, open to all staff. By agreeing to participate in the survey we will be able to generate more results that are tailored specifically for your Council and your department. The survey is anonymous.

Thanks for your time and if you have any questions please contact me directly on the details below.

Kindest regards,

Donovan Burton

donovan@climateplanning.com.au

Respondent Information

1. **Which of the following best fits with YOUR department / job description? (multiple answers can be checked)**

- ☐ Corporate Governance / Office of the CEO
- ☐ Customer Service
- ☐ Workplace Health and Safety
- ☐ Human Resources
- ☐ Finance
- ☐ Assets
- ☐ Information Technology (IT) Services
- ☐ Geographic Information Systems (GIS)
- ☐ Communications, Media and Marketing
- ☐ Planning and Development
- ☐ Engineering / Infrastructure
- ☐ Water and Waste
- ☐ Works
- ☐ Environment / Sustainability
- ☐ Disaster / Emergency Management
- ☐ Community and Recreation
- ☐ Arts & Heritage
- ☐ Fleet
- ☐ Procurement
- ☐ Casual (no specific department)
- ☐ Other (please specify)

_____

2. **Please rate YOUR understanding of climate change impacts and adaptation for your department/ job description (only one answer can be checked)**

- ○ I am not sure of my understanding
- ○ I have no understanding
- ○ My understanding is limited (I would need some support incorporating climate change adaptation into my tasks)
- ○ I could comfortably incorporate/ consider climate change adaptation into any of my tasks

Climate Change Adaptation in your Department

3. **How serious an issue do YOU think climate change is for your department? (only one answer can be checked)**

   - ○ Unsure
   - ○ No issue
   - ○ Minor issue
   - ○ Somewhat - but not urgent
   - ○ Important issue that needs attention now

4. **Does YOUR department use climate change risk assessments to inform decision making? (only one answer can be checked)**

   ○ Yes ○ Sometimes ○ No ○ Unsure

Climate Change Adaptation in your Council

5. **In YOUR opinion, what is your council's level of preparedness for responding to climate change impacts? (only one answer can be checked)**

   - ○ Not sure
   - ○ Not prepared at all
   - ○ Not very prepared
   - ○ Fairly prepared
   - ○ Very prepared

6. **When do YOU think climate change will impact your council's operations and procedures? (only one answer can be checked)**

   - ○ Now - It has already had an impact
   - ○ Short term - In the next year
   - ○ Medium term - Within 15 years
   - ○ Long term - by 2050
   - ○ Very long term - by 2070 - 2100
   - ○ Never
   - ○ Not sure

Barriers to Council Adaptation

7. **In your opinion, which of these BARRIERS currently hinder your council's ability to plan for climate change? (multiple answers can be checked)**

- ☐ Limited assigned funding
- ☐ Limited staff capacity (number of)
- ☐ Limited staff capability (skills)
- ☐ Confusing/changing policy at different levels of government
- ☐ Lack of political will
- ☐ Not seen as a priority by the community
- ☐ Limitations in legislation and regulation
- ☐ Uncertainty of the role of Local Government
- ☐ Lack of organisational support
- ☐ Lack of information /data
- ☐ Uncertain where to start
- ☐ Dealing with other government agencies
- ☐ Apprehensive about legal risk
- ☐ Lack of training and learning opportunities for staff
- ☐ Not seen by management / executive as a priority
- ☐ Risks are not well understood
- ☐ Other (please specify)

_____

8. **In your opinion, which of these ENABLERS contribute to your council's ability to plan for climate change? (multiple answers can be checked)**

- ☐ Senior management support
- ☐ Understanding of cost/benefits of climate change adaptation actions
- ☐ Active and engaged communities
- ☐ Mayor/ councillor leadership
- ☐ External funding
- ☐ Assigned staff responsibilities
- ☐ Duty of care
- ☐ Avoiding future unbudgeted costs
- ☐ Regional coordination
- ☐ Liability concerns resolved
- ☐ Staff champions
- ☐ External agency support
- ☐ Peer to peer learning (e.g. through Greenhouse Alliance and other networks)
- ☐ Training opportunities
- ☐ Effective risk management practices
- ☐ Good understanding of climate change
- ☐ Accessible and up to date information/ data
- ☐ Legislative / policy change at State level
- ☐ State Government support
- ☐ Other (please specify)

_____

Level of Climate Change Adaptation Support

9. How HELPFUL are the following types of support in adapting to climate change impacts?

	Not helpful	Fairly helpful	Very helpful	Not sure
Provision of consistent, high quality information, knowledge and tools about climate change	○	○	○	○
Guidance on risk assessment and reducing risk exposure for councils	○	○	○	○
Localised climate data and information	○	○	○	○
Internal policies that direct action on climate change (e.g. a climate change policy)	○	○	○	○
Specific ongoing resource allocation for climate change projects	○	○	○	○
State government statutory planning support	○	○	○	○
Capacity building	○	○	○	○
Case studies in effective adaptation planning, strategies and implementation	○	○	○	○
Coordination with the South Australian Government effort to adapt to climate change	○	○	○	○
Non-statutory planning	○	○	○	○
Education and community engagement tools and strategies	○	○	○	○
Public statements of leadership and action from the State Government	○	○	○	○
A climate change bridging organisation (e.g. A coordinating body for research, training, networking, guidelines etc)	○	○	○	○
Other (please specify) _____	○	○	○	○

Sourcing Climate Change Information

10. Where do YOU get your information about climate change impacts? (multiple answers can be checked)

- ☐ I don't look for information
- ☐ Academic papers
- ☐ Traditional media (e.g. newspapers, news)
- ☐ Social media (e.g. Facebook, Twitter, LinkedIn)
- ☐ Internet
- ☐ Council website
- ☐ Someone in council
- ☐ Other councils
- ☐ External consultant/s
- ☐ Peak body associations
- ☐ NCCARF
- ☐ CSIRO
- ☐ State Government
- ☐ Other States / Territories
- ☐ Other (please specify) _____

11. **What type of information about climate change impacts would help YOU incorporate climate change into your job? (multiple answers can be checked)**

- ☐ None
- ☐ Not sure
- ☐ Local climate projections / forecasts
- ☐ Regional climate projections / forecasts
- ☐ The anticipated impacts for my department
- ☐ Knowing when we should start implementing adaptation actions
- ☐ Knowing what to actually do
- ☐ Knowing who should be managing the issue in council
- ☐ Understanding legal implications
- ☐ Understanding the regulatory requirements
- ☐ Knowing which level of government should be responsible for action
- ☐ Understanding potential trade-offs
- ☐ Knowing who to turn to for help
- ☐ Understanding what other councils are doing
- ☐ Other (please specify)

_____

Climate Change Adaptation Training

12. **Have YOU had any training for climate change adaptation? (multiple answers can be checked)**

- ☐ None
- ☐ Yes - a university or TAFE subject
- ☐ Yes - a university Degree / Masters / PhD in climate adaptation
- ☐ Yes - a university diploma / certificate in climate adaptation
- ☐ Yes - from a peak body training package (e.g. Planning Institute of Australia or Engineers Australia)
- ☐ Yes - from a consultant
- ☐ Yes - from the Enhanced Local Government Service Delivery Course (Australian Centre for Excellence in Local Government)
- ☐ Other (please specify)

_____

Questions

13. **Are there any other comments you would like to make about adapting to climate change in your council?**

    _____
    _____
    _____
    _____
    _____
    _____

14. **Would you like to be kept informed about the progress and outcomes of this project?**

    - ○ No
    - ○ Yes (please type your email address)

      _____

Appendix B: List of keywords used for quantitative assessment

Theme	Definition/ Keywords
Climate change	Council documents were searched for key words associated with climate change. These key words include 'climate change', 'global warming' and 'climate variability'.
Sea level rise*	Council documents were searched for key words associated with sea level rise. These key words include 'sea level rise' and 'sea level change'.
Adaptation	Council documents were searched for key words associated with adaptation. These key words include 'adapt', 'adaptation', 'adaptive' and 'adaptability'.
Greenhouse gas emissions	Council documents were searched for key words associated with greenhouse gas emissions. These key words include 'greenhouse gas', 'GHG', 'carbon emission', 'carbon footprint', 'carbon neutral', 'carbon neutrality', and 'net zero'.

* only relevant for coastal councils

Appendix C: Questions used in the qualitative governance assessment

Consultants asked representatives of the City of Marion the following questions during face-to-face meetings for the qualitative governance assessment.

Indicator 11: Climate Risk Assessments

1. What do you perceive as council's key climate change risks?
2. Is council undertaking any other climate change risk assessments?
    a. If yes, can you elaborate?
3. Does Council have a risk register, if so can you provide us a copy?
    a. If no, can you please search the document to check if climate change is considered and copy the relevant sections?

Indicator 12: Climate Legal Risk

4. Has council sought independent legal advice regarding specific climate change issues?
    a. If so, for which issues?
5. Have your insurers asked you to provide any specific information about how you manage climate change risks?
6. Has council had any litigation based on climate-related hazards (either direct or indirect impacts)? For example, extreme weather causing damage and death or sea wall causing injury or death.
7. In regard to land use planning, has council refused any developments because of climate change risks?

8. In regard to land use planning, has council had to go to court or a tribunal for any climate change and planning issues (e.g. related to development applications)?

Indicator 13: Staff Capacity and Resource Allocation

9. Does council have somebody specifically responsible for climate change adaptation (e.g. climate change adaptation officer)?
    a. If so, what is their full-time equivalent (FTE)?
10. Does council have any programs/ policies that mandate climate change training for staff?
11. Have staff have had any training in climate change adaptation?
12. Are there any instances where your staff have applied their skills to climate change adaptation activities or projects?
13. Is there a budget allocated for up-skilling staff in climate change adaptation?

Indicator 14: Community/ Stakeholder Engagement

1. Does council have a climate change communication strategy (both internally and externally)?
2. Does council have Community Plan or Strategy?
    a. If so, is climate change considered?
3. Has council engaged the community on climate change issues?
    a. If so, what methods of communication do you use to engage the community (e.g. project specific meetings, face-to-face, social media)?
    b. Were the community receptive?
4. Does council have any active community or business working groups for climate change that council facilitates?

Indicator 15: Institutional/ Intergovernmental Relationships

5. Is council involved in any **local, regional and State working groups** for climate change (e.g. C-CAT, LGAQ project, Regional Organisation of Councils, local working group, utilities working group)?
    a. How often do you meet?
    b. What is the purpose of the working group (e.g. information sharing, political lobbying)?
    c. Do you collaborate on projects?
    d. Do you have MOUs and/or formal agreements?

6. Is council involved in any **federal working groups** for climate change (e.g. NCCARF)?
    a. How often do you meet?
    b. What is the purpose of the working group (e.g. information sharing, political lobbying)?
    c. Do you collaborate on projects?
    d. Do you have MOUs and/or formal agreements?

Indicator 16: Climate Change Information

7. What sources of climate change information does Council use to guide decision making on climate change?
8. What climate data do you base Council decisions on (e.g. IPCC fifth assessment report, BOM)?
9. What systems do you have in place to ensure the data is up-to-date?
10. Do you have an Open Data Strategy?
    a. If so, is climate data considered?

Indicator 17: Information Systems

11. Does Council have an active social media presence (e.g. Facebook, Twitter)?
12. Do Council's social media posts communicate or discuss climate change issues?
13. Does Council share its data with external online databases (e.g. data.gov.au)?
    a. If so, how many datasets are available?
14. Does Council have a formal performance management system?
15. Does Council have any key performance indicators for managing climate change?
16. Does Council measure the number of properties exposed to certain risks?
17. Does Council measure how much each disaster costs for clean up?
18. Are there any other climate-related factors which Council measure in their performance management?
19. Do council undertake any big data analytics for climate change issues (e.g. number of people tweeting about heatwaves, paying third party to analyse accommodation during heatwaves, analysing Facebook likes for climate-related postings)?
20. Has the management of climate change been included in any community projects (e.g. hack-a-thons)?
    a. Please explain the projects and what the outcomes were?

Appendix D: Key terminology used in the quantitative assessment

Terminology	Definition
Climate change adaptation issues	Issues related to climate change adaptation. They include the following: natural disasters, extreme weather, rainfall, heatwaves, sea level rise, bush fire, flooding, cyclones, storms, storm tide, erosion, drought, earthquake and landslide. These are only issues if they are specifically in the context of climate change (e.g. increased extreme rainfall intensity). This list only represents some of the climate change adaptation issues that can arise and is for indicative purposes only.
Climate change mitigation issues	Issues related to climate change mitigation. Examples of these may include emissions reduction, greenhouse gas emissions, carbon footprint, carbon emissions, carbon neutral, carbon neutrality, carbon sequestration, carbon dioxide (CO_2), carbon dioxide equivalent (CDE), CO_2e, CO_2eq, carbon capture and storage (CCS), energy efficiency, net zero, carbon credits, carbon price, carbon tax, Emissions Trading Scheme (ETS), Carbon Pollution Reduction Scheme (CPRS), Renewable Energy Target (RET), Representative Concentration Pathways (RCP), Emissions Reduction Unit (ERU). This list only represents some of the climate change mitigation issues that can arise and is for indicative purposes only.
Climate change risks	Types of risks associated with climate change. Examples of these may include infrastructure risk, policy risk, market and competitiveness risk, climate legal risk, environmental risk, community risk, political risk, economic risk, financial risk, insurance risk. This list only represents some of the climate change risks that can arise and is for indicative purposes only.
Direct impacts (From acute and chronic physical impacts)	Direct impacts are impacts which are directly associated with any of the climate change issues. Examples of direct climate change impacts include damage to assets from storm surge, loss of life as a result of increased heatwaves etc. This list only represents some of the direct impacts that can arise and is for indicative purposes only.
Indirect impacts (From acute and chronic physical impacts)	Indirect impacts are impacts which are an indirect result of a climate change issue. Examples of indirect climate change adaptation impacts include: changes to insurance availability and affordability, increased mortgage risk, supply chain impacts, disease and disease vector changes, food insecurity, market shift, decreased rateable value, regulatory change, decreased credit ratings. This list only represents some of the indirect impacts that can arise and is for indicative purposes only.
Documents	Documents is a collective term used to identify a group of different document types reviewed in the assessment. These documents types include, but are not limited to: policies, strategies, plans, frameworks, guidelines, and procedures. For example, the term 'financial management documents' was used to refer to the following documents which were assessed for the Financial Management indicator: • Financial management policy • Financial management strategy • Financial management plan
Council function	A council function is a key function which Council provides. Examples of specific council functions include: land use planning, emergency management, natural environment, biodiversity, health and wellbeing, asset management, compliance, works, waste management, sewerage, potable water, community engagement. Please note that some councils do not undertake all of these functions.

Terminology	Definition
Planning theme	A planning theme is a topic which represents the policy intent of a Council's regulatory planning document (i.e. Planning Scheme, Development Plan). Examples of planning themes include: sustainability and resilience, natural environment and landscape, strong communities, settlement patterns, natural resources, integrated transport, infrastructure, water management, coastal areas, hazards etc.
Prescribed response	A prescribed response is an authoritative guide, direction or action on a specific issue or topic. For example, a prescribed response may include a template or guideline of how climate change adaptation should be actioned (i.e. analyse, plan, allocate resources, implement and monitor, evaluate and report).

Appendix E: Recommendations for Strategic Plan (#1)

Action	Recommendation
transition from 'No data' to 'None'	No Strategic Management Plan was available for review. Ensure that the relevant reports associated with this indicator are publicly available. A Strategic Management Plan is a legal requirement and as such it is important that this available for public review. Transparency supports community confidence in Council and enables businesses and residents to ascertain the extent of Council decision-making associated with this climate change.
transition from 'None' to 'Basic'	To increase the score for this indicator (to 'Basic') Council should ensure that their Strategic Management Plan includes, at a minimum, general statements about climate change (e.g. in the introduction). An example of phrases in a Strategic Management Plan that will support a 'Basic' score include: "Council will explore how climate change adaptation and mitigation can be mainstreamed into decision making" and/or "Council will develop a suitable climate change adaptation policy that will direct climate decision-making". To implement this consideration Council should focus on improving the scores of all climate change adaptation governance scores. The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment. Identify those councils who have reasonable scores (e.g. above 'Intermediate') in the indicators that you need help in improving.
transition from 'Basic' to 'Intermediate'	To increase the score for this indicator (to 'Intermediate') Council should ensure that the Strategic Management Plan includes some examples of specific climate change actions. An example of phrases that will support an 'Intermediate' score include: "Council will explore how climate change adaptation and mitigation can be mainstreamed into decision making. Specifically, Council will be focusing on sea level rise (if it is a coastal Council) or heatwave risk (or bushfire etc.)". This will progress the score to at least 'Intermediate' and ensure that Council does not lose sight of mainstreaming the response to the effects of climate change. A 'Basic' level of consideration in a Strategic Management Plan is unlikely to result in significant resource needs, with the majority of support able to be gained from State Government guidelines and information reports, as well as gleaning information from other councils through peer-to-peer learning.
transition from 'Intermediate' to 'High'	To increase the score for this indicator (to 'High') the next revision of the Strategic Management Plan requires some examples of specific climate change actions spanning more than one council department. General phrases that will support a 'High' score include: "Council will explore how climate change adaptation and mitigation can be mainstreamed into decision making. Specifically, Council will be focusing on sea level rise (if it is a coastal Council) or heatwave risk (or bushfire etc.)". Some resources should be allocated to staff capacity (e.g. conferences and training) as well as some specific technical support which may be required for some elements. However, the majority of support able to be gained from State Government guidelines and information reports as well as gleaning information from other councils through peer-to-peer learning.
transition from 'High' to 'Advanced'	To increase the score for this indicator (to 'Advanced') the Strategic Management Plan needs to have a very strong consideration of climate change. In particular climate change should be specifically mentioned in all Council functions (not just in the environmental and/or sustainable objectives). To support an 'Advanced' score, general terminology in the Strategic Management Plan will need to: acknowledge the need to manage both the direct and indirect effects of climate change, include resilience development in a carbon-constrained economy, and have a range of key performance indicators across all Council functions. To implement an advanced consideration in a Strategic Management Plan, the organisation will need to allocate resourcing for at least one climate change officer and the various studies that will be required to support them in their role. To capture the cost-benefit of these allocated resources Council will need to ensure that the Strategic Management Plan contains key performance indicators that focus on collecting data for monitoring and evaluation over time.
maintain an 'Advanced' score	Council has received an 'Advanced' score for this indicator. Achieving this score sees Council in the top fraction of Australian local governments for this indicator and places it in a position to share the journey with other local governments seeking to improve their consideration of climate change. To ensure that this indicator maintains this level Council will need to monitor any new IPCC reports, government regulations and emerging standards which may affect Councils adaptation actions. Furthermore, ensure that Council maintains sufficient staff capacity and resourcing required to maintain this score.

Appendix F: Recommendations for Financial Management (#2)

Action	Recommendation
transition from 'No data' to 'None'	No publicly available financial management documents were available to assess this score. Climate change will have a material impact on council finances in a number of ways. Financial management is often a political issue and not having publicly available documents may result in community dissatisfaction (and result in political instability). Ensure that the relevant reports associated with this indicator are publicly available. Transparency supports community confidence in Council and enables businesses and residents to ascertain the extent of Council decision-making associated with this climate change.
transition from 'None' to 'Basic'	To increase the score for this indicator (to 'Basic') Council should undertake a review of key financial planning documents as soon as possible. Insert, at a minimum, general statements about climate change (e.g. in the introduction). General phrases in financial management plans and policies that will support a 'Basic' score include: "Council recognises that climate change may affect its financial performance and will seek to identify the most suitable means for identifying how climate change may affect financial management". Implementing this action requires minimal resourcing. The only challenge will be if the elected members are strongly opposed to climate change. If that is the case direct the elected members to the Climate Change Act and also key financial reports such as the latest summary on climate change delivered by APRA or information from the Financial Stability Board Taskforce on Climate Related Financial Disclosures (TCFD).
transition from 'Basic' to 'Intermediate'	To increase the score for this indicator (to 'Intermediate') Council should undertake a review of key financial planning documents as soon as possible. As well as having general statements about climate change (e.g. in the introduction) ensure that some recognition of one specific risk and/or council function is included (e.g. sea level rise and asset depreciation). An example of phrases in financial management plans and/or policies that will support an 'Intermediate' score include: "Council recognises that climate change may affect its financial performance and will seek to identify the most suitable means for identifying how climate change may affect financial management" and "Council will explore the financial ramifications that climate change may present on its asset value, depreciation and exposure to increased extreme events." Implementing this action requires minimal resourcing. However, a focus on financial effects on assets will require an alignment of the consideration of climate change in any asset management planning.
transition from 'Intermediate' to 'High'	To increase the score for this indicator (to 'High') Council should undertake a review of key financial planning documents as soon as possible. As well as having general statements about climate change (e.g. in the introduction) ensure that some recognition of at least two specific risks and/or Council function (e.g. sea level rise and asset depreciation). An example of phrases in financial management plans and/or policies that will support an 'Intermediate' score include: "Council recognises that climate change may affect its financial performance and will seek to identify the most suitable means for identifying how climate change may affect financial management" and "Council will explore the financial ramifications that climate change may present on its asset value, depreciation and exposure to increased extreme events" and "Council will explore how climate change may affect the resourcing needs for operations (e.g. employment of a climate change officer, hiring of consultants, trialling innovative engineering measures, etc.)." Implementing this action requires minimal resourcing. However, the effect of financial management issues on other council functions (e.g. assets) are important to consider. For example, understanding whether staff capacity, capability and training needs are a barrier to understanding climate change and its financial implications in your council.
transition from 'High' to 'Advanced'	To increase the score for this indicator (to 'Advanced') requires some specific focus on the potential supporting policies (e.g. asset management, climate change policy). Council should make statements in its financial planning documents about divestment from fossil fuels, energy transition, and consideration of a price on carbon in adaptation decisions. Council should also consider issues such as insurance, effects on rateable value, asset OPEX and CAPEX issues and other direct and indirect issues associated with climate change. Financial management should also state how financial performance while responding to climate change will be implemented. However, the effect of financial management issues on other council functions (e.g. assets) are important to consider. For example, understanding whether staff capacity, capability and training needs are a barrier to understanding climate change and its financial implications in your council.
maintain an 'Advanced' score	Council has received an 'Advanced' score for this indicator. Achieving this score sees Council in the top fraction of Australian local governments for this indicator and places it in a position to share its journey with other local governments seeking to improve their consideration of climate change. To ensure that this indicator maintains this level it will be necessary to monitor any new IPCC reports, government regulations and emerging standards which may affect adaptation actions. Furthermore, ensure that Council maintains sufficient staff capacity and resourcing to maintain this score.

Appendix G: Recommendations for Public Risk Disclosure (#3)

Action	Recommendation
transition from 'No data' to 'None'	No information was available to assess this score. Risk management is often a contentious issue and not having publicly available documents may result in community dissatisfaction (and result in political instability). Ensure that the relevant reports associated with this indicator are publicly available. Transparency supports community confidence in Council and enables businesses and residents to ascertain the extent of Council decision-making associated with this climate change.
transition from 'None' to 'Basic'	To increase the score for this indicator (to 'Basic') Council is required, at a minimum, to provide some general statements about climate change as a corporate strategic risk in the public version of the risk register. General phrases in a risk register that will support a 'Basic' score include: "Council recognises that climate change may exacerbate some risks and/or present new risks. Treatment options include undertaking scoping risk studies and improving Council's consideration of climate change in its core governance documents". Implementing this action requires minimal time and resourcing.
transition from 'Basic' to 'Intermediate'	To increase the score for this indicator (to 'Intermediate') Council should recognise climate change as a corporate strategic risk. As well as including general statements about climate change, elements in the risk register that will support an 'Intermediate' score include specific consideration of one specific risk (e.g. increased flooding risks to Council assets). Implementing this action requires minimal time and resourcing, although a treatment option will require a better understanding and quantification of the risks, which may require expert help or improve staff capacity. Treatment options for climate risks could include land use planning responses, developer contributions and engineering solutions, to name a few.
transition from 'Intermediate' to 'High'	To increase the score for this indicator (to 'High') Council should recognise climate change as a corporate strategic risk. As well as including general statements about climate change, elements in the risk register that will support a 'High' score require the specific consideration of at least two specific risks (e.g. increased flooding risks to Council assets and risk of increase heatwaves to the outside workforce). Implementing this action requires minimal time and resourcing, although a treatment option will require a better understanding and quantification of the risks, which may require expert help or improve staff capacity. Treatment options for climate risks could include land use planning responses, developer contributions and engineering solutions, to name a few.
transition from 'High' to 'Advanced'	To increase the score for this indicator (to 'Advanced') the risk register should have a very good inclusion of direct and indirect climate change risks to Council and the community it represents. Detailed and well-informed treatment options should be recorded. All the gaps in Council's most recent governance study should be explored and where they are low a quantification of the risks to Council should be expressed. Types of risks that should be recorded include, but are not limited to: insurance availability, service delivery, staff health and wellbeing, rateable income, economic impacts for the community, supply chain risks, OPEX and CAPEX risks for assets, depreciation risks, food and water security, and investment risk. To achieve an 'Advanced' score, Council will require a concerted effort to understand the type of risks and as such some initial resourcing may be required to improve staff capacity and/or fund technical studies.
maintain an 'Advanced' score	Council has received an 'Advanced' score for this indicator. Achieving this score sees the organisation in the top fraction of Australian local governments for this indicator and enables it to share its journey with other local governments seeking to improve their consideration of climate change. To ensure that this indicator is maintained at this level it will be important to monitor any new IPCC reports, government regulations and emerging standards which may affect adaptation actions. Furthermore, ensure that the council maintains sufficient staff capacity and resourcing to maintain this score for this indicator.

Appendix H: Recommendations for Asset Management (#4)

Action	Recommendation
transition from 'No data' to 'None'	No information was available to assess this score. Ensure that the relevant reports associated with this indicator are publicly available. A public asset management plan can support economic development as it informs the market and residents about the extent of Council's awareness of the effects of climate change. A Council that is seen to be responding to climate change is one that is likely to support insurance affordability, mortgage availability and investment in the region.
transition from 'None' to 'Basic'	In order to achieve a small improvement in this governance score (to 'Basic') Council should include climate change in the introduction of the asset management planning documents and/or policies. An example of the text that would help improve basic consideration is: "Council recognises that climate change is likely to affect asset life and functionality. As such, in future reports and analysis, Council will explore how climate change will affect assets".
transition from 'Basic' to 'Intermediate'	In order to achieve an improvement in this governance score (to 'Intermediate') Council should include climate change in the introduction of the asset management planning documents and/or policies as well as give some specific reference to one of the known risks or assets that may be exposed to the effects of climate change. An example of the text that would help improve consideration is: "Council recognises that climate change is likely to affect asset life and functionality. As such in future reports and analysis Council will explore how climate change will affect assets". The asset management plan should also specify a prescribed response to one of the climate change issues. For example, "All council buildings in areas exposed to sea level rise will be retrofitted to handle short term inundation risks, through elevation of 600mm (this height is just an example) above the flood level and to manage the risks Council will undertake studies to identify alternative locations of the building/s to maintain adequate service delivery".
transition from 'Intermediate' to 'High'	In order to achieve an improvement in this governance score (to 'High') Council should include climate change in the introduction of the asset management planning documents and/or policies as well as give some specific reference to at least two known risks or assets that may be exposed to the effects of climate change. An example of the text that would help improve consideration is: "Council recognises that climate change is likely to affect asset life and functionality. As such in future reports and analysis Council will explore how climate change will affect assets". The asset management plan should also specify a prescribed response to one of the climate change issues. For example, "All council buildings in areas exposed to sea level rise will be retrofitted to handle short term inundation risks, through elevation of 600mm (this height is just an example) above the flood level and to manage the risks Council will undertake studies to identify alternative locations of the building/s to maintain adequate service delivery". To upgrade to a 'High' level of response, Council will also need to undertake some spatial analysis of its assets that may be affected by climate change issues (e.g. increase flood risk, sea level rise, coastal erosion, storm tide etc.).
transition from 'High' to 'Advanced'	In order to achieve an improvement in this governance score (to 'Advanced') the asset management plan requires a detailed analysis of the exposure of all Council assets. The exposure should quantify the number or extent of the exposure (e.g. kilometres of road exposed to sea level rise inundation) and the value of that exposure. The asset management plan should include specific responses for managing the risks to those assets and the likely timing and resource requirements to implement the adaptation measures. To incorporate this level of consideration, Council will need to allocate resources to undertake detailed risk assessments and cost benefit analysis of the measures. The asset management plan should align with the level of consideration in financial management planning and vice-versa. An advanced asset management plan is also likely to explore public-private partnership and other collaborative opportunities. It would be extremely beneficial to have a supporting climate change policy that specifies the consistent standards, planning horizons and thresholds in climate change decision making (e.g. what climate change scenario Council will plan to, and what key performance indicators will be used).
maintain an 'Advanced' score	Council has received an 'Advanced' score for this indicator. Achieving this score sees you in the top fraction of Australian local governments for this indicator and you will be in a position to share your journey with other local governments seeking to improve their consideration of climate change. To ensure that this indicator maintains at this level Council will need to monitor any new IPCC reports, government regulations and emerging standards which may affect asset management adaptation actions. Furthermore, it will be necessary to ensure that Council maintains sufficient staff capacity and resourcing to maintain this indicator score.

Appendix I: Recommendations for Land Use Planning (#5)

Action	Recommendation
transition from 'No data' to 'None'	No information was available to assess this score. Ensure that the relevant reports associated with this indicator are publicly available. Transparency supports community confidence in Council and enables businesses and residents to ascertain the extent of Council decision-making associated with climate change.
transition from 'None' to 'Basic'	To increase the score for this indicator (to 'Basic') Council should acknowledge climate change in the context/ introduction in the local provisions of the Development Plan. Given that land use planning is a powerful lever for minimising future risks some consideration of climate change is warranted.
transition from 'Basic' to 'Intermediate'	To increase the score for this indicator (to 'Intermediate') Council should ensure that climate change is mentioned in the introduction/ context and that one element of climate change is listed in the general provisions, zone provisions or assessment section. The elements that are likely to be topical are dependent on the location of Council (e.g. if it is coastal then it may be sea level rise; if it is inland then it may an increased risk of flooding or heatwave due to climate change). The most suitable action is for Council to glean information from a Council with a similar geography or population which has scored a minimum of 'Intermediate' in the Informed.City™ governance analysis. It is possible that Council may be constrained by State policies and legislation to implement the above. If that is the case, then Council should lobby the State to enable it to have greater flexibility to incorporate climate change into its Development Plan.
transition from 'Intermediate' to 'High'	To increase the score for this indicator (to 'High') Council should have a detailed consideration of climate change in the Development Plan. A detailed consideration of climate change would be one that considers multiple physical climate change risks, preferably with a good consideration in the general provisions. The most suitable action is for Council to glean information from a Council with a similar geography or population which has scored a minimum of 'Intermediate' in the Informed.City™ governance analysis. It is possible that Council may be constrained by State policies and legislation to implement the above. If that is the case, then Council should lobby the State to enable it to have greater flexibility to incorporate climate change into its Development Plan.
transition from 'High' to 'Advanced'	To increase the score for this indicator (to 'Advanced') Council will need to expand its consideration of climate change from issues associated with just hazards to broader indirect and environmental issues. These include considerations for water and food security, protection and enhancement of ecosystem services under a changing climate, planning layers that identify and protect renewable energy resource sites, transition to low carbon economy (e.g. requirements for electric vehicles and/or pedestrian and transit-oriented development). To achieve this Council will need to undertake a range of planning studies and engage a broad range of experts (or acquire relevant internal expertise). Importantly adaptation planning should identify adaptation trade-offs and mal-adaptation risks. This may initially be resource intensive but there will be considerable opportunities to collaborate with regional partners or other councils around the state or Australia. It is possible that Council may be constrained by State policies and legislation to implement the above. If that is the case, then Council should lobby the State to enable it to have greater flexibility to incorporate climate change into its Development Plan.
maintain an 'Advanced' score	Council has received an 'Advanced' score for this indicator. Achieving this score sees Council in the top fraction of Australian local governments for this indicator and places it in a position to share its journey with other local governments seeking to improve their consideration of climate change. To ensure that this indicator maintains at this level it will be important to monitor any new IPCC reports, government regulations and emerging standards may affect Councils adaptation actions. Furthermore, ensure that Council maintains sufficient staff capacity and resourcing to maintain this score for this indicator.

Appendix J: Recommendations for Emergency Management (#6)

Action	Recommendation
transition from 'No data' to 'None'	No information was available to assess this score. Ensure that the relevant reports associated with this indicator are publicly available. Transparency supports community confidence in Council and enables businesses and residents to ascertain the extent of Council decision-making associated with emergency management and climate change.
transition from 'None' to 'Basic'	To increase the score for this indicator (to 'Basic') the Council Emergency Management Plan (or similar instrument) must be amended to ensure that, at a minimum, climate change is referred to in the introduction. An example of phrases in a Council Emergency Management Plan that will support a 'Basic' score include: "Climate change is likely to exacerbate many of the known disaster risks and affect those already especially vulnerable to natural hazards".
transition from 'Basic' to 'Intermediate'	To increase the score for this indicator (to 'Intermediate') the Council Emergency Management Plan (or similar instrument) must be amended to ensure that climate change is referred to in the introduction and one element of climate change is considered in the plan. An example of phrases in an Emergency Management Plan that will support an 'Intermediate' score include: "Climate change is likely to exacerbate many of the known disaster risks and affect those already especially vulnerable to natural hazards". Issues that will be relevant are the increased heatwave risk (i.e. present information on the current number of heatwave days for selected locations and then how that may change in 2030 / 2050 etc.). The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have reasonable scores in the indicators that you need help in improving.
transition from 'Intermediate' to 'High'	To increase the score for this indicator (to 'High') the Council Emergency Management Plan (or similar instrument) must be amended to ensure that climate change is referred to in the introduction and at least two elements of climate change are considered. An example of phrases in an Emergency Management Plan that will support an 'Intermediate' score include: "Climate change is likely to exacerbate many of the known disaster risks and affect those already especially vulnerable to natural hazards". Issues that will be relevant are the increased heatwave risk (i.e. present information on the current number of heatwave days for selected locations and then how that may change in 2030 / 2050 etc.). Other risks associated with climate change include more frequent and extreme floods, more extreme weather events (storms, hail) and increased disruption to emergency egress routes. It is important to link emergency management planning with land use planning and align the considerations of climate change between these two areas. The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have reasonable scores in the indicators that you need help in improving.
transition from 'High' to 'Advanced'	To increase the score for this indicator (to 'Advanced') the Council Emergency Management Plan (or similar instrument) that needs to have a comprehensive inclusion of climate change (not just a ZEMP). Climate change needs to be considered in all elements of emergency management (e.g. provides climate scenarios, links to international and national leading standards, includes other council climate studies etc). An advanced emergency management plan will identify the changing landscape of risk under a changing climate. It should link to other council activities and policies, in particular land use planning, asset management and community engagement. A supporting climate change policy will greatly assist the implementation of an advanced emergency management plan.
maintain an 'Advanced' score	Council has received an 'Advanced' score for this indicator. Achieving this score sees Council in the top fraction of Australian local governments for this indicator. Council is encouraged to share its journey with other local governments seeking to improve their consideration of climate change. To ensure that this indicator is maintained at this level Council will need to monitor any new IPCC reports, government regulations and emerging standards may affect adaptation actions. Furthermore, ensure that Council maintains sufficient staff capacity and resourcing to maintain this score for this indicator.

Appendix K: Recommendations for Greenhouse Gas Emissions Reduction (#7)

Action	Recommendation
transition from 'None' to 'Basic'	To increase the score for this indicator (to 'Basic') Council is required to commit or consider reducing greenhouse gas emissions. The target should aim for a moderate reduction on greenhouse gas emissions by 2020 (e.g. 10% -20% reduction on baseline). Implementing this action requires minimal resourcing.
transition from 'Basic' to 'Intermediate'	The 'Basic' score means that Council is concerned about global greenhouse gas emissions. To increase the score for this indicator (to 'Intermediate') Council should now formally identify a target that is achievable through energy efficiency and minimum outlay (e.g. a 20% -30% reduction on current emissions established to 2030). Council should state how it intends to broadly meet the targets. Ensure that energy savings are captured in financial reporting and inform the public of the return on investment.
transition from 'Intermediate' to 'High'	The 'Intermediate' score means that Council is concerned about global greenhouse gas emissions and has created short-medium term targets. To increase the score for this indicator (to 'High') Council should now formally identify a target out to 2030 or beyond. Council should state how it intends to broadly meet the targets and consider including a staged pathway of emissions reductions out to 2050. Council should ensure that energy savings are captured in financial reporting and inform the public of the return on investment.
transition from 'High' to 'Advanced'	To increase the score for this indicator (to 'Advanced') Council should commit to carbon neutrality by 2050 or before. Achieving this requires sub-decadal targets and ongoing monitoring and evaluation. Council should inform its community about the method of achieving the goal (e.g. what percentage will be met with offsets).
maintain an 'Advanced' score	Council has received an 'Advanced' score for this indicator. Achieving this score sees Council in the top fraction of Australian local governments for this indicator and places it in a position to share its journey with other local governments seeking to improve their consideration of climate change. To ensure that this indicator maintains this level it will be important to monitor any new national and international targets (e.g. bringing forward carbon neutrality date). It will also be important to ensure that Council maintains sufficient staff capacity and resourcing to maintain the score for this indicator.

Appendix L: Recommendations for Climate Risk Management (#8)

Action	Recommendation
transition from 'No data' to 'None'	No information was available to assess this score. Council should ensure that the relevant reports associated with this indicator are publicly available. Transparency supports community confidence in Council and enables businesses and residents to ascertain the extent of Council decision-making associated with this climate change.
transition from 'None' to 'Basic'	To increase the score for this indicator (to 'Basic') requires minimal time and resourcing. Review the risk management policy as soon as possible and include climate change in order to achieve a 'Basic' score for this indicator. Examples of wording for the policy include: "Council recognises that climate change may exacerbate some risks and/or present new risks". Treatment options include undertaking scoping risk studies and improving Council's consideration of climate change in its core governance documents.
transition from 'Basic' to 'Intermediate'	To increase the score for this indicator (to 'Intermediate') Council must specify a response to at least one risk category. Suggestions of wording include: "Council recognises that climate change may exacerbate some risks and/or present new risks" and specify at least one type of risk and how it should be managed. For example, "Council will follow the ISO standard on climate change and infrastructure in its approach to risks to its assets". Treatment options include undertaking scoping risk studies and improving Council's consideration of climate change in its core governance documents. Implementing this action requires minimal time and resourcing.
transition from 'Intermediate' to 'High'	To increase the score for this indicator (to 'High') Council must specify the risk management protocols for all the main direct climate change hazards. This includes sea level rise and coastal inundation (if applicable), erosion, changes to flood risk and heatwaves. Council must specify any standards that are to be followed (e.g. "Council will follow the ISO standard on climate change and infrastructure in its approach to risks to its assets"). Treatment options include undertaking detailed risk studies and improving Council's consideration of climate change in its core governance documents. Implementing this action requires minimal time and resourcing. The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have reasonable scores in the indicators that you need help in improving.
transition from 'High' to 'Advanced'	To increase the score for this indicator (to 'Advanced') Council must review the existing risk policy documents and refine the considerations of climate change to include indirect risks. These include issues associated with finance, lending, insurance, regulatory changes and litigation. Council's risk management policy should align and support a climate change policy (and vice-versa) if one exists. If there is no climate change policy then Council is strongly encouraged to implement one.
maintain an 'Advanced' score	Council has received an 'Advanced' score for this indicator. Achieving this score sees you in the top fraction of Australian local governments for this indicator and you will be in a position to share your journey with other councils seeking to improve their consideration of climate change. To ensure that this indicator maintains at this level Council will need to monitor any new IPCC reports, government regulations and emerging standards which may affect adaptation actions. Furthermore, it will be necessary to ensure that Council maintains sufficient staff capacity and resourcing.

Appendix M: Recommendations for Adaptation Planning (#9)

Action	Recommendation
transition from 'None' to 'Basic'	This recommendation focusses the need for on a Council climate change adaptation strategy (or similar) as a local instrument (not just regional). A detailed local plan ensures ownership and can better align to internal governance and reporting. To achieve a 'Basic' score Council just requires a small exploration into adaptation. This can be an analysis of just one type of risk (e.g. increased flood risk) or for a specific location. A specific location is a good way to commence early steps into adaptation planning. For example, Kingborough Council (in Tasmania) has used Kingston Beach as a Pilot to explore adaptation planning. Observations from the Pilot can then be replicated to other locations and also embedded into formal approaches.
transition from 'Basic' to 'Intermediate'	This recommendation focusses the need for on a Council climate change adaptation strategy (or similar) as a local instrument (not just regional). A detailed local plan ensures ownership and can better align to internal governance and reporting. Improve the adaptation planning score by undertaking a scoping analysis of Council risks, and as a minimum summarise the types of adaptation actions that may need to be implemented. The findings of a scoping assessment may act as a catalyst for other departments (e.g. finance, land use planning) to explore the issues in more detail. A scoping assessment is not resource intensive and can be done in-house. There are a range of tools and information sources that can assist Council (e.g. NCCARF). The most cost-effective approach to this would be to glean information from other councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have an 'Intermediate' score or above in adaptation planning.
transition from 'Intermediate' to 'High'	This recommendation focusses the need for on a Council climate change adaptation strategy (or similar) as a local instrument (not just regional). A detailed local plan ensures ownership and can better align to internal governance and reporting. Improve the adaptation planning score by undertaking a detailed analysis of Council risks and describe the types of adaptation actions that may need to be implemented. Undertake an assessment of community risks, and as a minimum summarise the types of actions that may be required. The findings of a scoping assessment for community may act as a catalyst for other departments (e.g. finance, land use planning) to explore the issues in more detail and encourage conversations with other stakeholders (e.g. utility providers). There are a range of tools and information sources that can assist Council. The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have reasonable scores in the indicators that you need help in improving.
transition from 'High' to 'Advanced'	This recommendation focusses the need for on a Council climate change adaptation strategy (or similar) as a local instrument (not just regional). A detailed local plan ensures ownership and can better align to internal governance and reporting. Ensure that a comprehensive Council adaptation strategy and/or action plan exists (for Council and the community). As a minimum include all of the following: key performance indicators, identified roles and responsibilities, timing for delivery, linked to governance (mainstreaming), includes information from the community, and other key stakeholders. There will be an initial outlay of resources required to achieve this level of adaptation planning (e.g. Undertake climate change risk assessments. Quantify economic, social, environmental and Council assets exposed to risk. Identify, cost and prioritise adaptation actions. Clearly assign roles and responsibilities).
maintain an 'Advanced' score	Council has received an 'Advanced' score for this indicator. Achieving this score sees you in the top fraction of Australian local governments for this indicator and you will be in a position to share your journey with other local governments seeking to improve their consideration of climate change. To ensure that this indicator maintains at this level Council will need to monitor any new IPCC reports, government regulations and emerging standards may affect Councils adaptation actions. Furthermore, ensure that Council maintains sufficient staff capacity and resourcing to maintain the score for this indicator.

Appendix N: Recommendations for Climate Change Policy (#10)

Action	Recommendation
transition from 'None' to 'Basic'	A climate change policy will help ensure Council's method for adapting to climate change is consistent and robust. If council is to implement a climate change policy then it should include all of the following: specific IPCC climate change scenarios it is aligning to (preferably RCP 8.5 as a minimum), identified roles and responsibilities, timing for delivery, triggers for review (e.g. within 6 months of each IPCC assessment report), activities for improving governance scores, (mainstreaming), and commitment to community and/or stakeholder engagement. The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have an advanced climate change policy.
transition from 'Basic' to 'Intermediate'	A climate change policy will help ensure Council's method for adapting to climate change is consistent and robust. If council is to implement a climate change policy then it should include all of the following: specific IPCC climate change scenarios it is aligning to (preferably RCP 8.5 as a minimum), identified roles and responsibilities, timing for delivery, triggers for review (e.g. within 6 months of each IPCC assessment report), activities for improving governance scores, (mainstreaming), and commitment to community and/or stakeholder engagement. The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have an advanced climate change policy.
transition from 'Intermediate' to 'High'	A climate change policy will help ensure Council's method for adapting to climate change is consistent and robust. If council is to implement a climate change policy then it should include all of the following: specific IPCC climate change scenarios it is aligning to (preferably RCP 8.5 as a minimum), identified roles and responsibilities, timing for delivery, triggers for review (e.g. within 6 months of each IPCC assessment report), activities for improving governance scores, (mainstreaming), and commitment to community and/or stakeholder engagement. The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have an advanced climate change policy.
transition from 'High' to 'Advanced'	A climate change policy will help ensure Council's method for adapting to climate change is consistent and robust. If council is to implement a climate change policy then it should include all of the following: specific IPCC climate change scenarios it is aligning to (preferably RCP 8.5 as a minimum), identified roles and responsibilities, timing for delivery, triggers for review (e.g. within 6 months of each IPCC assessment report), activities for improving governance scores, (mainstreaming), and commitment to community and/or stakeholder engagement. The most cost-effective approach to this would be to glean information from other Councils in South Australia or Australia who have participated in an Informed.City™ climate change adaptation governance assessment and have an advanced climate change policy.
maintain an 'Advanced' score	Council has received an 'Advanced' score for this indicator. Achieving this score sees you in the top fraction of Australian local governments for this indicator and you will be in a position to share your journey with other local governments seeking to improve their consideration of climate change. To ensure that this indicator maintains this level keep an eye on how any new IPCC reports, government regulations and emerging standards may affect Council's adaptation actions. Furthermore, ensure that Council maintains sufficient staff capacity and resourcing to maintain this score for this indicator.

Please Note

The same steps are recommended for each score level in the Climate Change Policy indicator. This is because if a policy is to be created from scratch then there is no advantage in creating one that does not include all the attributes of an advanced climate change policy. However, we recognise that Council may only be able to create a policy for one specific element (e.g. due to capacity, resource and political constraints). We stress however that without an advanced policy it will be difficult for the organisation to effectively implement the mainstreaming of climate change.

Climate Planning

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