**Climate change adaptation planning for local government**



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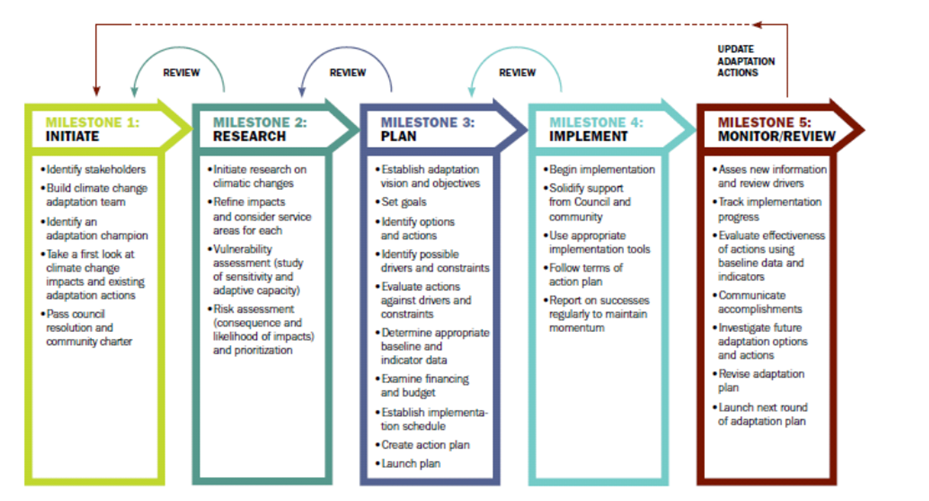
# Developing an adaptation plan

There are many approaches to take when trying to start the adaptation planning cycle, and there are countless adaptation guides/manuals/toolkits that can make the process overwhelming. In an attempt to simplify the steps here are some thoughts to consider when developing a council adaptation plan. By no means is it the best approach, but it is an approach nonetheless, and at some point you need to lock in on an approach, or forever be lost in the labyrinth of adaptation frameworks and theory!

1. **What are your main goals for adaptation?** 
   * It is worthwhile in the outset to have an agreed long term vision for the plan, as well as some goals and adaptation principles. Example visions and principles can be found from other plans and are often similar to each other.
   * The goals however help to set the scope. Adaptation is big and complex, so it can help to identify a focus area for your plan. Is it to build organisational capacity? If so, then the process would need to engage staff widely and may seek to embed climate change risks across different service areas. It may also seek to ensure ownership of risks is adopted by each department, and integrated with service delivery plans.
   * Is it to identify specific adaptation actions?
   * Of course the plan may be both, and this is ideal, but it can help to make the two streams explicit; **building adaptive capacity** and **delivering adaptation actions**.
2. **Identify embedding approach and scope**
   * Will you focus on select service areas, or whole of council approach?
   * Will it focus on council assets, operations and service delivery responsibilities, or look to engage community, industry and other stakeholders?
   * Garner executive support, depending on your council, good to focus on existing impacts and opportunities, and hedge in terms of legal liability and or costs of inaction
3. **Undertake stocktake of adaptation activity and governance capacity within your council**
   * A good place to start is to do a scan of strategies and plans and capture what is already happening. See section 2 for stocktaking suggestions.
4. **Choose method**
   * Will you need to undertake a risk assessment first, or is there enough information to begin adaptation planning? Risk assessments can be a good process for getting buy in from different parts of council, but have their pros and cons.
   * Do you wish to undertake an integrated vulnerability assessment? This requires more resources than a risk assessment, and if a NAGA council could use the existing data from the IRVA and infill where needed with more locally specific data.
   * How will you identify adaptation actions? Through workshops, staff interviews, literature? This is a good chance for further capacity building so should be used as an opportunity to make staff more aware of a) what they are currently doing and what others in the region are doing, and b) how climate change impacts their work area, and c) what they could be doing to reduce these impacts.
5. **Develop plan**
   * From the data collected in workshops/surveys/interviews/lit review, prioritise actions using a prioritisation framework or some other method (see section 3 as an example).
   * Develop implementation schedule; set dates, responsibilities and costings for actions
   * Identify review date
6. **Develop a monitoring and evaluation framework** 
   * This ideally is developed at the beginning of the process, but the M&E framework should aim to track both capacity and actions over time. An M&E framework that may be of use is found at the EAGA website <http://eaga.com.au/wp-content/uploads/MEFramework.pdf>. An M&E framework could focus on the two streams of work; how well has climate change adaptation been mainstreamed

and embedded into council organisational processes, and how well has the plan been implemented and led to action and improved decision making. Measuring adaptation is complex, and a project is underway through the Western Alliance for Greenhouse Action to develop adaptation indicators.

Work to an adaptation planning framework. This is one of my favourites, coming from the ICLEI Canada work, which can be adapted to suit your needs:



# Stock-take of existing adaptation activity

It can be useful to look through each of the major plans for each service area of your council, including the corporate plan and assess whether it is likely to be exposed to climate change impacts or have any influence over climate change decision making.

The following questions could be considered by council staff when reviewing plans and strategies:

1. Does the plan or strategy need to consider climate change?

2. If so, does the plan or strategy already consider climate change in detail?

3. Has the plan considered adaptation response as well as mitigation?

4. Are there strong elements that would be considered adaptation but are not necessarily labelled as a climate change adaptation activity?

5. Are there specific actions beyond simply referring to the risks of climate change?

6. How well integrated throughout the different areas of council is climate change adaptation?

Whilst reviewing the plans/strategies it may be useful to rate according to the following scale or similar:

|  |  |
| --- | --- |
| **Rating description** | **Suggested action** |
| Climate Change well referenced and integrated across multiple service objectives | Identify service areas where integration could be strengthened |
| Climate change mentioned but only as an environmental issue or mitigation issue | Seek to develop concept of climate change to adaptation in future updates/review and pursue integration across other areas |
| No reference to climate change, but includes what could be considered adaptation activities | Likely to need active awareness raising and capacity building across council, seek to engage with key staff in next review and potentially develop an issues brief for your Executive Management Team (EMT) |
| Poor consideration of climate change, where plan does not address key risks or areas of vulnerability in the face of climate change projections, and or is likely to exacerbate adverse consequences. | Needs immediate attention. Likely to need active awareness raising and capacity building across council, seek to engage with key staff in next review and develop an issues brief for EMT |

# Adaptation Response Options

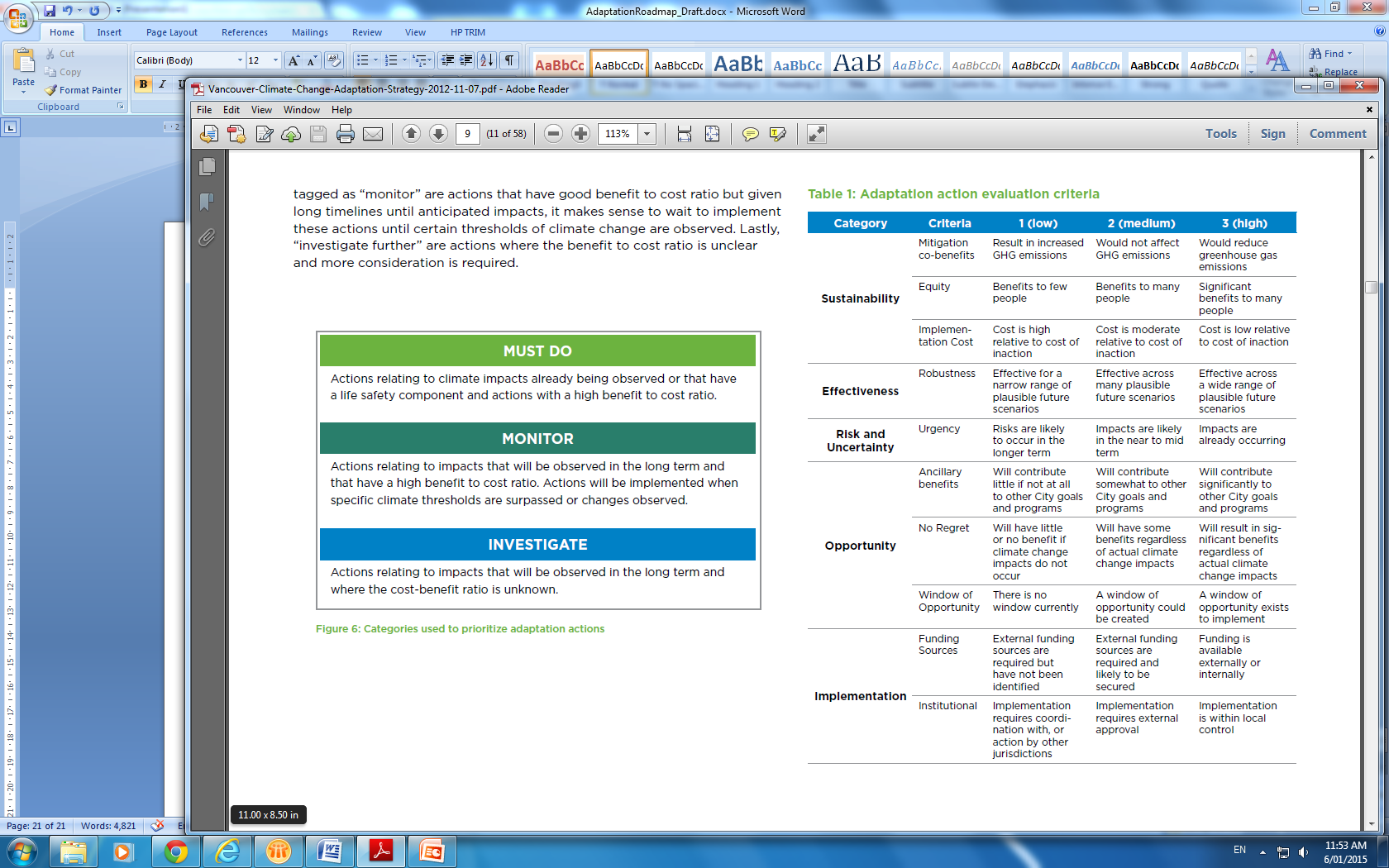
The following is a synthesized collection of adaptation actions/measures for common adaptation objectives. This was compiled from reviewing local government adaptation plans across the country and overseas. This can be useful to gain an understanding of what existing adaptation options are out there when designing your own plan, but also to communicate to different service areas of council.

|  |  |
| --- | --- |
| **Adaptation objective** | **Adaptation measure/action** |
| Improving the resilience of built infrastructure | Conduct a regional council building vulnerability assessment and seek funding for targeted upgrades |
| Undertake buildings resilience upgrade in combination with energy efficiency upgrades to leverage financing mechanisms (eg EPCs) |
| Research life cycle costs and payback periods of different ESD standards for council buildings |
| Continue to advocate through MAV and CASBE for a statewide ESD Policy in the Victorian Planning Provisions |
| Identify network of critical council facilities for potential off-grid renewable energy backup supply during heatwaves and other extreme weather events |
| Conduct training for staff to increase awareness of energy and water use behaviours in identified council buildings |
| Develop a coordinated and consistent ESD policy and guidelines throughout the region for council buildings |
| Advocate for council buildings to showcase best practice sustainable design |
| Develop asset monitoring framework to enable collection of data to establish trends in degradation of assets as a result of climate change |
| Review current council asset management plans, maintenance programs and asset registers to ensure they support robust and effective long term adaptation to climate change |
| Develop a regional asset managers and engineering adaptation to share best practice case studies, excursions and regional forums |
| Develop infrastructure and climate change adaptation guidelines for developers, planners, decision makers (ref: City of Greater Geelong) |
| Work with state government to develop guidelines for standard procedures for asset condition assessment |
| Develop procurement guidelines to encourage suppliers to consider and tender against climate adaptation objectives (ref UKCIP) |
| Develop cool roof research project looking at large roof to volume ratios and that could be painted with reflective white paints |
| Work with Distribution Network Service Providers to identify regional energy initiatives for improving energy resilience and alleviating energy poverty for vulnerable people |
| Develop a regional eastern urban forest/green infrastructure strategy, identifying thermal hotspots, common standards, shared learnings and solutions etc. (ref: Greening the West, City of Melbourne urban forest strategy) |
| Reduce regional urban heat island effect | Work with regional stakeholders to pilot more heat tolerant, permeable and reflective bitumen/pavement materials |
| Conduct regional shade audit for targeted green infrastructure and shading initiatives |
| Review existing development controls for heat island effect, seeking to ensure new developments do not exacerbate heatwaves |
| Review/prepare design guidelines for street furniture, shelters and awnings |
| Promote green infrastructure and shade structures in new council recreational facilities |
| Community education campaign on broad values of street trees |
| Amend existing council procurement requirements to reflect urban design principles that consider extended heatwaves |
| Work with research institutions (eg.Monash/Swinburne Universities) to map thermal hotspots and social vulnerability |
| Conduct regional economic analysis of heatwave impacts in Melbourne’s east, focussing on strip shopping precincts |
| Work with strip shopping businesses to create a business ESD scheme/revolving energy fund for increasing resilience of strip shopping to extreme weather events and heatwaves |
| Improving the adaptive capacity of the local economy | Develop an adaptation network with government agencies, businesses and other stakeholders (ref. Inner Melbourne Network) |
| Develop a business climate toolkit and self assessment checklist for engaging SMEs in the region to build understanding of adaptation (ref: Sefton Council, UK) |
| Design criteria for new transport infrastructure to consider projected climate impacts and guidance for asset managers to incorporate when installing new road or bridge infrastructure |
| Improving the resilience of transport infrastructure | Undertake a cost benefit analysis of new road building technology and additives, taking into consideration changes to the asset life of roads. |
| Work with community to develop community flood response plans |
| Work with regional bodies such as SES and other councils to develop maps which identify roads susceptible to flooding, the location of vulnerable populations and alternative routes to reach these vulnerable populations and other key areas in the case of road closure. |
| Regional downscaled modelling of climate change and associated hydrological projections |
| Improved regional water management | Identify regional opportunities for expansion of stormwater harvesting and reuse |
| Collaborate between councils to identify regional water harvesting/grey water projects |
| Develop standard guidelines for irrigation management and water availability strategies |
| Promote warm season and drought tolerant grass species in sporting grounds and reserves |
| Promote household water energy efficiency and demand management in conjunction with water retailers |
| Work with water bodies to integrate climate change risk responses into regional floodplain management strategy |
| Model using remote sensing pervious and impervious surfaces across the region, and develop strategy for improving the ratio through WSUD |
| Develop standardised reporting system for blocked drains |
| Upgrade sports facilities with more water efficient surfaces and share learnings |
| Promote WSUD at plan making and development assessment stages and minimise hard surfaces such as pavements |
| Undertake an assessment of alternative water quality techniques that can be installed in council owned water catchments to increase turbidity and limit algae growth (eg. Solar powered bee or SunMixeri3) |
| Engage with water quality consultants to adapt monitoring systems for increased extreme heat |
| Consider provisions for movement of biodiversity within a regional urban forest strategy |
| Improved environmental management & biodiversity conservation | Develop a procurement project for regional sharing arrangements of arborists after major storm events |
| Promotion of increased mowing heights and mulching during periods of low water availability |
| Provisions for increased regular maintenance of parks and reserves within council budgets and management plans |
| Adopt a biodiversity monitoring framework to understand the impacts of climate change and develop appropriate responses (ref EAGA Monitoring Biodiversity Monitoring Framework) |
| Develop a community support strategy for biodiversity in extreme weather events such as fire and heatwaves |
| Work together particularly along waterways to manage the increase in weeds as a result of climate change |
| Assist species relocation and/or regeneration |
| Protect migration corridors (e.g. coordinate with other levels of government and private landowners to ensure high connectivity) |
| Develop and invest in seed/gene banks for region |
| Development of state wide material and education for CALD groups around energy efficiency, heatwave preparedness and sustainability. Collating information from all councils to develop clear messages and save resources. |
| Build community adaptive capacity and protecting the vulnerable | Statewide capacity building program for HACC Staff to engage with vulnerable communities on energy efficiency and heatwave preparedness |
| A common strategy approach to deliver meals on wheels during red code days (eg. Councils sharing resources to hire services for delivery of meals on wheels, service trucks etc. |
| Regional solar rates project for facilitating renewable energy uptake on low income households |
| Development of a regional heatwave response action plan |
| Development of a regional heatwave alert system (ref: City of Melb) |
| Review OH&S policies to develop contingencies for accessing vulnerable people in extreme weather and extreme heat days |
| Community education package on storm preparation (eg. clearing gutters and drains) |
| Encourage scheduling of council events to avoid hottest part of day |
| Identify and develop register of vulnerable households to heatwave and storm events |
| Waive/reduce user fees for swimming pools and increase opening hours of council facilities in extreme heat days |
| Engage with primary care providers to ensure climate change is considered in the service delivery planning |
| Development of regional heatwave refuges identifying designated council cooling facilities |
| Improved standardised emergency communications to CALD community and extreme weather (including fire) education programs |
| Improving emergency preparedness and response | Conduct regional emergency preparation exercises consider multiple widespread events |
| Advocate for more funding to emergency service agencies in line with increasing extreme events as a result of climate change |
| Resource (personnel, plant) and information sharing |
| Build a training program for CEOs to build capacity and champion adaptation through collaboration (eg. establish MoU) |
| Building organisational adaptive capacity | Develop adaptation resources/tools and regional events for sharing of knowledge, consolidating best practice case studies |
| Investigate potential liability and insurance issues in relation to climate change and council decision making (particularly land use planning) |
| Continue to review key council policies and plans to consider climate change projections |
| Build staff capacity across council through service area based workshops and online resources |
| Review departmental budgets in light of climate change, and monitor impacts of extreme weather events on service delivery and financial sustainability |
| Consider contingency funding to extend to adaptation activities in annual budgeting processes |
| Review business continuity plans for climate change projections |
| Review financial planning procedures to include monitoring of increased costs as a result of climate change |
| Review of insurance options for better management of assets from natural disasters (ref: ALGA and ICA review) |
| Develop a climate change adaptation staff communications and training program |
| Consider investment opportunities and payback periods when considering long term climate change actions |
| Research on the potential financial impacts of climate change on existing land use planning and estimate costs of inaction versus costs of adaptation |
| Review and update planning policies to incorporate best available climate projections |
| Continue to work with MAV to seek further clarification around roles and responsibilities for local government and state government around adaptation and legal liability issues |
| Work with regional health providers to develop public health education and heatwaves (safer food production and storage etc.) |
| Enhancing regional health and safety | Develop a regional extreme weather event guideline relevant to food safety |
| Develop with other authorities a regional environmental health strategy for long term management of vector and water borne diseases as a result of climate change |
| Review climate risk assessment and update health and wellbeing plans |
| Promote linkages between aged friendly cities and climate change adaptation objectives |
| Regional waste to food project involving redirecting organic waste to be used as compost for local food systems |
| Planning for food security in a hotter drier region | Assessment of regional waste streams and waste to energy feasibility study |
| Identify land holdings for redirected use to local agriculture and community food such as YVW and MW |
| Develop a planning tool with specific checklists and guidelines to help land use planners make better decisions around climate impacts |
| Improving planning decision making | Councils to adopt BESS as a planning tool to help think of adaptation in planning decisions |
| Provide training for planners to understand latest climate change projections as it relates to land use planning |

# Prioritizing reponse options

Numerous prioritisation frameworks are available for determining adaptation responses. One framework which I found particularly useful is the following evaluation criteria from the Canadian Communities Guidebook for Adaptation to Climate Change. Other local governments are working on different prioritization tools, such as the City of Melbourne.

**Table 1: Evaluation criteria for filtering and prioritising adaptation options**



# Useful resources

**Guidance**

A collection of adaptation guides and toolkits can be found here:

[**https://app.box.com/files/0/f/3229017834/Adaptation\_guides\_and\_toolkits**](https://app.box.com/files/0/f/3229017834/Adaptation_guides_and_toolkits)

Some of the more useful guides are:

For a good overview of different approaches to adaptation planning:

* MAV stocktake of current Victorian government local adaptation planning
* Adapting to climate change: A Queensland government guide (I have found this most useful)
* ACELG Climate change adaptation manual (also very useful for embedding ideas)

If pursuing the risk assessment approaches:

* Guide to climate change risk assessment for NSW Local Government
* AGO Climate Change Impacts and Risk Management

If pursuing an integrated regional vulnerability assessment:

* NSW Guide to Integrated Regional Vulnerability Assessment (IRVA) for Climate Change
* LGASA Guidelines for developing a climate change adaptation plan

For decision making guidance:

* RMIT/Net balance adaptation toolkit

**Examples**

Some good examples of local government adaptation plans:

[**https://app.box.com/files/0/f/3242004508/Other\_Adaptation\_Plans**](https://app.box.com/files/0/f/3242004508/Other_Adaptation_Plans)

There are many out there, and good to compare and contrast for what works for your council, but here are a few that I think are quite good and well put together, though it is quite subjective:

* City of Vancouver Adaptation Strategy
* Eyre Peninsula Adaptation Pathways regional plan
* City of Greater Geelong