



WESTERN SYDNEY
UNIVERSITY

FINAL REPORT

INCREASING RESILIENCE TO CLIMATE CHANGE (IRCC) PROJECT:

REVIEW OF LOCAL COUNCIL STRATEGIES
FOR CLIMATE, HEALTH AND WELLBEING
IN THE WESTERN SYDNEY REGION

SEPTEMBER 2021

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Acknowledgement of Country

The Western Parkland Councils are located on the Country of the Darkinjung, Dharawal, Dharug and Gundungurra peoples who we acknowledge as the Traditional Owners of the lands in this region. We recognise that the traditional owners have occupied and cared for this Country over countless generations and celebrate their continuing contribution to the life of this region. We pay our respects to Elders past and present and recognise the strength and resilience of past and present Aboriginal and Torres Strait Islander people in the Western Parklands City region.

Introduction

Background

Living with the impacts of a changing climate is one of the greatest challenges to public health (Watts et al., 2021). Climate impacts such as heat waves, air pollution and biodiversity loss pose health risks that have a significant social and economic burden (Climate and Health Alliance, 2017). Like many places internationally, the Western Sydney Region has been hit by climate impacts with a succession of natural disasters such as bush fires, flood, and drought. These impacts have been amplified by the COVID-19 pandemic, which has highlighted the importance of urban design in health prevention and promotion. These impacts place additional pressures on the planning system in the Greater Sydney area, which is grappling with the needs of a rapidly changing population (e.g., culturally diverse, aging, growing health inequities). The climate impacts experienced in Western Sydney have emphasised how the health of the environment and human health and wellbeing are inextricably linked and that a long-term approach to planning in this region is essential for reducing climate risks and promoting public health.

The importance and urgency of creating sustainable healthy urban environments that reduce climate risk and support human health and wellbeing is well recognised internationally (UN-Habitat and World Health Organization, 2020); however, there remain significant challenges to achieving this in the Western Sydney Region. Being able to effectively address the impact of climate on health requires consideration of the complex systems within built and natural environments (e.g., housing, transport, food, education, healthcare, biodiverse ecosystems) and how they interrelate (UN-Habitat and World Health Organization, 2020). This complexity is a key challenge requiring interdisciplinary collaboration across multiple sectors, such as built environment and health professionals, academics, policy makers, and government and non-government organisations. Creating healthy places also requires policy and processes that support these collaborations and prioritise health and wellbeing at the state and local government level. Divergent and convergent dynamics between stakeholders (individuals, professionals, organisations) responsible for urban planning and health, and government structures, policies, and process present additional challenges and opportunities for developing and implementing healthy and sustainable planning strategies (Freestone & Wheeler, 2015).

There is some collaboration occurring between various sectors, yet there remains a disconnect between planning and health in the Sydney region. While planners and other built environment professionals understand the importance of and impact of planning on public health and the environment (Morrison et al., 2021), reference to health considerations within Sydney local council planning policies tends to be implicit rather than explicit (Hirono et al., 2017). There are also state planning policies that can override local policy. Growth focused planning policies, such as the *Greater Sydney Region Plan: A Metropolis of Three Cities* (Greater Sydney Commission, 2018), can make it challenging for local councils to address health and wellbeing impacts from climate risk. Conversely, growth planning policies can also present opportunities for creating healthy cities.

The *Western Parkland City*, conceptualised in the Greater Sydney Region Plan, spans eight Local Government Areas in the Western Sydney Region (Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith, Wollondilly) and is one of the fastest growing areas in Australia (Morrison and Van Den Nouweland 2020). The *Western Sydney City Deal* is a partnership with the Australian Commonwealth and NSW State Government, the eight Western Parkland Councils providing a platform to “deliver transformative change to shape the region to become an epicentre for liveability in Sydney” (The Department of Infrastructure, 2020). The Western Sydney Health Alliance (WSHA) has been established as deliverable L5 Liveability under the Western Sydney City Deal (WSHA, 2021). The WSHA is a collaboration with the eight Western Parkland Councils and health sector organisations; South Western Sydney Local Health District, Nepean Blue Mountains

Local Health District, Nepean Blue Mountains Primary Health Network, South Western Sydney Primary Health Network, and Sector Connect. This collaboration allows these organisations to learn from each other and develop actions to improve local resilience to a changing climate. The Western Parklands City and the work of the WSHA across government agencies within that region presents an unprecedented opportunity for innovation to improve health and wellbeing and share knowledge among the Local Government Areas (LGAs), and across NSW and beyond. The Western Parklands Councils are the focus of this report.

The Framework for a National Strategy on Climate, Health and Well-being (Climate and Health Alliance, 2017) has identified seven key policy areas to assist all sectors to reduce climate risk, increase community resilience and address the determinants of health and wellbeing:

1. Health-promoting and emissions-reducing policies
2. Emergency and disaster-preparedness
3. Supporting healthy and resilient communities
4. Education and capacity building
5. Leadership and governance
6. A sustainable and climate-resilient health care sector
7. Research and data

This Framework can further support the collaboration within the WSHA and between the health and planning sectors across NSW and Australia to addressing climate risk and health impacts.

Purpose and objective

This Local Government NSW funded project focusses on identifying how local councils in the Western Parkland City have addressed climate risk and resilience within their policies and plans, and uncovering the barriers and enablers of planning, implementing, and evaluating climate risk and resilience strategies within the Western Parkland City.

The intent of this research is to inform the development of guidance and tools to assist the development and implementation of strategies and action plans to reduce the impact of climate on health and wellbeing across the Western Parkland City. The project used the wide local council networks of the WSHA to ascertain if policy action areas identified in the Framework for a National Strategy on Climate, Health and Wellbeing (Climate and Health Alliance, 2017) could be translated into local council and health service strategies and action plans across the Western Parkland City region.

Research Methods

The research entailed in-depth document analysis and stakeholder interviews, with the aim of developing a detailed understanding of climate and health impact mitigation and adaptation across the region. The focus was on the professional and organisational processes used by local councils, local health districts and primary health networks when planning, implementing, and evaluating climate and health resilience policy and strategies.

The investigation focused on the policy action areas identified in the Framework for a National Strategy on Climate, Health and Well-being (Climate and Health Alliance, 2017), see Appendix 1. The framework provides benchmarks for directions and opportunities to enable collaboration across multiple sectors and portfolios in addressing climate resilience and its impact on health.

Document analysis

A document audit of relevant publicly available council policies and planning documents was undertaken. This analysis aimed to identify how current council policies and strategies are

addressing climate risk and resilience and the impact on community health and wellbeing. The analysis also aimed to identify the drivers, gaps and would demonstrate what is required to inform climate and health resilience work of the Western Parkland Councils (i.e., Blue Mountains City Council, Camden City Council, Campbelltown City Council, Fairfield City Council, Hawkesbury City Council, Liverpool City Council, Penrith City Council, and Wollondilly Shire Council). The council documents reviewed in this research were core plans and strategies developed by Councils as part of the regulatory and legislative responsibilities, and related guidance documents informed by these core plans and strategies. Each document is an opportunity for climate risks and health impacts, and sustainability strategies to be clearly articulated and influence the business of councils including Local Strategic Planning Statements, Local Environmental Plans, Development Control Plans, Community Strategic Plans, Operational Plans, Delivery Plans, and other strategic planning and development policies. See Appendix 2 for a summary of the documents reviewed for each council.

Interviews

Participants

Interviews were conducted with key stakeholders (N = 22) who had a key role in the planning, implementation, or evaluation of community health and wellbeing and climate risk and resilience strategies within each of the eight Western Parkland Councils). Table 1 details the number of participants per council.

Table 1. Participant professional characteristics

Council	Number interviewed	Area/s of responsibility
Blue Mountains City Council	3	<ul style="list-style-type: none"> • Community/library services • Community resilience • Sustainability • Strategic planning • Waste management
Camden Council	2	<ul style="list-style-type: none"> • City Deal • Sustainability
Campbelltown City Council	3	<ul style="list-style-type: none"> • City strategy • Natural areas management • Resilience planning
Fairfield City Council	4	<ul style="list-style-type: none"> • Catchment management • Catchment planning • Land use planning • Sustainability • Traffic and asset management
Hawkesbury City Council	3	<ul style="list-style-type: none"> • Community planning and partnerships • Strategic planning • Sustainability
Liverpool City Council	1	<ul style="list-style-type: none"> • Urban design
Penrith City Council	3	<ul style="list-style-type: none"> • Social strategy • Strategic planning • Sustainability and resilience

Council	Number interviewed	Area/s of responsibility
Wollondilly Shire Council	3	<ul style="list-style-type: none"> • Community outcomes/services • Parks and gardens management • Strategic planning • Water and catchment management

Recruitment and data collection

Stakeholders were recruited purposively based on their role in the planning, implementation, or evaluation of community health and wellbeing and climate risk and resilience strategies in local councils within the Western City Parkland area. City Deal Lead Officers from each of the councils were contacted by the Project Coordinator who nominated eligible participants based on their role within the organisation. Participants did not receive an incentive for participating.

A semi-structured interview guide using open-ended questions (see Appendix 3) was used with probing questions as needed to encourage richer responses. Two researchers conducted the interviews.

Data analysis

Interviews were professionally transcribed and deidentified. The research team imported transcripts into NVivo 12 to code and organise the data.

We systematically developed themes across the deidentified data. Key themes and their descriptions were identified a-priori to meet the analytic objectives of the study. Against these a-priori categories, additional findings were developed to provide a more nuanced description. Thematic definitions and categories were revised as links between concepts were developed. Themes were checked against the data throughout the analysis.

Results

Document analysis summary

146 council documents across the eight councils, and four documents from two local health districts were reviewed. See Appendix 2 for a summary of the documents reviewed for each council and local health district. The findings are presented as key findings reflecting the themes that occurred across the council documents, and as summaries of each council's core planning documents (see Table 2).

Table 2. Document analysis summary

Blue Mountains City Council	
Local Strategic Planning Statement	<p>Blue Mountains City Council (BMCC) illustrates a strong commitment to the sustainability of the natural environment in their LSPS (Blue Mountains City Council, 2020a). Importantly, they employ a planetary health approach to the future conditions of development. This unique understanding of development practices highlights the need to recognise the interdependence between natural and human systems. BMCC places hard limits on future expansions and urban growth as they have a significant part of their land listed as a World Heritage listed National Park. Thus, BMCC has a clear focus on the need increase environmental sustainability within their LGA.</p> <p>Furthermore, BMCC have developed a strong recognition of the need for increasing community resilience to risks from bushfires. This is due to a significant number of suburbs being in proximity to dense bushland. Despite the relatively small urban area as compared to other Council’s researched, there also remains a strong commitment to addressing urban heat.</p> <p>BMCC highlights the importance of increasing the ability for the community to walk or ride within their LGA. They recognise the benefits this can bring to mental and physical health. Furthermore, the Council also has developed a Community Garden Policy and has stated the role of the Western Sydney Health Alliance as a significant collaborator in improving health and wellbeing to the community.</p>
Local Environmental Plan	<p>The BMCC Local Environmental Plan (Blue Mountains City Council, 2015b) is quite unique as it provides a large array of additional controls for developments to consider. This is primarily demonstrated through the LEP’s aims which promote active transport, sustainable development, and limit a building’s exposure to bushfire risks. Further additions and clauses include:</p> <ul style="list-style-type: none"> • Sustainable resource management clause • Clause regarding dwelling houses on land in Zone E2 • Riparian Lands and Watercourses Map • Scenic and Landscape Values Map • Natural Resources- Biodiversity Map • Natural Resources- Land Map <p>This can be explained through the BMCC’s commitment to environmental preservation and protection.</p>
Development Control Plan	<p>Unlike most other DCP’s reviewed, the BMCC’s DCP (Blue Mountains City Council, 2015a) strongly demonstrates requirements for developments to consider bushfire risks. The Blue Mountains DCP provides a definition for Ecologically Sustainable Development which introduces the idea of inter-generational equity to development considerations. Interesting the UHI effect is mentioned in this DCP within the landscape section. Standard controls regarding landscape management and building on contaminated lands are also included. However, they do not explicitly refer to improving the health and wellbeing on individuals. The term resilience in this document refers to the recovery of an ecosystem. This shows how the same word can have different meanings to different departments within the same council.</p>

Blue Mountains City Council

Community Strategic Plan

The BMCC CSP (Blue Mountains City Council, 2017a) promotes the idea of a vibrant, healthy, and resilient city. BMCC states that ‘better health for all is promoted through preventative action and early intervention, provision of accessible local health services and through supporting people to live active healthy lifestyles’ (Blue Mountains City Council, 2017a, p. 36). Health in this plan predominately refers to the access to health services and providing resources which meet the needs of residents. This Plan also shows a commitment to bushfire preparedness, planning for community resilience to natural hazards and increasing access recreational and sporting activities.

Environmental Plans (Sustainability/Resilience)

BMCC have developed numerous environmental plans and endorsed environmental ideas which address sustainability and resilience. These include:

- Water Sensitive Blue Mountains Strategic Plan (Blue Mountains City Council, 2019)
- Waste Avoidance and Resource Recovery Strategic Plan 2017-2021 (Blue Mountains City Council, 2017c)
- Street Tree Masterplan
- Carbon Abatement Action Plan
- Rights of Nature Principles

These plans prioritise the need to reduce greenhouse gas emissions to create more liveable communities. This is prominently understood though the need to improve Council assets and operations. However, there is little mentioned on the direct benefits these will bring to improving community health or the recognition of the impact of climate on vulnerable communities. This could be attributed to the fact that these documents were primarily published around the mid 2010’s, where health and planning often remained in separated spheres of governance.

Furthermore, BMCC strongly promotes the need for residents to create a Bushfire Survival Plan. The Council, in conjunction with the NSW Rural Fire Service provides strategies and awareness around being prepared during a bushfire. This again shows how BMCC is committed to increasing the resilience of their local community in response to climate risks.

Rights of Nature

In addition, BMCC is the first Council in Australia to adopt the Rights of Nature principles. These principles aim to ‘to ensure a safe and healthy future for our planet by encouraging humanity to reorient its relationship with nature, from an essentially exploitative one, to one that recognises the importance of all life on earth’ (Blue Mountains City Council, 2021). As a result, these principles will be incorporated into all current and succeeding plans and operations. This further shows BMCC’s commitment to environmental preservation and sustainability.

Blue Mountains City Council

Social Plans (Recreation/ Health)

With the social plans developed by BMCC, broad statements about community health benefits are showcased within their aims and executive summaries. The strategies analysed included the:

- Creative Strategy 2020-2027 (draft) (Blue Mountains City Council, 2020b)
- Blue Mountains Bike Plan 2020 (Blue Mountains City Council, 2016)
- Blue Mountains Pedestrian Access & Mobility Plan 2025 (Blue Mountains City Council, 2016)
- Open Space and Recreation Strategic Plan 2018–2028 (Blue Mountains City Council, 2018)
- Disability Inclusion Action Plan 2017-2021 (Blue Mountains City Council, 2017b)

The Blue Mountains Bike Plan 2020 highlights the health benefits that cycling can have. This includes, improved physical activity levels with a reduction of diabetes and obesity rates, a decrease in public health costs linked with physical inactivity and a reduction in greenhouse gases due to less car trips. In addition, in their pedestrian strategy BMCC acknowledges the health challenges in their LGA, including higher rates of chronic illnesses diabetes, breast cancer, higher socio-economic inequalities which can lead to poorer health outcomes and an increasing number of older individuals.

This focus on community health is further reiterated in their Open Space and Recreation Strategic Plan 2018–2028 which provides the benefits that physical activity can have on community health. As a result, numerous actions were developed in these plans which include providing walkable neighbourhoods, and increasing connected paths, opportunities for active recreation and access to sporting facilities. However, there remains a lack of attention given to climate risks within these plans and the role they play in impacting resilience to community health and wellbeing.

Statement of Recognition and Commitment

Furthermore, BMCC have released a Statement of Recognition and Commitment (Blue Mountains City Council, 2021), which will be used to address Aboriginal and Torres Strait Islander reconciliation and caring for Country. This will then be implemented across numerous strategic plans.

Development Plans (Economic/ Centres)

The development and economic plans identified from this study, echo the points raised in the social plans. This includes the promotion of health and wellbeing through active transport and recreational and sporting facilities. Furthermore, health is primarily understood in its role in contributing to the economy. However, like other development plans there remains a strong emphasis on economic sustainability with little attention given to climate risks, except for bushfires. Furthermore, BMCC receives a considerable amount of revenue from tourism which can take priority away from understanding the role of community health.

Camden Council	
Local Strategic Planning Statement	<p>Camden Council’s LSPS (Camden Council, 2020a) echoes many of the points raised in the LSPS’s of the other Western Parkland City Local Councils. There is the common understanding of the need to improve the health and wellbeing of the community and reduce the impacts from climate risks. Camden Council highlights the importance of healthy placemaking principles. This includes increasing walkability which in turn can increase levels of physical activity which provides health benefits for individuals. The Council also states, ‘Co-locating health and social services within town centres improves and encourages access to these services which can lead to the prevention of, and early intervention in, serious health conditions.’ (Camden Council, 2020, p. 46). Camden also highlights that these services can reduce social isolation in new greenfield communities.</p> <p>Camden Council highlights the need to protect green and blue grids. The Council emphasises the benefits that these grids can have including increasing walking and cycling connections and reducing the impacts from urban heat. Camden Council’s states that considerations should be undertaken for vulnerable people in their community regarding how they could be impacted by urban heat. These include elderly individuals, people with health conditions or have restricted mobility. Camden Council then illustrates ways to combat this issue of urban heat through numerous actions. For example, they state how urban farming, including rooftop and community gardens can combat this issue. The Council’s understanding of these environmental dimensions can be contributed from the influence of the State Government with their focus on preserving green grids and setting tree canopy targets.</p> <p>In addition, there is also the recognition of the need to improve resilience to hazards and extreme weather. This includes adapting to bushfires, floods, and heatwaves. Importantly, the term resilience is more often used to describe climate risks and environmental hazards.</p>
Local Environmental Plan	<p>The Camden LEP (Camden Council, 2010) provides overarching aims which address climate risks and health. These include the need:</p> <ul style="list-style-type: none"> • (b) to ensure that new communities are planned and developed in an orderly, integrated, and sustainable manner and contribute to the social, environmental, and economic sustainability of Camden... • (d) to minimise the impact on existing and future communities of natural hazards such as bush fires and flooding... • (k) to provide for a built environment that contributes to the health and wellbeing of existing and future residents of Camden’ (NSW Government, 2021). <p>However, there are little considerations given to environmental dimensions in these development controls. This includes a current lack of maps which show areas of environmental protection.</p>
Development Control Plan	<p>Like other DCP’s, the Camden DCP (Camden Council, 2019a) primarily focused on planning controls for vegetation management, mitigating flood and bushfire risks and providing requirements for building on contaminated lands. Little attention is given to community health or wellbeing.</p>

Camden Council	
Community Strategic Plan	One of the key directions for the Camden CSP (Camden Council, 2017) is in creating a 'Healthy urban and Natural Environment'. This is also in line with creating 'An Enriched and Connected Community'. There remains a strong environmental focus on sustainability through managing growth and preserving the natural environment. However, within this Plan these broad statements do not always substantially equate to detailed strategies which directly aim to strengthen community health. In addition, there is little attention given to climate risks such as flooding and bushfire.
Environmental Plans (Sustainability/ Resilience etc)	<p>Camden Council have developed a few plans and strategies which address the environmental dimension. These include:</p> <ul style="list-style-type: none">• Sustainability Strategy 2020-24 (Camden Council, 2020d)• Local Biodiversity Strategy Camden Local Government Area (Camden Council, 2013)• Waste Management Guideline (Camden Council, 2019b)• Built for Comfort Design Guide (Camden Council, n.d.) <p>These plans have primarily focused on the environmental sustainability of natural ecosystems. Their Sustainability Strategy provides the most detail regarding the need to recognise the need to increase sustainability. This includes increasing community awareness, improving the sustainability of Council operations, developing design guides which promote sustainable communities and improving resilience to the impacts of climate on health and wellbeing. Their strategies cover a variety of aspects which incorporate the need to expand current programs, development additional strategies, and reviewing planning controls.</p>

Camden Council

Social Plans (Recreation/ Health)

Spaces and Places Strategy

Camden Council's Spaces and Places Strategy (Camden Council, 2020c) brings to light the benefits that social infrastructure can have on health. Camden Council (2020c, p. 18) states that social infrastructure can create:

Opportunities to interact with nature can provide positive mental health benefits for children, young people, and adults, including minimising anxiety and stress

Spaces for physical activity, including walking, cycling, team sports and other recreational activities can improve the physical health and wellbeing of communities.

They also state that social infrastructure will be:

- Encouraging social equity by providing access to services and facilities to all members of the community regardless of age, gender, socio-economic status, ethnicity, or ability
- Providing opportunities for social interaction which is critical for creating and maintaining community cohesion

As this strategy was endorsed in 2020, it demonstrates a significant shift in Council's focus through a recognition of its role in improving community health and wellbeing. However, this strategy does not fully explore the role that climate risks can have on use of this social infrastructure and how that can impact on physical and mental health.

Camden Disability Inclusion Action Plan

Within their Disability Inclusion Action Plan there is a strong commitment through the creation of liveable communities. This is primarily understood through the implementation of universal design. However, along with all Councils researched, less focus is given towards the health impacts from climate risks on people with disabilities.

Camden Council

Development Plans *Local Housing Strategy (draft)*

(Economic/Centres)

Camden's draft Local Housing Strategy (Camden Council, 2020b) provides an in-depth exploration and recognition the importance of increasing the health of the community through the built environment. This includes an understanding of the role Council can have in reducing certain lifestyle diseases. This is clearly encapsulated through the quote:

The built environment influences both individual and community health and wellbeing. Good access to safe, connected streets linked to services, green open spaces and shared community facilities promotes walking and cycling, and generates positive mental health outcomes through enabling social interaction and increasing exposure to nature. The shape of the urban landscape affects the prevalence of many lifestyles and chronic diseases, including obesity, type 2 diabetes, and heart disease (Camden Council, 2020, p. 75).

As the Camden LGA is expected to receive significant growth over the next decade, their Local Housing Strategy will help strengthen the resilience of current and future communities. This is further demonstrated through Priority Action 13 which aims to improve access to walkability to improve the health of future neighbourhoods. The Western Sydney Health Alliance is mentioned as a key stakeholder in this process. When Camden Council's Local Housing Strategy comes into effect it will cement Council's role in improve resilience and community wellbeing.

It also needs to be stated that there remains the dominance of the economic directions within this plan and other. This can then divert the Council's priorities in improving community health and resilience to climate risks.

Campbelltown City Council

Local Strategic Planning Statement

Campbelltown City Council (CCC) promotes the need for ensuring sustainable development in their LSPS (Campbelltown City Council, 2020). The Council will take a leadership role in their approach to supporting and enhancing their natural environment and sustainability of their community. CCC has developed the numerous sustainability planning priorities which aim to not only protect the natural environment but also enhance it. Furthermore, there is the awareness of the need manage the use of finite resources, which includes the preservation agricultural land and the need for more sustainable waste management. These planning priorities seek to use innovative technologies to improve environmental sustainability and ensures that best practice occurs for developments.

In addition, CCC emphasises the need to adapt to the impacts of climate on health and wellbeing. There is the understanding of climate hazards such as bushfire, floods, and heatwaves. The UHI effect is stated as a significant issue and there is the need to mitigate its impacts. CCC provides an extensive list of recommendations and actions to combat these climate issues. Their actions primarily revolve around altering planning controls, increasing incentives for UHI management strategies in development, implementing an Urban Forest Strategy and updating strategic plans to incorporate climate risks. CCC also undertook a Heat Study Project, and their findings were included in this report. There is a significant recognition on how urban heat can impact vulnerable populations including, elderly individuals, babies, and people with chronic illness or who are disadvantaged. Overall, CCC highlights the impacts that climate risks are having on their LGA and on community health and provide a detailed and thorough list of actions to combat these challenges.

The GSC have also worked in conjunction with CCC to create the Campbelltown- Macarthur Place Strategy, under the principles of the GSC which include connectivity, liveability, productivity, and sustainability. This strategy identifies the need to increase walking and cycling, create a lively city centre that promotes health and wellbeing, develop a blue-green grid strategy, reduce urban heat, and create an Urban Heat, Air Quality and Population Health Strategy and Management Plan. Within the productivity section there is the recognition of need for collaboration between health districts, universities, and Council in reducing health issues of the region including, ‘diabetes, mental health, Indigenous health, paediatrics and cancer’ (Greater Sydney Commission, 2020, p. 38). This Plan provides a wide variety of strategic objectives for this area; however, as it was recently adopted, it remains to be seen how the implementation of these objectives takes place.

Local Environmental Plan

The Campbelltown LEP (Campbelltown City Council, 2015b) promotes sustainability and wellbeing, primarily through their aims. These aims state:

- (a) to provide a comprehensive planning framework for the sustainable development of all land in Campbelltown...
- (l) to conserve and enhance the environmental, scenic and landscape values of land in Campbelltown...
- (m) to maintain, protect and improve the natural environment including biodiversity and water resources...
- (q) to foster environmental, economic, social, and physical well-being so that Campbelltown develops as an integrated, balanced and sustainable city (NSW Government, 2021).

The Campbelltown LEP also provides additional restrictions on where exempt and complying development can take place. Furthermore, their LEP provides clauses on the preservation of the natural environment and on flood planning. There is also a Terrestrial Biodiversity Map.

Campbelltown City Council	
Development Control Plan	The Campbelltown DCP (Campbelltown City Council, 2015a) aims to encourage better development throughout the LGA through sustainable building design. Their DCP supports the idea of creating a built form that supports the wellbeing of the community and residents. Like most other DCP's reviewed there is little attention given to climate risks and health.
Community Strategic Plan	The Council's CSP (Campbelltown City Council, 2017a) aims to support their communities, protect natural biodiversity, visual landscapes, heritage values, and recognises the importance of creating a sustainable and resilient communities for future generations. The Council aims to ensure that development in their LGA is sustainable and resilient. As part of the 100 Resilient Cities initiative, CCC have identified pressures that the LGA faces which include a need to reduce housing unaffordability and the rates of chronic illnesses.
Environmental Plans (Sustainability/Resilience)	<p><i>Sustainability Strategy</i></p> <p>CCC's Sustainability Strategy (Campbelltown City Council, 2015c) demonstrates an understanding of the need to increase sustainability in relation to the quadruple bottom line. CCC highlights the need for sustainable energy and water consumption, sustainable waste management and land management. There is also the need to support sustainable communities. Their aims of this strategy include promoting food security with access to locally grown produce, investigating the inclusion of community gardens, and to develop and facilitate sustainability workshops for the community.</p> <p>There is also the recognition of sustainable transport which can reduce air pollution, thus improving air quality and providing health benefits. Cycle connectivity through the LGA is also a major goal of CCC. Sustainability of Council functions and activities is also heavily promoted through this strategy. This includes the promotion of sound governance and leading sustainability initiatives by example. Education of council officers and the community is also given considerable attention. This is strengthened by their Environmental Education Strategy.</p> <p>Furthermore, CCC is currently developing a Resilient Campbelltown Strategy which aims to strengthen the resilience of the community. This will be developed in relation to the 100 Resilient Cities initiative, which many Councils in Sydney have joined.</p>

Campbelltown City Council

Social Plans (Recreation/ Health)

Sport and recreation strategy

Campbelltown's Sports and Recreation Strategy (Campbelltown City Council, 2017b) has provided a detailed plan for future development of their LGA to include recreation spaces, parks, and community facilities. This is all to create new opportunities to engage with a healthy lifestyle. These objectives aim at improving mental and physical health through the provision of open spaces and opportunities to connect with the local community. This Plan will provide opportunities for all individuals, 'regardless of age, gender, culture, income or physical ability' (Campbelltown City Council, 2017, p. 3). However, there is little recognition of the impacts of climate on health and wellbeing regarding the community's access to sports and recreation centres.

Campbelltown Bicycle Plan

CCC has also provided a comprehensive strategy to encourage cycle transport (Campbelltown City Council, 2010). This is an attempt to replace car-based trips with active transport in their LGA. Their aims to create a bicycle network are rooted in the provision of a safe, healthy, and attractive environment for all uses. This document stressors the importance of understanding broader global climate trends, primarily through the need to reduce greenhouses gases and the reliance on liquid petroleum. There is little understanding of how urban heat and climate stressors could discourage cycling or impact human health.

Development Plans (Economic/Centres)

Campbelltown's Economic Development Strategy heavily focuses on key economic centres and job targets. There is little consideration for environmental impacts and climate risks. Health and wellbeing remain vague and up to interpretation within this Strategy.

The Reimagining Campbelltown City Centre Master Plan illustrates Council led actions from the Campbelltown-MacArthur Collaboration Area document. This Plan demonstrates that with the growth in population within the region, there is the need to support the health industry. Providing green spaces which encourage healthy lifestyles, enhancing waterways, reducing urban heat through a low carbon and waste future are all supported in this document. There is also the need to encourage passive recreation to increase physical and mental wellbeing.

Fairfield City Council	
Local Strategic Planning Statement	<p>Fairfield City Council’s (FCC) LSPS (Fairfield City Council, 2020) presents a general knowledge of the impacts of climate risks and the need to improve sustainability within their LGA. Their Statement highlights numerous elements and processes which should be altered to protect the natural environment and promote community wellbeing. The Council has designed holistic approach to strategic planning to achieve environmental outcomes for their local area. With this broader approach, the recognition of health impacts from climate risks and the creation of healthy communities becomes vague. This then can lead to actions which can be easily misinterpreted.</p> <p>Environmentally, FCC demonstrates the need for protecting natural environments and landscapes as well as adapting to climate risks, including urban heat. This can be achieved through increasing tree canopy cover, developing Public Domain Plans, and amending planning controls in the LEP and DCP. However, there remains the strong focus on economic development and urban expansion.</p>
Local Environmental Plan	<p>The Fairfield LEP (Fairfield City Council, 2013b) provides adequate controls for environmental conservation but provides minimal to no recognition of the impacts of climate on health and wellbeing. Their LEP provides additional clauses on terrestrial biodiversity, riparian land, and watercourses (with supporting maps) as well as flood planning.</p>
Development Control Plan	<p>Fairfield DCPs’ (Fairfield City Council, 2013a) aim to encourage better development throughout the LGA whilst also preserving the community's lifestyle and enjoyment of town centres and neighbourhoods. The term “climate change” is often thrown into the objectives for landscaping requirements. However, it is unclear how such developments would specifically implement these objectives into their design. Furthermore, there is little given to improving community wellbeing.</p>
Community Strategic Plan	<p>FCC’s CSP (Fairfield City Council, 2012) aims to increase community's resilience to the impacts of climate on health and wellbeing within their local area. A strong focus on community wellbeing is demonstrated in this plan, primarily through supporting active and healthy lifestyles. This is supported through a detailed approach to environmental sustainability and the need to reduce their ecological footprint. The strategies in their CSP again remain quite broad in nature. For example, FCC states they will ‘Monitor temperature changes and impacts on community health’ (Fairfield City Council, 2012, p. 33). However, there is little understanding of how this will be accomplished.</p>
Environmental Plans (Sustainability/ Resilience etc)	<p>FCC provides both a Stormwater Management Policy (Fairfield City Council, 2017) and Fairfield Biodiversity Strategy. These documents provide a detailed understanding of sustainability, within their respective professional areas. However, there is little recognition of the impacts of climate on community health and wellbeing.</p>
Social Plans (Recreation/ Health)	<p><i>Fairfield Open Space Strategy</i></p> <p>Fairfield’s Open Space Strategy (Fairfield City Council, 2007) is primarily understood through a developer contributions framework. The provision of open space for recreation is broadly linked with the creation of healthy communities.</p>

Fairfield City Council

Development Plans (Economic/Centres)

The Fairfield Economic Development Strategy 2019 Update (Fairfield City Council, 2019) and the Fairfield City Centres Policy (Fairfield City Council, 2015) provides little in the way of integrating climate risks into economic realm. Health is primarily defined as a healthy economy or through reference to improving the health sector, economically. The Western Sydney Health Alliance was also mentioned in the economic strategy.

Rural Land Study

FCC's Rural Land Urban Investigation Area aims determine how future urban expansion will take place (Fairfield City Council, 2018). As it is early in development there has been little in the way of reducing climate impacts or improving community health and wellbeing. However, significant green corridors will be protected. While not explicitly stated, this can then in turn provide community benefits.

Hawkesbury City Council	
Local Strategic Planning Statement	<p>Hawkesbury City Council’s (HCC) LSPS (Hawkesbury City Council, 2021a) provides a broad understanding and recognition of the need to create healthy urban environments. The Hawkesbury LSPS focuses its attention of adapting to climate risks and stressors such as floods and bushfire. They state, ‘Adapting to climate change and mitigating the impacts of urban heat is crucial for the Hawkesbury’s future resilience to natural hazards and managing the impacts on human health.’ (Hawkesbury City Council, 2021, p. 82). They go on to emphasise that the higher number of heat waves can have significant impacts on vulnerable population such as elderly individuals and people with health conditions.</p> <p>Their action plan revolves around continuing to advocate for community preparedness, adopting climate risks and sustainability strategies, along with an urban tree strategy. HSC have taken these factors in determining where future urban growth takes place. This is to make sure that these development areas are not in significant flood or bushfire prone lands. This shows a sense of urgency to address climate risks and to build resilience in the community.</p> <p>Interestingly, HCC highlights a significant institutional barrier to the implementation of these sustainability strategies. They state that Council’s financial capacity and their ability to advocate for these strategies may limit their ability to implement them. This type of honest understanding demonstrates one of the barriers to implementation that can be applied to other local councils reviewed. It reveals that some actions and objectives these strategic plans may not be implemented, as it can often come down to the prioritisation of resources and funds. This also shows the potential variation in available funds and resources between the eight local governments researched.</p>
Local Environmental Plan	<p>The Hawkesbury LEP (Hawkesbury City Council, 2012) shows a commitment to ecologically sustainable development as well as strong considerations in relation to building on bushfire and flood prone lands. In addition, they also provide both a Terrestrial Biodiversity Map and a Wetlands Map. However, little is provided in the way of improving health and wellbeing of the community.</p>
Development Control Plan	<p>The Hawkesbury DCP (Hawkesbury City Council, 2002) is one of the oldest DCP’s still in use of the eight local government researched. While being endorsed in 2002 it has had numerous amendments and alterations since that date. However, the age of the document may reflect the thinking of climate risks at the time. While there is the promotion of Ecologically Sustainable Development and need for protection of the natural environment, there is little attention given to issues such as urban heat or the impact of the built environment on human health. It also must be stated that there are in the process of revising their DCP.</p>
Community Strategic Plan	<p>The mission statement for the Hawkesbury CSP is, ‘Hawkesbury City Council leading and working with our community to create a healthy and resilient future.’ (Hawkesbury City Council, 2017a, p. 4). This is supported by the key directions of the Strategy. These directions emphasise the need to facilitate active lifestyles by promoting sporting and recreation activities in the community. There is also the need to support disadvantaged groups by providing additional services and facilities. There is however a lack of recognition of the need to manage climate risks and their impacts on health.</p>

Hawkesbury City Council	
Environmental Plans (Sustainability/Resilience)	<p>HCC's Zero Net Emissions and Water Efficiency Strategy (Hawkesbury City Council, 2021b) is an excellent strategy that aims to reduce Council operation to net zero emissions by 2030. Their strategy primarily aims to create a more resilient power grid with greener suburbs and a zero-waste community led by Council. There is the understanding of the need for cooler communities through greening urban spaces. There is also the recognition of how active transport can reduce carbon emissions, levels of obesity and improve mental health. Overall, while this is primarily a Council initiative for improving Council functions and processes, it highlights an understanding of the need to improve resilience strategies to contribute to better community health.</p>
Social Plans (Recreation/Health)	<p><i>Hawkesbury Mobility Plan 2010 Bike Plan and Pedestrian Access and Mobility Plan</i></p> <p>This plan (Hawkesbury City Council, 2010), along with similar active transport plans provides a strong case for the need to increase active transport in the community. This is primarily done through an understanding of the benefits to public health which include a reduction in lifestyles and cardiovascular diseases. There is also the understanding of the reduction of greenhouse gases which can occur with reducing motorised transport. HCC provides a strong economic case as well primarily through the reduction in health care costs.</p> <p><i>The Liveability Project</i></p> <p>The Liveability Project which aims at Revitalising Our Town Centres of Richmond, South Windsor and Windsor showcases a set of 'on the ground' actions which reflect the LSPS and Zero Net Emissions Strategy. HCC aims to increase trees and shade in these three town centres. They will also aim to develop healthy communities in these areas through enhancing active transport opportunities whilst also improving physical and mental health.</p> <p><i>Hawkesbury Disability Inclusion Action Plan</i></p> <p>Within the Hawkesbury Disability Inclusion Action Plan (Hawkesbury City Council, 2017b) there is the need to create liveable communities to improve individual mental and physical health and wellbeing. This is tied into their Mental Health Forum which the Council held, which fed into this plan. However, climate risks are not mentioned.</p>
Development Plans (Economic/Centers)	<p>No significant development plans that were identified in this research that significantly addressed climate risks on health. Their current economic plan still in development.</p>

Liverpool City Council

Local Strategic Planning Statement

Liverpool City Council's (LCC) LSPS (Liverpool City Council, 2020b) provides a comprehensive understanding of the impacts of climate on health and wellbeing within their LGA. They have developed planning priorities which address the inclusion of issue of tree canopy, environmental sustainability, and water sensitivity. Planning Priority 15 provides the most detail regarding the management of these issues. The Council also aims to reduce emissions and promote education around sustainability and waste management.

Liverpool's LSPS highlights the requirements that are needed to strengthen and protect the environment to not only make it visually appealing but also to contribute to health, safety, and well-being of the community. The Council plays a significant role in addressing urban heat and resilience to climate impacts, particularly in implementing measures to reduce the UHI effect and promoting environmental sustainability in development. LCC have developed several comprehensive actions which aim to facilitate this.

They are in the process of developing a strategy which aims to increase tree canopy coverage across the LGA this will be tied with their future Green Grid strategy. LCC have promised to review and amend building codes in their LEP and DCP to incorporate controls to reduce the UHI effect and incorporate Water Sensitive Urban Design. LCC goes on to state these changes would also consider the need to preserve areas of high ecological value and reduce resource consumption including encouraging adaptive building designs. Furthermore, LCC will advocate for amendments to NSW State policies including BASIX and exempt and complying development.

There is the need to improve community health in the Liverpool LSPS, however, their approach remains quite broad. LCC recognises the need to support health through urban design, increasing walking, promoting healthy lifestyles and through reducing the UHI effect. The actions associated with these health objectives remain quite scarce as compared to other Councils LSPS's.

The Liverpool Collaboration Area Place Strategy, created in collaboration with the GSC was collectively designed to provide future directions for the Liverpool centre. Numerous short- and long-term priorities have been established which aim to increase connectivity, liveability, productivity, and sustainability. This Strategy prioritises the need to increase community preparedness regarding flooding, improve environmental amenity to enable further opportunities for walking and cycling and to encourage low-carbon initiatives in building design. The implementation of a green grid and reducing the impacts of the UHI effect are also significant actions in this Strategy. Health is primarily viewed though the enhancement of the health industry in relation to the economy and the Innovation precinct, which promotes health and education jobs and technologies.

Liverpool City Council	
Local Environmental Plan	<p>The Liverpool LEP (Liverpool City Council, 2008b) includes a few additional conditions and clauses to increase resilience and sustainability. This includes their aims which state:</p> <ul style="list-style-type: none">• (b) to foster economic, environmental, and social well-being so that Liverpool continues to develop as a sustainable and prosperous place to live, work, study, and visit,• (c) to provide community and recreation facilities, maintain suitable amenity and offer a variety of quality lifestyle opportunities to a diverse population...• (h) to protect, connect, maintain, and enhance the natural environment in Liverpool, and promote ecologically sustainable development, which considers the environmental constraints of the land (NSW Government, 2021). <p>The Liverpool LEP has maps on flood planning, and environmentally significant land.</p>
Development Control Plan	<p>The Liverpool DCP (Liverpool City Council, 2008a) aims to develop new suburbs in sustainable manner which protects the natural environment through the promotion of a high standard of urban environmental design. A major consideration in this DCP is regarding the management of flood risks. The impacts of climate on health and wellbeing are not significantly mentioned in this plan.</p>
Community Strategic Plan	<p>LCC has developed a comprehensive understanding in planning high quality sustainable developments for communities to live. These developments in turn will reflect the needs of the community. Some of the major outcomes of the CPS (Liverpool City Council, 2017b) include:</p> <ul style="list-style-type: none">• fore fronting the needs the community,• strengthening and protecting the environment,• encouraging sustainability, energy, and renewable energy use,• increasing community participation. <p>Understanding the impacts of climate on health and wellbeing has not been fully explored in this CSP.</p>

Liverpool City Council

Environmental Plans (Sustainability/ Resilience)

LCC has four major strategies and plans which address the environmental concerns and considerations. These include:

- Liverpool City Council Water Efficiency Plan (Liverpool City Council, 2012c)
- Liverpool City Council Energy Management Plan (Liverpool City Council, 2012a)
- Liverpool Waste Avoidance and Resource Recovery Strategy (Liverpool City Council, 2005)
- Liverpool Biodiversity Management Plan 2012 (Liverpool City Council, 2012b)

The LCC Water Efficiency Plan and Energy Management Plan provides a progressive rationale for improving Council operational efficiencies in water consumption and energy usage. The Council is committed to reducing the water and energy usage for its facilities and activities. This idea of sustainability is then reinforced in their Waste Avoidance and Resource Recovery Strategy. This strategy provides an understanding of the triple bottom line and the need for the recovery and appropriate disposals of wastes.

The Liverpool Biodiversity Management Plan 2012 provides a detailed investigation of the vulnerable flora and fauna species in the Liverpool LGA. It then provides a sustainability-based action plan, which incorporates the need to preserve riparian and biodiversity corridors and development bushfire management actions. The Council's environmental plans aim to create a healthier environment recognising the contexts of addressing these issues whilst also leading sustainability by example. However, a detailed understanding of the impacts of climate on health and wellbeing has not fully developed. This most likely due to the documents being endorsed in the 2000's and early 2010's.

Social Plans (Recreation/ Health)

Cultural Strategy 2017-2021 Creative, Innovative and Culturally Distinct

Within LCC's Cultural Strategy (Liverpool City Council, 2017a), it brings to light the positive impact how participation in the arts and associated cultural activities can improve community health. They go on to state that 'research shows inequality exacerbates disadvantage, which impacts on people's mental health, physical health and wellbeing' (Liverpool City Council, 2017, p. 12). However, there is little connection to the need to increase community resilience or climate risks.

Liverpool Bike Plan 2018-2023

The Liverpool Bike Plan (Liverpool City Council, 2018), along with many similar cycling plans, emphasises the positive health benefits that cycling can have on communities. These health benefits include a reduction in sedentary lifestyle diseases and a reduction in greenhouse gases by reducing car trips. Furthermore, there is also the recognition of the economic benefits which result from a decreasing cost to the health system.

Liverpool City Council

Development Plans (Economic/ Centres)

There are numerous development plans which are currently in force within LCC. These include:

- Liverpool Economic Development Strategy 2019-2029 (Liverpool City Council, 2019)
- Liverpool City Centre Public Domain Master Plan (Liverpool City Council, 2020c)
- Liverpool Rural Lands Study 2012 (Liverpool City Council, 2012d)
- Liverpool Local Housing Strategy—adopted but not in Force (Liverpool City Council, 2020d)
- Liverpool Centres and Corridors Strategy (Liverpool City Council, 2020a)
- Innovation Liverpool: An Innovation Strategy to support LCC's CSP to 2027

These plans and strategies prioritise economic growth and development in the Liverpool LGA. Health in this context primarily refers to the health industry and its contribution to the economy. There is minimal connection to the impact from climate risks or the need to improve community health and wellbeing. The Liverpool City Centre Public Domain Master Plan is the implementation of the GSC's Collaboration plan for Liverpool. This plan reflects the Collaboration plan and the principles of the GSC which include heat mitigation and understanding the impacts of climate on health and wellbeing.

The Liverpool Local Housing Strategy provides the most detail of the plans listed above in relation to climate risks and sustainability. LCC is expected to change significantly with this decade, with the development of the Western Sydney International (Nancy Bird Walton) Airport and associated Aerotropolis. Therefore, a strong focus of this strategy is in creating sustainable build environments that promote resilience in the community. This includes protecting areas of ecological significance, providing quality open space, reducing urban heat, and providing affordable housing. However, economic growth and development is still given considerable attention within this strategy. As a result, while more recent plans emphasise the need to consider climate risks and health, a significant portion of them still push for economic growth.

Penrith City Council

Local Strategic Planning Statement

The Penrith City Council (PCC) LSPS (Penrith City Council, 2020a) provides a comprehensive understanding on the impacts of climate on health and wellbeing within their LGA. They have developed seven Planning Priorities which address this pressing issue. These include:

- Planning Priority 5: Facilitate Sustainable Housing
- Planning Priority 16: Protect and Enhance our High Value Environment Lands
- Planning Priority 17: Define and Protect the Values and Opportunities within the Metropolitan Rural Area
- Planning Priority 18: Connect our Green and Blue Grid
- Planning Priority 19: Create an Energy, Water and Waste Efficient City
- Planning Priority 20: Manage Flood Risk
- Planning Priority 21: Cool our City

Their LSPS highlights the need to manage and mitigate flood risks and the urban heat island (UHI) effect within their LGA. PCC are in the process of creating a 'Floodplain Risk Management Study' and have a regular 'Floodplain Risk Management Committees' to address flood risks (Penrith City Council, 2020a). Also, in improving community health, PCC has taken significant steps in address urban heat. This has been achieved through the Cooling the City Strategy. Further actions stated in the LSPS include 'Action 21.3: Introduce objectives, planning and development controls to deliver a cooler city' and 'Action 21.4: Develop canopy targets and identify suburbs (new, existing, and future) where there are opportunities for increasing canopy targets' (Penrith City Council, 2020, p. 107).

Furthermore, Penrith's LSPS emphasises the need for the resilience and sustainability of their green and blue grid. Their reasoning behind this is multifaceted and shows a depth of understanding. They state that this will be able to protect and enhance the ecological communities of the area, reduce the severity of natural hazards, and improve the mental and physical health of residents.

In addition, the GSC, working with PCC, have also developed a Greater Penrith Collaboration Area, which includes the GSC's principles of liveability and sustainability. This plan focuses its attention of the Penrith City Centres neighbouring centres such as Kingswood and the Penrith's Health and Education Precinct. This plan identifies the need to improve green grid connections and develop urban cooling strategies.

Penrith City Council	
Local Environmental Plan	<p>PCC includes additional conditions and clauses to their LEP to increase resilience and sustainability (Penrith City Council, 2010). For example, their LEP aims state:</p> <ul style="list-style-type: none"> • '(b) to promote development that is consistent with the Council's vision for Penrith, namely, one of a sustainable and prosperous region with harmony of urban and rural qualities and with a strong commitment to healthy and safe communities and environmental protection and enhancement... • '(g) to minimise the risk to the community in areas subject to environmental hazards, particularly flooding and bushfire, by managing development in sensitive areas... • '(h) to ensure that development incorporates the principles of sustainable development through the delivery of balanced social, economic and environmental outcomes, and that development is designed in a way that assists in reducing and adapting to the likely impacts of climate change (NSW Government, 2021). <p>The Penrith LEP also has additional restrictions to where exempt and complying development can take place on environmentally sensitive land. In addition, they have a clause on sustainable development, which states developments need to consider built form, energy efficiency, water conservation and a reduction of vehicle dependence. Lastly, the Penrith LEP also has additional maps for Natural Resources Sensitivity Land, land which has Scenic and Landscape Values and Flood Prone land. Therefore, as a result PCC have provided a significant amount of detail in this EPI to increase the sustainability and resilience of their LGA.</p>
Development Control Plan	<p>The Penrith DCP (Penrith City Council, 2014) introduces several guiding principles, some of which included ideas which promote the health of the community, and which reduces the impacts from climate risks. These include:</p> <ul style="list-style-type: none"> • Principle 1: Provide a long-term vision for cities, based on sustainability; intergenerational, social, economic, and political equity; and their individuality. • Principle 3: Recognise the intrinsic value of biodiversity and natural ecosystems and protect and restore them. • Principle 4: Enable communities to minimise their ecological footprint. • Principle 5: Build on the characteristics of ecosystems in the development and nurturing of healthy and sustainable cities. • Principle 8: Expand and enable cooperative networks to work towards a common, sustainable future. <p>Furthermore, Penrith City Council has an initiative called 'Lifting the Bar' in which a variation to a development control may be considered for a development application if the applicant shows additional commitment to these principles.</p>
Community Strategic Plan	<p>PCC's Community Strategic Plan (Penrith City Council, 2017a) has an in-depth understanding of the need to increase resilience, environmental sustainability, and community wellbeing. Resilience plays a major role in defining the Plan's goals and strategies. This includes 'Strategy 6.2: Help build resilient, inclusive communities' (Penrith City Council, 2017a). The Penrith CSP defines urban resilience as 'the capacity of individuals, communities, institutions, businesses and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.' (Penrith City Council, 2017, p. 9). However, the concept of health remains quite vague in this plan, having numerous understandings.</p>

Penrith City Council

Environmental Plans (Sustainability/ Resilience)

PCC has endorsed and drafted several policies and plans which address community health and wellbeing and climate risk and resilience strategies. These include:

- Sustainability Strategy 2015-21 (Penrith City Council, 2015b)
- Penrith Green Grid Strategy (draft) (Penrith City Council, 2021a)
- Cooling the City Strategy 2015 (Penrith City Council, 2015a)
- Resilient Penrith Action Plan (draft) (Penrith City Council, 2021b)
- Penrith Biodiversity Strategy (Penrith City Council, 2004)
- Penrith Waste and Resource Strategy 2017-2026 (Penrith City Council, 2017c)
- Energy Savings Action Plan (Penrith City Council, 2007)
- Water Sensitive Urban Design (WSUD) Policy (Penrith City Council, 2018c)
- Street and Park Tree Management Plan (Penrith City Council, 2018b)

The Cooling the City Strategy is an extensive document which uniquely identifies the issue of the UHI effect and its impact on community health and wellbeing. Adopted in 2015, it was a distinctive and well-rounded strategy providing well thought out short- and long-term goals and objectives for the Council to implement. In addition, they give recognition to vulnerable communities who are most impacted by the UHI effect within their LGA. The vulnerable communities identified in their research included: individuals with compromised respiration, socially disadvantaged people, residents in social housing, people with spinal cord injuries, and people who are homeless. This document shows a significant turning point for the understanding of climate risks on communities in Penrith City.

In addition, the draft Penrith Green Grid Strategy demonstrates a strong commitment to reducing the impacts from urban heat. This strategy shows an understanding of the future growth planned around the Western Sydney Airport and Aerotropolis which will likely contribute to this worsening issue. This strategy is heavily placed within the rhetoric of the State Government, and their tree canopy targets. There is the understanding of the environmental and ecological benefits that improving green connectivity will bring. The mapping of heat and green space data through Geographical Information Systems has been used in this precinct-based approach. Lastly the benefits that improve green grids this will bring to community health and wellbeing are also highlighted. This includes an understanding of improved active transport opportunities and increasing recreational spaces.

Also, the draft Resilient Penrith Action Plan stresses the importance of creating 'A healthier and more liveable Penrith which recognises and proactively addresses the challenges of a changing climate through cooling the city, resource and energy efficiency and valuing our natural environment.' (Penrith City Council, 2021, p. 25). This strategy becomes a unifying strategy which considers climate risks and the need to improve community health and wellbeing.

Penrith City Council

Social Plans (Recreation/ Health)

Penrith Sport and Recreation Strategy

The Penrith Sport and Recreation Strategy (Penrith City Council, 2020b) also provides insight into how local community health can be enhanced. A strong emphasis lies in supporting and increasing active and healthy lifestyles in the community. There is the recognition of the impacts which climate risks will have on public open spaces. This builds on the work undertaken by the Cooling the City Strategy. A unique set of actions are provided which aim to promote and support environmental sustainability, again under the scope of increasing resilience.

Disability Inclusion Action Plan

PCC have demonstrated a commitment to creating liveable communities and supporting access to meaningful employment with improved access to services through better systems and processes for individuals with disabilities (Penrith City Council, 2017b). This will be achieved through supporting various programs and initiatives. However, there was little to no attention brought to the impacts from climate risks, urban heat, or flood risks.

Penrith Health Action Plan

The Penrith Health Action Plan (Penrith City Council, 2018a) is a collaboration with PCC, Nepean Blue Mountains Local Health District (NBMLHD), Nepean Blue Mountains Primary Health Network (NBMPHN) and Greater Western Aboriginal Health Service (GWAHS). This health document is underpinned by collaboration with a commitment to knowledge sharing and openness. This plan provides priorities to support disadvantaged communities and Aboriginal health in the Penrith LGA. This is achieved by supporting NAIDOC week, establishing subcommittees, and promoting equity through access to education and services.

A healthy built environment is also supported in this plan. This includes the identification and policy implementation of urban heat mitigation strategies and forwarding significant developments to LHD and PHN. Furthermore, PCC is committed to creating a Healthy Eating and Active Living Strategy. As a result of this plan, PCC runs a Village Café almost weekly across three areas of the Penrith LGA. This initiative can be seen as an attempt to support community wellbeing and improving social connectivity of residents which can also improve mental health.

Lastly mental health is also given significant attention in this plan. PCC have supported the creation of a Joint Regional Mental Health and Suicide Prevention Plan whilst also promoting mental health awareness and Men's Sheds in their LGA. As a result, PCC has demonstrated a strong commitment to improving health and wellbeing of their community through supporting and establishing numerous initiatives and programs.

Development Plans (Economic/ Centres)

There are numerous economic and strategic centres strategies that PCC have developed. Many of these focus their attention on promoting economic development in their LGA. This is usually achieved through working with private companies and developers. These plans often play a dominant role in the planning realm in local governments, but do not focus specifically on environmental and health outcomes.

Wollondilly Shire Council	
Local Strategic Planning Statement	<p>Wollondilly Shire Council’s (WSC) LSPS (Wollondilly Shire Council, 2020d) provides a very health forward approach to strategic planning. WSC highlights how built environment determinants can affect health and wellbeing. These include a recognition of how access to health care, healthy food, education, employment, good housing, and open space can impact community and individual health. This is shown in their Planning Priority 6 which states, ‘embedding health and wellbeing considerations into land use planning for healthy places’ (Wollondilly Shire Council, 2020). WSC provide a detailed and thoughtful approach to health planning. The Council will:</p> <ul style="list-style-type: none"> • ‘Develop a policy and strategy framework that focuses health and wellbeing in planning (and • Use networks to champion healthy planning throughout Greater Sydney and NSW’. (Wollondilly Shire Council, 2020, p. 41) <p>WSC also highlights a series of actions which the Council will implement in response to improving health. For example, they will consider amendments to their LEP and DCP as well the development of a Heath/Social Impact Assessment Policy for development assessments.</p> <p>Furthermore, their Planning Priority 18 states, ‘living with climate impacts and contributing to the broader resilience of Greater Sydney’ (Wollondilly Shire Council, 2020, p. 96). This highlights a strong commitment the Council has in understanding the need to manage climate risk and implement resilience strategies. They identify extreme weather events such as bushfire, floods, and urban heat as major stressors which the LGA must manage. Their primary action to combat these issues is to ‘establish a framework to reduce emissions in Council operations, increase resilience and adapt to the impacts of climate in Wollondilly’ (Wollondilly Shire Council, 2020, p. 101). This with be achieved in combination with a recognition of the need to protect and enhance the natural environment and the creation of a strong urban tree canopy.</p> <p>While the climate and health aspects to the LSPS remain largely separated, the in-depth approach to understanding of these issues provide insight into the changing approach to health occurring within WSC.</p>
Local Environmental Plan	<p>The WSC LEP (Wollondilly Shire Council, 2011) provides additional environmental clauses and maps to promote ecological protection. This includes biodiversity and flood planning clauses, as well as a Natural Resources - Biodiversity Map and a Natural Resources – Water Map. In addition, they also provide an aim which address health and wellbeing which states, “(g) to provide for a built environment that contributes to the health and well-being of residents, workers and visitors” (NSW Government, 2021).</p>
Development Control Plan	<p>The WSC DCP (Wollondilly Shire Council, 2016a) follows the path of other DCP’s within the Western Parkland City. Importantly it states for the need for effective landscaping to reduce the UHI effect and for the need to promote healthier lifestyles through such provisions as private open space and solar access. As also demonstrated through other DCP’s, the Wollondilly DCP does not significantly address the impacts of climate risks on health and wellbeing.</p>

Wollondilly Shire Council	
Community Strategic Plan	<p>Within the WSC CSP (Wollondilly Shire Council, 2017) they provide a unique understanding to health and wellbeing. They state, ‘health and wellbeing and ... not solely related to clinical health service delivery’ but are also impacted by the Social Determinants of Health (Wollondilly Shire Council, 2017, p. 22). While there is little attention given to climate risks with this document it is important to recognise that health’s increasing role in WSC strategic policies.</p> <p>In addition, Wollondilly’s CSP mentions the current health risks that the LGA faces. They state that their LGA suffers from higher rates of ‘high body mass index, coronary heart disease and respiratory diseases’ than compared to the rest of NSW (Wollondilly Shire Council, 2017, p. 57). They also repeatedly mention the Wollondilly Health Alliance which provides advice for the provision of additional health services. Furthermore, Wilton was viewed as a potential site for additional health care services with its planned future development.</p>
Environmental Plans (Sustainability/ Resilience)	<p>The draft Wollondilly Urban Tree Canopy Plan (Wollondilly Shire Council, 2020e) and Landscape Strategy provides the most detail regarding how Council addresses climate risks. WSC states that,</p> <p style="padding-left: 40px;">for the first time in NSW planning history, the State Government is calling on metropolitan councils to respond to the need to protect and enhance urban canopy to protect and improve biodiversity, water quality and liveability as well as improve resilience to climate change and urban heat (Wollondilly Shire Council, 2020, p. 4).</p> <p>This Strategy demonstrates a strong link between understanding the role that tree canopies can have in combating climate risks.</p> <p>The UHI effect is also front and centre within this strategy. There is an understanding of the vulnerable populations who are most at risk from this issue. This includes people with higher levels of obesity, diabetes, asthma, and lung cancer. The Council also recognises that with the increasing urban development, the issue of urban heat will continue to worsen and affect the LGA. In addition, WSC provides urban heat vulnerability maps which ‘indicate which existing towns or villages are more vulnerable to urban heat due to illness, age, or socio-economic and environmental factors’ (Wollondilly Shire Council, 2020, p. 11). WSC places a strong emphasis on providing an effective tree canopy coverage along cycleways and pathways to reduce urban heat and skin damage from the sun.</p> <p>An understanding of the impacts of climate on health and wellbeing is also raised within this strategy. WSC identify several trends which will impact their community. These include increasing hot days, extreme weather events and changing habitat patterns for pathogens and pests. As a result, with data and climate risk research, WSC is set provide an effective response to tree canopy coverage.</p>

Wollondilly Shire Council

Social Plans (Recreation/ Health)

Wollondilly Social Planning Strategy Volume 1 Implementation Plan

WSC's Social Planning Strategy (Wollondilly Shire Council, 2016b) provides a well-developed rationale for addressing and improving community health. This is primarily understood through an increasing provision of neighbourhood and recreational facilities, as well as access to healthy food. WSC also understands that health and lifestyle diseases can be impacted by the built environment and poor urban design. A key action identified was to include health considerations in Council planning.

Wollondilly 2011 Bike Plan and Open Space, Recreation and Community Facilities Strategy

The points raised in the Social Planning Strategy were also echoed in the Wollondilly Bike Plan and the Open Space, Recreation and Community Facilities Strategy (Wollondilly City Council, 2011). Council acknowledges that the provision of services and programs that support recreation and supports the use of open space can create social interaction within the community.

Wilton Health and Wellbeing Strategy

The Wilton Health and Wellbeing Strategy (Wollondilly Shire Council, 2020f) is a localised strategy which prioritises health of the community of Wilton. Wilton has been identified as a future urban growth area by the NSW Government. Like BMCC they adopt a planetary health approach to this future development. They provide an understanding of the impacts of climate on health and wellbeing. The climate risks include increasing environmental stressors such as flooding, fires, and droughts and the worsening of the UHI effect.

A strong emphasis is placed on providing social infrastructure, which can be seen a way to reduce social isolation and improve mental health of the community. This social infrastructure includes community centres, health facilities, active transport routes and open spaces. Furthermore, there is the understanding of the role that transport can have in improving health. WSC states that an increase in walking can result in a reduction of reduced mortality and increased mental health outcomes.

Green infrastructure is also identified as a significant component in creating a healthy community. WSC states that green infrastructure can reduce heat related morbidity especially in vulnerable populations. A lack of green infrastructure is attributed to a reduction in incidental interactions which can lead to increasing social isolation. Green infrastructure can also be used to reduce the UHI effect, encourage active transport and improve air quality, which results in multiple health benefits.

Lastly it was identified that the development of 'healthy housing' is also important when creating a healthy community. A high density of housing can create more walkable communities. This increase in walking can then in turn provide numerous health benefits. These include a lower rate of obesity and cardiovascular diseases.

Wollondilly Shire Council

Development Plans Currently Wollondilly has numerous development plans that are currently stated as draft. These include:

(Economic/ Centres)

- Wollondilly Rural Lands Strategy (Wollondilly Shire Council, 2020c)
- Wollondilly Local Housing Strategy (Wollondilly Shire Council, 2020b)
- Wollondilly Centres Strategy (Wollondilly Shire Council, 2020a)

Overall, there is the broad understanding of the need to create resilient and healthy communities. This is primarily through increasing walkability and connections to open spaces. However, the economy is front and centre in these plans.

Nepean Blue Mountains Local Health District

The Sustainability Plan

The Sustainability Plan 2019-2023 for the Nepean Blue Mountains Local Health District (NBMLHD) provides a detailed approach to managing the sustainability for the operations of the LHD. This strategy can inform and educate staff of their responsibilities regarding sustainable practices. In addition, this plan supports the effective use of available resources to enable the best outcomes for sustainability. This plan also establishes four working groups which are involved in implementation of this plan. This includes the Climate Resilient Healthcare, Buildings Energy and Water, Waste Management and Recycling and the Transport Working Groups. The Plan identifies 10 Focal Points which are used to guide the actions and Working Groups. These include, climate resilient healthcare, energy reduction projects, indoor air quality and waste management and recycling programs.

This Sustainability Plan addresses the lack of district wide policies that addresses sustainability. This will provide guidance and strategies used to inform the construction of new buildings and the upgrading of equipment and infrastructure. Furthermore, this plan also considers the triple bottom line, in relation to social, environmental, and financial benefits of sustainability.

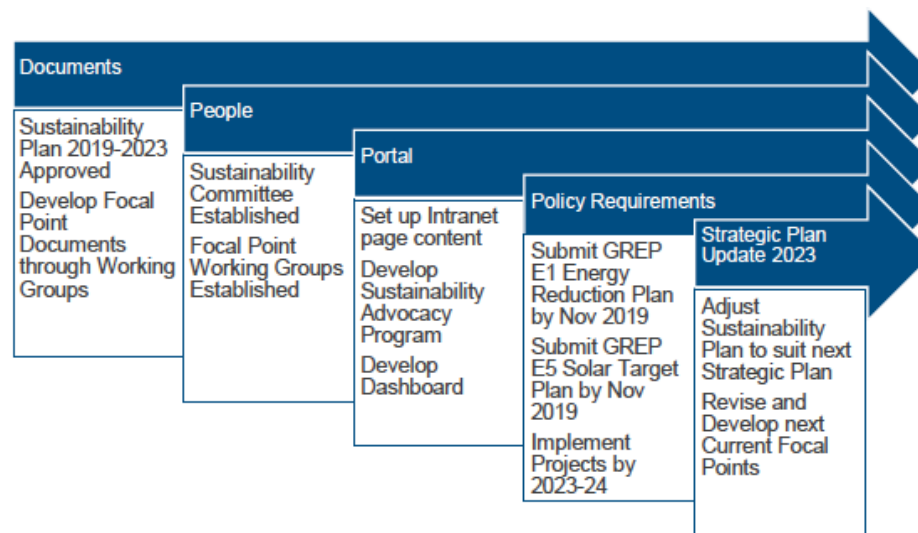
The Plan and associated Focal Points will attempt to meet the mandatory sustainability targets and requirements set by the NSW Government Resource Efficiency Policy and the National Building Code. This Plan is an aspirational and highly beneficial initiative which is used to explore and evaluate sustainability initiatives in the NBMLHD. Below is a guideline of the targets and objectives set by the NBMLHD (Nepean Blue Mountains Local Health District, 2020).

The NBMLHD has developed a sustainability assessment tool which encourages staff to consider a range of issues when designing and implementing projects as well as a prioritisation matrix tool for resilience projects.

The barriers and challenges identified in the stakeholder mapping included:

- A lack of time and resources combined with the issue of a lack of dedicated paid staff to complete work.
- COVID-19 which has delayed implementation of the plan.

As a result, the NBMLHD provides detailed understanding of the need to improve the sustainability of operations and its role in improving community health whilst also recognising climate risks.



South Western Sydney Local Health District	
SWSLHD Climate Change Risk Discussion Paper	<p>The South Western Sydney Local Health District (SWSLHD) announced that “climate change” is increasing a health emergency, and has provided with clear evidence the severe impacts on the community. They have stated that current building codes are not always up to date with climate issues. They provide recommendations of how changes to legislation should occur to enable climate resilience in the built environment, especially regarding urban heat. The SWSLHD also involves their staff to increase awareness around sustainability and the impacts of climate on health and wellbeing. Numerous collaborators are also involved in these processes, including the Climate and Health Alliance, NSW Government and NSW Health Sustainability Network.</p> <p>They have recommended implementing several actions, which include policy changes to increase sustainable built practices and providing education around the impacts of climate on health and wellbeing. This is also tied in with reducing operational costs for the LHD whilst also focusing on creating healthier communities. This includes an understanding of how reducing climate risks can provide health benefits for the community. Furthermore, they also have developed a carbon emissions roadmap to reduce carbon emissions within the organisation, especially regarding electrical use. As a result, this Discussion Paper not only provides an understanding of the need to increase the sustainability of operations and resource consumption, but also an understanding of broader climate risks and ways to manage them.</p>
Sustainability Action Plan 2018-2019	<p>The Sustainability Action Plan provides a strong understanding of the need to increase sustainability in response to climate impacts. This is framed within a broader legislative context. The SWSLHD aim is to create sustainable communities within a healthier environment by considering the need to reduce air pollution and heat stressors.</p> <p>A strong focus of this plan is on reducing waste and water and energy consumption, whilst also educating staff. These ideas and priorities are then formulated into the action plan section of the report. This provides detailed actions and objectives for the SWSLHD to meet.</p>
SWSLHD Sustainability Report 2019/20	<p>This report is like the Action Plan, as it provides an update of how the SWSLHD is progressing regarding the reduction of water and energy consumption as well as waste reduction. They also state how major projects and redevelopments have considered and implemented sustainability strategies into their design.</p>

Interviews: preliminary findings

The preliminary interview data are presented as summaries of themes identified a-prior and as part of the iterative process of analysis. These themes align with the policy action areas identified in the Framework for a National Strategy on Climate, Health and Wellbeing (Climate and Health Alliance, 2017) as shown in Appendix 1. Each of these themes are organised with sub-themes that are described in detail.

The Framework Policy Action Areas

Policies

Each council varied in how it integrated environmental and human health and wellbeing threats and impacts and sustainability and resilience into their policies and strategic planning documents. Most participants indicated that they did consider the link between environmental and human health when developing and implementing specific strategies; however, concerns were raised across all councils that this link was not explicitly made in strategic planning documents.

Emergency and disaster-preparedness

All councils had been significantly impacted by natural disaster from bush fires or floods recently and have a strong focus on emergency and disaster-preparedness, including capacity building. All councils rely heavily on NSW Government funding to effectively implement emergency and disaster-preparedness strategies. Most participants described “climate change” as being an important risk for natural disaster; however, this did not always align with how the organisation discussed climate risks in their planning documents or within the organisation more broadly.

Supporting healthy and resilient communities

All councils were undertaking various initiatives to support the health and wellbeing of their communities and community and individual resilience. While there were some similarities between council initiatives, each council used different approaches to providing this support. Support can be divided into two categories: support during and after disaster, and general (day-to-day) community support. Support during and after disaster relies heavily on NSW Government funding, services, expertise, and other support from agencies like Resilience NSW (previously OEM). Despite the support provided by NSW Government, disaster support provided by councils diverts resources (staff and funding) that could be used for other general community support strategies related to sustainably and health and wellbeing.

Participants described wanting to deliver longer-term health and wellbeing strategies that address the social and environmental determinants of health; however, this was difficult as the support work of councils is usually limited to supporting their core business (i.e., delivery of services) and disaster support. Despite these challenges all councils were implementing a variety of strategies to support vulnerable populations, enhance liveability, and build capacity and resilience in their communities.

Education and capacity building

All participants described education and capacity building initiatives for either climate risk and resilience, sustainability or health and wellbeing strategies that are delivered by council for the community or within council to staff. Education and capacity building initiatives are led by each individual area within councils depending on community need.

Education and capacity building initiatives for the community are delivered in a variety of ways, including via social media, information sheets or pamphlets in council run facilities or small group programs. Topics covered range from bush walks to educate the community about the value of local ecosystems to how to bushfire preparedness.

Leadership and governance

Individuals within councils describe driving climate risk and sustainability related initiatives that are informed by each council's planning policies and strategies. Each council's planning policies and strategies are informed primarily by NSW Government policies, strategies, and guidance in addition to broad consultation with key non-Government stakeholders and community. Individual Counsellors who represent their communities have a strong influence on how climate and sustainability is considered within each organisation. The Executive staff of councils (e.g., CEO, Strategic Planning Managers) also have an important influence on how each organisation considers and prioritises climate risk and sustainability strategies. All Executive staff interviewed understood the importance of addressing climate risk and sustainability within planning policies and strategies; however, all described several constraints to achieving their strategic goals. These are described below in relation to barriers.

A sustainable and climate-resilient health care sector

The health care sector was considered to operate separate to council. Across councils it was described that health and wellbeing was not considered core business, although councils were collaborating with local health districts and other health related organisations to support their communities. Participants generally expressed a desire for more collaboration with health-related organisations.

Research and data

Councils use various data sources to inform the development of plans, policies, strategies, and initiatives; however, they are limited. Across the councils there was a heavy reliance on NSW Government resources and information sourced by individuals with specific expertise within councils. In many cases it was described that the silos created within councils meant that individuals did not have awareness of data or information available that might enable them to integrate either sustainability, climate risk, resilience or health and wellbeing into their strategies and programs.

Councils were rarely described as being able to collect their own data beyond their regular community surveys, despite a desire to do so. Lack of resourcing was described as the primary reason for being unable to evaluate the impact of planning policies and climate risk, sustainability, resilience or health and wellbeing initiatives. Another key barrier to collecting data on these initiatives relates to the intangible nature of the long-term benefits associated with sustainability, climate, resilience and health and wellbeing impacts.

Thriving ecosystems

All councils included numerous policies and strategies to support ecosystems within their LGAs; however, the way this was approached varied across councils. The competing priorities of councils were described as a challenge for implementing strategies to support ecosystem health. For example, the pressure from the NSW Government to develop urban areas—for growth councils in particular—creates significant challenges for implementing biodiversity and sustainability strategies that aim to retain green space and existing ecosystems and rejuvenate urban areas. Despite these pressures there were many examples across all councils of successful initiatives to increase or maintain biodiversity, increase tree canopy, and improve water quality and sustainability.

Barriers, enablers, and solutions

The participants described several barriers, enablers, and solutions for planning, implementing, and evaluating strategies relating to the impacts of climate on health and wellbeing that were experienced across all councils. Two key barriers described by participants were having shared knowledge and understanding of the impacts of climate on health and wellbeing, and a lack of resources available to implement and evaluate related strategies. When adequate resources were

available—such as funding, additional staff, or experts—resources were described as enablers. Participants identified several solutions to the barriers described that some organisations were already implementing. Other barriers described included working in silos and tensions both within councils and between organisations.

Shared knowledge and understanding

There was general acceptance of the problems related to “climate change” but concerns over organisational and institutional barriers to action. All participants interviewed understood the importance of addressing climate risk and resilience and were actively involved in addressing “climate change” related issues within their professional roles. It was consistently mentioned that a lack of shared understanding and knowledge of the impacts of climate on health and wellbeing within councils was a barrier to progressing climate related strategies. It was described by all participants that the link between climate risk and human health and wellbeing was generally not well understood by staff within councils, including elected Counsellors. Some participants expressed frustration with not being able to implement strategies related to health and wellbeing because the link with environmental health was generally not well understood within the organisations. In addition, addressing health and wellbeing was not necessarily considered to be core business for councils to directly address community health and wellbeing.

The wider community also matters, according to informants. It was also described that the communities represented by councils do not necessarily have the same knowledge or understanding of the impacts of climate on human and environmental health. There were differences between councils in how their communities were perceived to value strategies related to reducing climate related impacts. Councils that had experienced more natural disaster were described as having communities that were concerned about the impacts of the climate due to these direct impacts. In contrast, some councils experiencing more acute heat island effects described their communities as not understanding the importance of green space, specifically trees, in reducing heat island effects.

Resources (funding, capacity)

Lack of resources was consistently described as a significant barrier for councils to implement and evaluate climate risk and resilience related strategies. Smaller councils found this particularly challenging describing less staff and financial resources to do their work in this area.

Managing core services provided to residents are the priority for councils and require significant financial and staffing resources. Their role in service provision is amplified following a natural disaster, which requires an immediate response. The resources required to respond to natural disaster are prioritised, reducing the ability of councils to implement longer term strategies focused on human and environmental health and sustainability. This is particularly challenging for smaller councils that already have limited resources. Recent natural disasters combined with the COVID-19 pandemic response meant implementing climate risk and sustainability related initiatives or updating non-essential strategies and planning guidance is delayed.

Working in silos

Working in silos both within and externally to organisations was considered a barrier to planning, implementing, and evaluating climate risk related strategies. This was mentioned by most participants across participating councils. Some participants expressed a level of frustration with the duplication of work both within councils and across councils and in one case other organisations such as LHDs. There were several examples provided by participants illustrating how collaborating with other areas within council, or with other councils with similar needs, have led to successful strategies to address resilience to climate impacts.

Within councils, silos were described as a lack of understanding of how climate impacts may relate to different management areas within a council, or of the expertise that other management areas could provide to enhance the benefits of a particular initiative. In general, it was reported that councils were consulting broadly both within their organisations and externally with key stakeholders (e.g., NSW Government) when developing key strategic planning documents, but this occurred to a lesser extent with the implementation of different initiatives that are informed by these documents. Once the strategic planning documents were developed, they were used by different management areas within a council to develop and implement initiatives, with varying amounts of collaboration and consultation.

All councils described delivering various strategies related to supporting community health and wellbeing and resilience. Councils were often delivering their own unique programs and initiatives in their communities. Many of the programs described could benefit other councils and their communities; however, in most cases they were not shared between councils. The influence of elected councillors was also described as preventing collaboration across councils due to political agendas, such as wanting to be seen to have implemented a particular initiative.

In terms of external collaboration, it was perceived that the various NSW Government organisations were working in silos as there are inconsistencies between the different Government organisation's strategies. These inconsistencies make it difficult for councils to implement their planning strategies when there is misalignment between each NSW Government organisation's strategies. It was mentioned that in some areas this was misalignment was improving.

Tensions

Tensions were described both within councils and between organisations. Tensions could relate to differing political agendas both internally within councils and externally between the different levels of government (local, state, and federal) and other stakeholders such as developers. Some of these tensions can relate to different understandings of climate risk and the impact of climate on human and environmental health and wellbeing. Differences between the priorities of councils and their communities and other NSW Government organisations (including NSW Government policies) also create tension. Councils can find it difficult to implement state planning policies and ensure they achieve their own sustainability or climate risk and resilience related strategic goals. For example, in 2009 the NSW Government implemented the Affordable Housing State Environment Planning Policy (SEPP) to address housing shortage across NSW. This SEPP allowed the construction of a granny flat dwelling without council approval. This strategy had significant environmental consequences for some LGAs that had a greater need for affordable housing and income, reducing the amount of green space and tree canopy in areas already impacted by heat island effects.

The timing of the delivery of new NSW Government strategies and associated deadlines was also described as an important barrier for councils. There is a disconnect between NSW Government priorities and the budget and election cycles of councils that pull resources away from their core business and prevent them from implementing their own strategies. For example, the need to respond to NSW Government priorities has led to delays in updating outdated DCPs.

There are also tensions between a community's values and priorities and the ability to implement climate risk, resilience and sustainability strategies. The communities within the Western Parkland area are very diverse. This diversity is seen both between LGAs and within each LGA to varying degrees. Some participants were confident that most of their community understood and valued action on climate risk and sustainability, while others perceived their community to have other more immediate priorities due to their socioeconomic circumstances or lacked understanding of the importance of sustainability strategies for their own health and wellbeing.

Solutions

Collaboration was described by most participants as a solution to the identified barriers, such as lack of resources and working in silos. Early collaboration with NSW Government and other stakeholders for infrastructure and development planning was considered an important solution to being able to take a more holistic approach to implementing initiatives with consideration of environmental and economic outcomes.

Collaboration between councils and other organisations was particularly important for smaller councils. Several examples were provided of successful collaborations between councils with similar needs, NSW Government organisations (including LHDs), and community groups.

More consistent guidance from NSW Government organisations was a suggested solution across councils. It was suggested that better collaboration between NSW Government organisations when developing planning strategies and guidance is needed to prevent misalignment of strategies that make it difficult for councils to adhere to each strategy.

Alignment of NSW Government deadlines for responding to new strategies and policy developments with Council election cycles and budgeting was another suggested solution that would help councils to implement climate risk and resilience related strategies. Taking a long-term less reactive approach to addressing climate impacts on environmental and human health was described as a potential solution. This solution is dependent on addressing the barriers described. In particular, there is a need for alignment in priorities across all levels of Government.

Provision of more shared centralised evidence-informed resources by the NSW Government or other organisations to support the work of councils in addressing climate related impacts and sustainability initiatives was considered a solution to implementing sustainability and climate risk and resilience strategies. Resilience NSW was described as an important organisation providing resources to assist councils to implement resilience strategies in relation to disaster preparedness and recovery. For those councils participating in Resilient Sydney, this organisation was described as an important network providing resources that enabled councils to develop and implement more holistic resilience strategies. The Western Sydney Health Alliance was also described as a solution for assisting councils to implement health and wellbeing strategies into urban design and planning strategies using resources and expertise, they would otherwise not have access to.

Preliminary conclusions and recommendations

Key findings

- Within councils there is the desire to do more to address climate impacts
- Limited resources prevent councils from implementing sustainability, climate risk, resilience and community health and wellbeing strategies
- Successful collaboration is occurring within councils, between councils, and with other stakeholders to address climate change related impacts
- More collaboration both between and within councils to develop and implement climate risk, resilience, sustainability and community health and wellbeing strategies would reduce the burden on individual councils and duplication
- More collaboration between NSW Government organisations would improve the consistency of strategies and regulations assisting councils to effectively plan and implement sustainability, climate risk, resilience, and health related initiatives.

- Links between climate and health are often recognised and understood but not explicit in councils' strategic planning documents or risk planning
- Longer term vision and commitment is required beyond immediate core service delivery and disaster support
- Education and capacity building for climate and health is happening and can be further developed
- Barriers to be overcome include adequate resourcing and siloes within councils and across agencies. Resourcing is particularly acute in smaller councils.
- Building wider community support is crucial to progress action
- Councils need support to balance implementing state planning policies while ensuring they achieve their own sustainability, climate risk, resilience or health and wellbeing related strategic goals

This research has shown that action on climate resilience and health is happening across the eight Western Sydney Councils, which aligns with the aim of the Western City Deal to “deliver transformative change to shape the region to become an epicentre for liveability in Sydney” (The Department of Infrastructure, 2020). However, there is a desire across councils and other agencies to do more and to shift some of the institutional barriers that are hampering long term coordinated strategic development that is necessary to address the impacts of climate on health and wellbeing.

The implementation of NSW planning policies and strategies, such as the *Greener Places: An urban green infrastructure design framework for NSW* (Government Architect NSW, 2020) and the draft *Design and Place SEPP* (NSW Department of Planning Industry and Environment, 2021) aim to address climate risk and create healthy liveable cities. However, clearer coordination and leadership is needed, particularly from State Government whose growth priorities, for instance for more housing, can undermine the actions of local council's focussed on climate and health and their own climate risk policies, such as increasing green space.

Western Sydney councils, like other councils across the state, need direction and support for strategic forward planning, rather than reliance on reactive service provision or emergency disaster management. That support will require a shift away from siloed operations within councils to meet the multi-pronged demands that climate mitigation and adaptation for health requires. Moreover, further resources are required to build capacity, long term cross-council planning, and collaboration with health sectors and other agencies.

Western Sydney region is at a pivotal moment, experiencing unprecedented investment through the development of the international airport and accompanying infrastructure. It is at the heart of one of Australia's most significant urban economies (Morrison & Van Den Nouwelant 2020). Yet the global pandemic has laid bare the fundamental challenge of socio-economic disparities and health inequalities across the region. Fostering resilient communities is a major challenge faced by many cities and regions across Australia and internationally. This challenge is made more urgent by the rapid succession of shocks and stresses, drought, bushfires, storms, and floods and now the global pandemic. On-going research is vital to inform and support councils' strategic thinking and facilitate knowledge exchange. Planning decisions to mitigate climate risk made today will impact on the health of and wellbeing populations for generations to come.

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Appendix 1

Figure 1. The eight Areas of Policy Action outlined in The Framework



The eight Areas of Policy Action outlined in the Framework, and the Policy Recommendations, outline the key actions that must be taken at the federal, state/territory and local level to achieve the vision of “a fair and environmentally sustainable national policy framework that recognises, manages and addresses the health risks of climate change and promotes health through climate change action.”

Appendix 2

Table 3. Planning documents reviewed per Council and Local Health District

Organisation	Documents reviewed
Councils	
Blue Mountains City Council	<ul style="list-style-type: none"> • Blue Mountains 2040: Living Sustainably • Blue Mountains Bike Plan 2020 • Blue Mountains Community Strategic Plan 2035 • Blue Mountains Development Control Plan 2015 • Blue Mountains Local Environmental Plan 2015 • Blue Mountains Local Housing Strategy • Blue Mountains Pedestrian Access & Mobility Plan 2025, • Carbon Abatement Action Plan (CAAP) • Creative Strategy 2020-2027 • Delivery Program 2017-2021 • Disability Inclusion Action Plan 2017-2021 • Economic Development and Tourism Strategy • Integrated Transport Strategic Plan 2035 • Open Space and Recreation Strategic Plan 2018–2028 • Operational Plan Year Four 2020-2021 • Rights of Nature Principles • Rural Lands Planning Study Bushland Conservation Zone Report • Statement of Recognition and Commitment • Street Tree Masterplan • Waste Avoidance and Resource Recovery Strategic Plan 2017-2021 • Water Sensitive Blue Mountains Strategic Plan
Camden Council	<ul style="list-style-type: none"> • Built for Comfort Design Guide • Camden Council Community Strategic Plan • Camden Council Economic Development Strategy Growth and Prosperity • Camden Council Local Strategic Planning Statement • Camden Development Control Plan 2019 • Camden Local Environmental Plan 2010 • Camden Rural Lands Strategy • Camden Town Centre Strategy • Delivery Program 2017/18 to 2020/21 • Disability Inclusion Action Plan 2017 - 2021 • Local Biodiversity Strategy Camden Local Government Area • Local Housing Strategy • Operational Plan (Budget) 2020/21 • Spaces and Places Strategy 2020 • Sustainability Strategy 2020-24 • Waste Management Guideline

Organisation	Documents reviewed
Campbelltown City Council	<ul style="list-style-type: none"> • Campbelltown (Sustainable City) Development Control Plan 2015 • Campbelltown 2027: Community Strategic Plan • Campbelltown Bicycle Plan • Campbelltown Disability Inclusion Action Plan 2017-2021 • Campbelltown Economic Development Strategy 2020 • Campbelltown Local Environmental Plan 2015 • Campbelltown Local Housing Strategy • Campbelltown Local Strategic Planning Statement • Campbelltown- Macarthur Collaboration Area • Campbelltown Sustainability Strategy • Delivery Program 2017-2021 • Operational Plan 2020-2021 • Reimagining Campbelltown City Centre Master Plan • Sport and Recreation Strategy • Waste Management Plan • Wastewater Management and Water Recycling Strategy
Fairfield City Council	<ul style="list-style-type: none"> • 2017/18-2020/21 Delivery Program • 2020-2021 Operational Plan • Disability Inclusion Action Plan 2017-2021 • Economic Development Strategy 2019 Update • Fairfield Biodiversity Strategy • Fairfield City 2040: A Land Use Vision: Shaping a Diverse City: Local Strategic Planning Statement • Fairfield City Centres Study and Policy 2015 • Fairfield City Development Control Plans • Fairfield City Plan 2012-2022 Community Strategic Plan • Fairfield Local Environmental Plan 2013 • Fairfield Local Housing Strategy • Fairfield Open Space Strategy • Fairfield Rural Lands Urban Investigation Area • Stormwater Management Policy
Hawkesbury City Council	<ul style="list-style-type: none"> • Disability Inclusion Action Plan 2017-2021 • Hawkesbury City Council Delivery Program 2017- 2021 The Hawkesbury 2036 ... It's Our Future • Hawkesbury Community Strategic Plan • Hawkesbury Development Control Plan 2002 • Hawkesbury Local Environmental Plan 2012 • Hawkesbury Local Housing Strategy • Hawkesbury Local Strategic Planning Statement 2040 • Hawkesbury Mobility Plan 2010 Bike Plan and Pedestrian Access and Mobility Plan • Hawkesbury Rural Lands Strategy • Hawkesbury's Economic Development Strategy 2020 – 2025 • Net Zero Emissions and Water Efficiency Strategy • Operational Plan 2020-2021 • Revitalising Our Town Centres of Richmond, South Windsor and Windsor

Organisation	Documents reviewed
Liverpool City Council	<ul style="list-style-type: none"> • Cultural Strategy 2017-2021 Creative, Innovative and Culturally Distinct • Delivery Program 2017-2021 • Innovation Liverpool: An Innovation Strategy to support LCC's CSP to 2027 • Liverpool Bike Plan 2018-2023 • Liverpool Biodiversity Management Plan 2012 • Liverpool Centres and Corridors Strategy • Liverpool City Centre Public Domain Master Plan • Liverpool City Council Disability Inclusion Action Plan 2017 - 2021 • Liverpool City Council Energy Management Plan • Liverpool City Council Water Efficiency Plan • Liverpool Collaboration Area • Liverpool Development Control Plan 2008 • Liverpool Economic Development Strategy 2019-2029 • Liverpool Local Environmental Plan 2008 • Liverpool Local Housing Strategy • Liverpool Rural Lands Study 2012 • Local Strategic Planning Statement (LSPS) - Connected Liverpool 2040 • Operational Plan 2020-2021 • Our Home, Liverpool 2027 Community Strategic Plan • Waste Avoidance and Resource Recovery Strategy
Penrith City Council	<ul style="list-style-type: none"> • Cooling the City Strategy 2015 • Delivery Program 2017-22 • Disability Inclusion Action Plan 2017-2021 • Economic Development Strategy: Building the New West • Employment Lands Strategy • Energy Savings Action Plan • Greater Penrith Collaboration Area • Operational Plan 2020-21 • Penrith Biodiversity Strategy • Penrith City Centre Strategy & City Strategy • Penrith City Council Community Plan • Penrith Development Control Plan 2014 • Penrith Green Grid Strategy • Penrith Health Action Plan • Penrith Local Environmental Plan 2010 • Penrith Local Housing Strategy • Penrith Local Strategic Planning Statement: Planning for a Brighter Future • Penrith Rural Lands and Villages Study • Penrith Sport and Recreation Strategy • Penrith Waste and Resource Strategy (2017-2026) • Resilient Penrith Action Plan • Smart City Strategy • Street and Park Tree Management Plan • Sustainability Strategy and Strategy • Water Sensitive Urban Design (WSUD) Policy

Organisation	Documents reviewed
Wollondilly Shire Council	<ul style="list-style-type: none"> • 2020-21 Operational Plan and Budget • Create Wollondilly: Community Strategic Plan 2033 • Delivery Program 2017/18 - 2020/21 • Natural and man-made hazards study • Open Space, Recreation and Community Facilities Strategy • Smart Shire Strategy • Water Sensitive Urban Design Guidelines • Wilton Health and Wellbeing Strategy • Wollondilly 2011 Bike Plan, Wollondilly Active Transport Strategy • Wollondilly 2040: A Vision for the Future of Wollondilly: Local Strategic Planning Statement • Wollondilly Centres Strategy • Wollondilly Development Control Plan 2016 • Wollondilly Disability Inclusion Access Plan • Wollondilly Economic Development Strategy 2020 • Wollondilly Integrated Water Management Strategy • Wollondilly Local Environmental Plan 2011 • Wollondilly Local Housing Strategy • Wollondilly Rural Lands Strategy • Wollondilly Social Planning Strategy • Wollondilly Urban Tree Canopy Plan & Landscape Strategy • Wollondilly Waste Management Strategy & Action Plan
Local Health Districts	
Nepean Blue Mountains Local Health District	<ul style="list-style-type: none"> • Sustainability Plan 2019-2023
South Western Sydney Local Health District	<ul style="list-style-type: none"> • Sustainability Action Plan 2018-2021 • Sustainability Report 2019/20 • SWSLHD Climate Change Risk Discussion Paper

Appendix 3

Interview schedule

Professional characteristics

1. How long have you worked in your current role?
2. What is your area of expertise?
3. How long have you worked in this field?

Professional and organisational processes and policies

4. How are you, in your day-to-day role, involved in planning, implementing, or evaluating community health and wellbeing, disaster recovery, and climate risk and resilience or sustainability strategies?
5. How does your organisation manage planning, implementing, or evaluating community health and wellbeing, disaster recovery, and climate risk and resilience or sustainability strategies?
6. How does your organisation discuss climate risk and resilience?

Enablers and barriers

7. What enablers and barriers exist for planning, implementing, or evaluating community health and wellbeing, disaster recovery, and climate resilience or sustainability strategies?
8. What would overcome the barriers or promote the enablers?



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