

# Strategic guide to planning for natural hazards – Resource kit

The location of the relevant documents in the links provided were correct as of 26 March 2024

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## Natural hazards data

Table 1. Natural hazards data – General

Author	Resource	Description	Location*
Department of Planning, Housing and Infrastructure	<a href="#">ePlanning Spatial Viewer</a>	This an enhanced digital mapping service that provides easy-to-use, information-rich maps for every address and lot in NSW. This tool includes mapping for flood and bushfire risk as well as coastal risks.	<a href="https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address">https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address</a>
NSW Government	<a href="#">Common Planning Assumptions datasets</a>	The datasets collate information gathered by multiple NSW Government agencies and include data on projected population growth, climate change impacts, and the risk of natural disasters such as bushfire, heatwaves and extreme rainfall.	<a href="https://www.treasury.nsw.gov.au/information-public-entities/nsw-common-planning-assumptions">https://www.treasury.nsw.gov.au/information-public-entities/nsw-common-planning-assumptions</a>
Geoscience Australia	<a href="#">Community Safety</a>	Geoscience Australia develops data and information for bushfire, earthquake, flood, severe wind, tsunamis, landslides, volcanoes, coastal erosion and blasts.	<a href="http://www.ga.gov.au/scientific-topics/community-safety">www.ga.gov.au/scientific-topics/community-safety</a>
Adapt NSW	<a href="#">NSW and ACT Regional Climate Modelling (NARClIM)</a>	NARClIM produces reliable climate projections at a regional scale to help decision makers plan for likely changes in climate in the NSW and ACT regions. This includes the mapping of the urban heat island effect.  The Urban Heat Island dataset measures the effects of urbanisation on land surface temperatures across Sydney Greater Metropolitan Area including Newcastle and Wollongong. The dataset shows the variation of temperature to a non-urban vegetated reference, such as heavily wooded areas or national parks.	<a href="https://www.climatechange.environment.nsw.gov.au/climate-projections-used-adaptnsw">https://www.climatechange.environment.nsw.gov.au/climate-projections-used-adaptnsw</a>
Bureau of Meteorology	<a href="#">Climate Data</a>	The bureau gives climate and weather extremes monitoring of temperature and rainfall, maps of average as well as more extreme conditions, and daily and monthly statistics, historical weather observations, rainfall, temperature and solar tables, graphs and data.	<a href="http://www.bom.gov.au/nsw/?ref=hdr">www.bom.gov.au/nsw/?ref=hdr</a>

Author	Resource	Description	Location*
Insurance Council of Australia	<a href="#">Insurance Based Disaster Recovery website</a>	The Insurance Council of Australia website contains a range of data collected from multiple government agencies that increases the understanding of natural hazard exposures in addition to data relating to insurance claims relating to natural hazards. There is also fact sheets about issues in focus.	<a href="#">Help in disasters - Insurance Council of Australia</a>
Australian Bureau of Statistics	<a href="#">Socio-Economic Indexes for Areas</a>	SEIFA is a product developed by the Australian Bureau of Statistics that ranks areas in Australia according to relative socio-economic advantage and disadvantage. The indexes are based on information from the 5-yearly census and can be used to inform some aspects of social vulnerability.	<a href="https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa">https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa</a>
Department of Climate Change, Energy, the Environment and Water	Sharing and Enabling Environmental Data in NSW (SEED)	A central resource developed by the NSW Government for the NSW community to provide accessible and reliable environmental data.	<a href="https://datasets.seed.nsw.gov.au/organization/dpe-department-of-planning-and-environment">https://datasets.seed.nsw.gov.au/organization/dpe-department-of-planning-and-environment</a>

Table 2. Natural hazards data – Bushfire

Author	Resource	Description	Location*
NSW Rural Fire Service	<a href="#">Bushfire-prone land mapping tool</a>	The tool was created using NSW local council’s bushfire-prone maps and is designed to identify properties designated as bushfire prone. This data is also available for viewing in the Department’s ePlanning Spatial Viewer.	<a href="http://www.rfs.nsw.gov.au/plan-and-prepare/building-in-a-bush-fire-area/planning-for-bush-fire-protection/bush-fire-prone-land/check-bfpl">www.rfs.nsw.gov.au/plan-and-prepare/building-in-a-bush-fire-area/planning-for-bush-fire-protection/bush-fire-prone-land/check-bfpl</a>

Author	Resource	Description	Location*
Bushfire and Natural Hazards Cooperative Research Centre (CRC)	<a href="#">Mapping bushfire hazards and impacts - final project report</a>	The CRC has published a report mapping bushfire hazards and impacts. The report aims to provide a comprehensive characterisation of fire risks in Australia.	<a href="https://www.bnhcrc.com.au/sites/default/files/managed/downloads/mapping_bushfire_hazard_and_impact_-_final_report_0.pdf">https://www.bnhcrc.com.au/sites/default/files/managed/downloads/mapping_bushfire_hazard_and_impact_-_final_report_0.pdf</a>
NSW Rural Fire Service	<a href="#">Bushfire Risk Management Plans</a>	Bushfire risk management plans are developed by the multiagency bushfire risk management committees for each local area and outlines the areas of highest risk and how that will be managed by land management agencies	<a href="http://www.rfs.nsw.gov.au/plan-and-prepare/know-your-risk/bush-fire-risk-management-plans">www.rfs.nsw.gov.au/plan-and-prepare/know-your-risk/bush-fire-risk-management-plans</a>

Table 3. Natural hazards data – Coastal hazards

Author	Resource	Description	Location*
NSW Government	<a href="#">Coastal Management Act 2016 (CM Act)</a>	The CM Act establishes a strategic framework and objectives for managing coastal issues in NSW. It contains definitions of coastal hazards, and under this act, council's may prepare a coastal management program (CMP). CMPs set the long-term strategy for the coordinated management of the coast, they identify coastal management issues and the actions required to address these issues in a strategic and integrated way.	<a href="https://legislation.nsw.gov.au/view/whole/html/inforce/current/act-2016-020#statusinformation">https://legislation.nsw.gov.au/view/whole/html/inforce/current/act-2016-020#statusinformation</a>

Author	Resource	Description	Location*
NSW Government	<a href="#">State Environmental Planning Policy (Resilience and Hazards) 2021</a> (previously known as State Environmental Planning Policy (Coastal Management) 2018)	This SEPP combines all the resilience and hazards aspects of previous State Environmental Planning Policies into one instrument. The Coastal Management chapters aim to promote an integrated and co-ordinated approach to land-use planning in the coastal zone in a manner consistent with the objects of the <i>NSW Coastal Management Act 2016</i> . This includes managing development in the coastal zone and protecting the environmental assets of the coast, establishing a framework for land-use planning to guide decision making in the coastal zone and mapping the four coastal management areas that comprise the NSW coastal zone. This data is also available for viewing in the Department’s ePlanning Spatial Viewer.	<a href="https://legislation.nsw.gov.au/view/html/inforce/current/epi-2021-0730">https://legislation.nsw.gov.au/view/html/inforce/current/epi-2021-0730</a>

Table 4. Natural hazards data – Drought

Author	Resource	Description	Location*
Department of Primary Industries	<a href="#">Combined Drought Indicator</a>	The CDI tracks all phases of drought onset and recovery: non-drought, recovering, drought affected, drought, intense drought. The CDI combines meteorological, hydrological and agronomic definitions of drought using indexes for rainfall, soil water, plant growth, and drought direction.	<a href="https://edis.dpi.nsw.gov.au">edis.dpi.nsw.gov.au</a>

Table 5. Natural hazards data – Floods

Author	Resource	Description	Location*
NSW State Emergency Service	<a href="#">NSW Flood Data Portal</a>	The portal is a joint project between NSW State Emergency Services and the Department to improve the sharing of key flood data within government and to other stakeholders. The portal includes over 2,500 datasets with flood studies of regions throughout NSW.	<a href="https://floodata.ses.nsw.gov.au/about">https://floodata.ses.nsw.gov.au/about</a>

Table 6. Natural hazards data – Tsunami

Author	Resource	Description	Location*
NSW State Emergency Service	<a href="#">Tsunami Evacuation Map</a>	This includes new maps showing evacuation areas in the event of a land-threat tsunami. While the likelihood of a land-threat tsunami on the east coast of Australia is low, the maps show the areas where residents and workers would have to move to higher ground in the event of a land-threat tsunami. There is no record of a land-threat tsunami in Australia since European settlement.	<a href="http://www.ses.nsw.gov.au/resources-folder/tsunami-evacuation-map/">www.ses.nsw.gov.au/resources-folder/tsunami-evacuation-map/</a>

## Natural hazards management guidance

Table 7. Natural hazards management guidance – General

Author	Resource	Description	Location*
Reconstruction Authority	<p><u><i>NSW Reconstruction Authority Act 2022</i></u> (RAA)</p> <p><u><i>NSW Reconstruction Authority Regulation 2023</i></u> (RAR)</p> <p><u><i>NSW State Disaster Mitigation Plan 2024</i></u> (SDMP)</p>	<p>The NSW Reconstruction Authority (RA) is dedicated to disaster prevention, preparedness, recovery, and reconstruction. The RA is responsible for preparing the NSW State Disaster Mitigation Plan (SDMP) released in 2024, and regularly reviewing and reporting on its implementation.</p> <p>The SDMP provides guidance about the mitigation of disasters cross the State and includes actions on how we will manage the risks associated with natural hazards.</p> <p>Under the RAA, government agencies including planning authorities, local councils and State-owned corporations must have regard to the State disaster mitigation plans, including in strategic plans, and may be required to prepare disaster adaption plans.</p>	<p>Reconstruction Authority: <a href="https://www.dpie.nsw.gov.au/about-us/our-agencies/nsw-reconstruction-authority">https://www.dpie.nsw.gov.au/about-us/our-agencies/nsw-reconstruction-authority</a></p> <p>State Disaster Mitigation Plan: <a href="https://www.nsw.gov.au/nsw-reconstruction-authority/reducing-risk/state-disaster-mitigation-plan">https://www.nsw.gov.au/nsw-reconstruction-authority/reducing-risk/state-disaster-mitigation-plan</a></p>
Infrastructure NSW	<u><i>State Infrastructure Strategy (SIS) 2022-2042</i></u>	The 2022 SIS sets out Infrastructure NSW's advice on the infrastructure needs and priorities of the State for the next 20 years, and beyond. One of the strategy's objectives is to deliver assets that reduce the risk and impact of major natural hazards and shocks. The SIS recommends a whole of system approach to enhance risk identification and assessment of natural hazards.	<a href="https://www.infrastructure.nsw.gov.au/media/3705/state-infrastructure-strategy-2022-2042-full-report.pdf">https://www.infrastructure.nsw.gov.au/media/3705/state-infrastructure-strategy-2022-2042-full-report.pdf</a>

Author	Resource	Description	Location*
<p>Department of Planning, Housing and Infrastructure</p>	<p><a href="#">Resilience Outcomes for the Planning System</a></p>	<p>The ‘Resilience outcomes for the planning system’ report outlines what ‘resilience’ means in the NSW planning system, defines resilience and provides an overview of resilience considerations including the key shocks and stresses that places and communities across NSW may face. Resilience for the planning system focuses on identifying a set of values (through resilience outcomes), tailored to the role that the planning system plays in building resilient people, places and communities.</p>	<p><a href="https://www.planning.nsw.gov.au/Policy-and-Legislation/Resilience-and-natural-hazard-risk/Resilience-planning">https://www.planning.nsw.gov.au/Policy-and-Legislation/Resilience-and-natural-hazard-risk/Resilience-planning</a></p>
<p>Australian Institute for Disaster Resilience</p>	<p><a href="#">Land-Use Planning for Disaster Resilient Communities</a></p>	<p>The handbook focuses on land-use planning for new development and its role in supporting disaster-resilient communities. Its focus on land-use planning is key to increasing resilience to natural hazards into the future for new development.</p>	<p><a href="https://knowledge.aidr.org.au/resources/handbook-land-use-planning/">https://knowledge.aidr.org.au/resources/handbook-land-use-planning/</a></p>
<p>UN Office for Disaster Risk Reduction</p>	<p><a href="#">Sendai Framework for Disaster Risk Reduction 2015-2030</a></p>	<p>The framework outlines 7 clear targets and 4 priorities for action to prevent new and reduce existing disaster risks:</p> <ul style="list-style-type: none"> <li>• understanding disaster risk</li> <li>• strengthening disaster risk governance to manage disaster risk</li> <li>• investing in disaster reduction for resilience</li> <li>• enhancing disaster preparedness for effective response, and to ‘build back better’ in recovery, rehabilitation and reconstruction.</li> </ul> <p>It aims to achieve the substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries over the next 15 years.</p>	<p><a href="http://www.unisdr.org/we/inform/publications/43291">www.unisdr.org/we/inform/publications/43291</a></p>



Author	Resource	Description	Location*
Council of Australian Governments	<a href="#">National Strategy for Disaster Resilience</a>	Released in 2011, this document acknowledges the increasing severity and regularity of disasters in Australia and the need for a coordinated, cooperative national effort to enhance Australia's capacity to withstand and recover from emergencies and disasters.	<a href="https://knowledge.aidr.org.au/resources/national-strategy-for-disaster-resilience/">https://knowledge.aidr.org.au/resources/national-strategy-for-disaster-resilience/</a>
AdaptNSW	<a href="#">Climate Projections and Adaptation Resources</a>	The AdaptNSW website supports the community in understanding and adapting to climate change in NSW. The site includes an interactive map of climate projections, information about projected impacts, and resources to guide climate change adaptation initiatives.	<a href="http://climatechange.environment.nsw.gov.au">climatechange.environment.nsw.gov.au</a>
Bushfire Natural Hazards Cooperative Research Centre	<a href="#">The Bushfire and Natural Hazard CRC website</a>	<p>The CRC conducts coordinated and interdisciplinary research into hazards, including bushfires, flood, storm, cyclone, heatwave, earthquake and tsunami.</p> <p>The centre draws together all of Australia's and New Zealand's fire and emergency service authorities with the leading experts across a range of scientific fields to explore the causes, consequences and mitigation of natural disasters. Research partners include universities, the Bureau of Meteorology, Geoscience Australia, and several international research organisations. This combined effort is helping to build disaster-resilient communities across Australia.</p>	<a href="http://www.bnhcrc.com.au">www.bnhcrc.com.au</a>
Australian Centre of Excellence for Local Government	<a href="#">Climate Adaptation Manual for Local Government: Embedding Resilience to Climate Change</a>	This 2-volume manual helps local government authorities across Australia to embed climate resilience in local government structures and activities. The manual helps councils entrench climate risk planning and resilience into everyday operations and to complement local efforts to reduce greenhouse gas emissions.	<a href="https://apo.org.au/node/40378">https://apo.org.au/node/40378</a>

Author	Resource	Description	Location*
Australian Institute for disaster Resilience	<a href="#">Community Engagement for Disaster Resilience</a>	The community Engagement for Disaster Resilience handbook presents nationally agreed principles of community engagement for disaster resilience and provides high-level guidance to support those who engage with communities at all phases of a disaster	<a href="https://knowledge.aidr.org.au/resources/handbook-community-engagement/">https://knowledge.aidr.org.au/resources/handbook-community-engagement/</a>

Table 8. Natural hazards management guidance – Bushfire

Author	Resource	Description	Location*
NSW Rural Fire Service	<a href="#">Planning for Bushfire Protection 2019</a>	The document provides development standards for designing and building on bushfire-prone land in NSW, including strategic planning and bushfire protection methods.	<a href="https://www.rfs.nsw.gov.au/plan-and-prepare/building-in-a-bush-fire-area/planning-for-bush-fire-protection">https://www.rfs.nsw.gov.au/plan-and-prepare/building-in-a-bush-fire-area/planning-for-bush-fire-protection</a>

Table 9. Natural hazards management guidance – Coastal hazards

Author	Resource	Description	Location*
<p>Department of Climate Change, Energy, the Environment and Water</p>	<p><a href="#"><u>NSW Coastal Management Framework</u></a></p>	<p>The NSW Coastal Management Framework establishes a modern and integrated coastal management framework for NSW. The framework is designed to better equip coastal communities to respond to existing and future coastal management challenges and opportunities.</p>	<p>NSW Coastal Management Framework:  <a href="https://www.environment.nsw.gov.au/topics/water/coasts/coastal-management/framework">https://www.environment.nsw.gov.au/topics/water/coasts/coastal-management/framework</a></p>
	<p><a href="#"><u>NSW Coastal Management Manual</u></a></p>	<p>The coastal management manual and toolkit provide guidance to assist local councils when preparing and implementing coastal management programs under the new coastal management framework.</p>	<p>NSW Coastal Management Manual and Toolkit:  <a href="https://www.environment.nsw.gov.au/topics/water/coasts/coastal-management/manual">https://www.environment.nsw.gov.au/topics/water/coasts/coastal-management/manual</a>  <a href="https://www.environment.nsw.gov.au/topics/water/coasts/coastal-management/toolkit">https://www.environment.nsw.gov.au/topics/water/coasts/coastal-management/toolkit</a></p>
	<p><a href="#"><u>NSW Coastal Management Toolkit</u></a></p>	<p>The Department of Planning, Housing and Infrastructure assists local councils to integrate land use planning recommendations from coastal management programs into the State Environmental Planning Policy (Resilience and Hazards) 2021, local environmental plans and development control plans to enable risk-based decision making.</p>	

Author	Resource	Description	Location*
<p>Department of Planning, Housing and Infrastructure</p>	<p><a href="#">NSW Coastal Design Guidelines 2023</a></p> <p><a href="#">Section 9.1 Direction – 4.2 Coastal Management</a></p>	<p>The NSW Coastal Design Guidelines 2023 aim to improve decision-making, built outcomes and environmental performance in coastal places through strategic land use planning and urban design. The NSW Coastal Design Guidelines can assist councils, developers and others involved in designing coastal places by shaping good urban design outcomes within coastal settlements.</p> <p>The NSW Coastal Design Guidelines must be used when seeking to amend a local environmental plan within the coastal zone. This provision is applied in Direction 4.2 Coastal Management, issued by the Minister for Planning under Section 9.1 of the <i>Environmental Planning and Assessment Act 1979</i>.</p>	<p><a href="#">Coastal Design Guidelines:</a> <a href="https://www.planning.nsw.gov.au/policy-and-legislation/coastal-and-marine-management/coastal-design-guidelines">https://www.planning.nsw.gov.au/policy-and-legislation/coastal-and-marine-management/coastal-design-guidelines</a></p> <p><a href="#">Section 9.1 Direction – 4.2 Coastal Management:</a> <a href="https://www.planning.nsw.gov.au/sites/default/files/2023-03/local-planning-directions.pdf#page=45">https://www.planning.nsw.gov.au/sites/default/files/2023-03/local-planning-directions.pdf#page=45</a></p>
<p>CoastAdapt</p>	<p><a href="#">Planning approaches and instruments for adaptation</a></p>	<p>This is one of 10 information manuals that form part of a coastal climate risk management tool in support of coastal managers adapting to climate change and sea-level rise. The manual is written for a non-specialist audience.</p>	<p><a href="https://coastadapt.com.au/information-manuals">https://coastadapt.com.au/information-manuals</a></p>
<p>Engineers Australia</p>	<p><a href="#">Climate Change Adaptation Guidelines in Coastal Management and Planning</a></p>	<p>Directed at local government engineers and managers whose area of responsibility includes a section of the Australian coastline, the guidelines assist in making appropriate decisions in managing coastal development problems subject to climate variability and change, including when to call for additional expert advice.</p>	<p><a href="http://www.engineersaustralia.org.au/sites/default/files/content-files/2016-12/climate_change_adaptation_guidelines.pdf">www.engineersaustralia.org.au/sites/default/files/content-files/2016-12/climate_change_adaptation_guidelines.pdf</a></p>

Table 10. Natural hazards management guidance – Flood

Author	Resource	Description	Location
Department of Climate Change, Energy, the Environment and Water	<a href="#">Floodplain Development Manual</a>	The manual supports the Flood-Prone Land Policy in its aim to reduce the impact of flooding and flood liability on owners and occupiers of flood-prone property, and to reduce public and private losses. The manual is a guide to managing flood liable land and helps councils develop and implement local floodplain risk management plans.	<a href="https://www.environment.nsw.gov.au/topics/water/floodplains/floodplain-manual">https://www.environment.nsw.gov.au/topics/water/floodplains/floodplain-manual</a>
Department of Planning, Housing and Environment	<a href="#">Flood-prone land package</a>	The flood-prone land package commenced on 14 July 2021. The package provides advice to councils on considering flooding in land-use planning and aims to: <ul style="list-style-type: none"> <li>• support better management of flood risk beyond the 1% annual exceedance probability,</li> <li>• ensure best management practices in managing and mitigating severe to extreme flood events, and</li> <li>• build greater resilience into communities in floodplains and reduce potential property damage and loss of life in recognition of increasing extreme flood events throughout NSW.</li> </ul>	<a href="https://pp.planningportal.nsw.gov.au/flood-prone-land-package">https://pp.planningportal.nsw.gov.au/flood-prone-land-package</a>
Department of Planning, Housing and Environment	<a href="#">Flood planning circular: PS24-001</a>	This circular supplements PS 21-006 <i>Considering flooding in land use planning: guidance and statutory requirements</i> to provide additional information in relation to addressing flood risk in land use planning and development assessment. It assists councils and other planning authorities in applying a risk-based approach to flooding assessment and provides decision-making advice on current flood-related planning policies and flood matters.	<a href="https://www.planning.nsw.gov.au/sites/default/files/2024-03/planning-circular-ps-24-001-update-addressing-flood-risk-planning-decisions.pdf">https://www.planning.nsw.gov.au/sites/default/files/2024-03/planning-circular-ps-24-001-update-addressing-flood-risk-planning-decisions.pdf</a>

Author	Resource	Description	Location
NSW State Emergency Services	<a href="#">Managing Flood Risk Through Planning Opportunities</a>	This publication provides guidance on land-use planning in flood-prone areas. The guide includes information about identifying and reducing risk, planning for evacuation, the impacts of flooding and reducing risk through land-use planning.	<a href="http://www.ses.nsw.gov.au/media/2248/land_use_guidelines.pdf">www.ses.nsw.gov.au/media/2248/land_use_guidelines.pdf</a>

Table 11. Natural hazards management guidance – Heatwave

Author	Resource	Description	Location*
AdaptNSW	<a href="#">Minimising the impacts of extreme heat: A guide for local government</a>	The guide provides information on risk to water and air quality, food safety and infrastructure networks, as well as preparing for extreme heat events. It examines approaches for minimising impacts and clarifies roles and responsibilities in relation to extreme heat events in NSW.	<p>Minimising Impact of Extreme Heat website:  <a href="https://www.climatechange.environment.nsw.gov.au/urban-heat">https://www.climatechange.environment.nsw.gov.au/urban-heat</a></p> <p>A Guide for Local Government:  <a href="https://www.ehansw.org.au/documents/item/944">https://www.ehansw.org.au/documents/item/944</a></p>
AdaptNSW	<a href="#">Adapting to climate change – Green Cover</a>	This website provides guidance on strategies to integrate green, permeable and reflective surfaces into urban environments to mitigate higher temperatures associated with climate change.	<a href="https://www.climatechange.environment.nsw.gov.au/green-cover-and-open-spaces">https://www.climatechange.environment.nsw.gov.au/green-cover-and-open-spaces</a>

## Risk assessment guidance and emergency management

Table 12. Risk assessment guidance and emergency management – General

Author	Resource	Description	Location*
International Organization for Standardization	<a href="#"><u>ISO 3100 Risk Management and Guidelines</u></a>	<p>The guidelines provide principles, a framework and a process for managing risk. They can be used by any organization regardless of its size, activity or sector.</p> <p>Using ISO 31000 can help organizations increase the likelihood of achieving objectives, improve the identification of opportunities and threats and effectively allocate and use resources for risk treatment.</p>	<a href="https://www.iso.org/iso-31000-risk-management.html"><u>https://www.iso.org/iso-31000-risk-management.html/</u></a>
Australian Institute for Disaster Resilience	<a href="#"><u>National Emergency Risk Assessment Guidelines Handbook</u></a>	<p>Understanding and reducing risk and communicating with and educating the community about risks are key drivers for action under the National Strategy for Disaster Resilience. The nationally consistent approach to risk assessment and prioritisation embodied in the National Emergency Risk Assessment Guidelines support the implementation of the strategy. The guidelines provide a contextualised, emergency-related risk assessment method consistent with the Australian Standard AS/NZS ISO 31000:2009 Risk management – principles and guidelines.</p>	<a href="https://knowledge.aidr.org.au/resources/handbook-national-emergency-risk-assessment-guidelines/"><u>https://knowledge.aidr.org.au/resources/handbook-national-emergency-risk-assessment-guidelines/</u></a>

Author	Resource	Description	Location*
Office of Emergency Management	<a href="#">NSW Emergency Risk Management Framework</a>	<p>Effectively managing emergency risk requires an integrated and all-hazards approach. The State Emergency Management Committee developed this framework to address gaps and disparities across the emergency management sector and improve decision making, with a focus on disaster mitigation.</p> <p>The framework ensures that NSW State Emergency Management Committee is integrated, systematic, and efficient. Importantly, it builds on and leverages the strengths of hazard-specific risk management approaches to improve the understanding, prioritisation, effectiveness and efficiency of emergency risk management in NSW.</p>	<a href="https://www.opengov.nsw.gov.au/publications/19459">https://www.opengov.nsw.gov.au/publications/19459</a>
Office of Emergency Management	<a href="#">State Emergency Management Plan &amp; sub plans</a>	<p>The State Emergency Management Committee produces a State Emergency Management Plan that outlines a coordinated approach for arrangements in place at the state level for a variety of emergencies. It also has numerous sub-plans that can help inform items for consideration for several hazards. There are also 11 regional emergency management plans.</p> <p>Locally, each council is part of a local emergency management committee. Land-use planners engage with their council representatives on these committee when preparing strategic plans.</p>	<a href="http://www.nsw.gov.au/rescue-and-emergency-management/state-emergency-management-plan-emplan">www.nsw.gov.au/rescue-and-emergency-management/state-emergency-management-plan-emplan</a>



Author	Resource	Description	Location*
Office of Emergency Management	<a href="#">NSW Critical Infrastructure Resilience Strategy</a>	In 2016, the State Emergency Management Committee started the NSW Emergency Management and Disaster Resilience Review. The review provides for a 10-year reform plan to build greater disaster resilience across NSW. The NSW Critical Infrastructure Resilience Strategy is a key piece of work within the review and has been developed in conjunction the NSW Emergency Risk Management Framework and the NSW 2017 State Level Emergency Risk Assessment. The strategy promotes NSW critical infrastructure that can withstand shock events to continue operating or be returned to service as soon as possible after any disruption and responds to long-term stresses.	<a href="#">RFS.5002.0001.0941.pdf (royalcommission.gov.au)</a>
UN Office for Disaster Risk Reduction	<a href="#">Words into Action guidelines: National disaster risk assessment</a>	These guidelines motivate and guide countries in establishing a national system for understanding disaster risk, and to implement holistic assessments that provide an understanding of the many different dimensions of disaster risk. The guidelines were produced in support of the Sendai Framework for Disaster Risk Reduction 2015–2030.	<a href="http://www.unisdr.org/we/inform/publications/52828">www.unisdr.org/we/inform/publications/52828</a>
Department of Planning, Housing and Infrastructure	<a href="#">Guide to Climate Change Risk Assessment for Local Government</a>	This guide offers practical guidance regarding conducting or revising a climate change risk assessment, including guidance on decision making under conditions of uncertainty.	<a href="https://www.climatechange.environment.nsw.gov.au/sites/default/files/2021-06/">https://www.climatechange.environment.nsw.gov.au/sites/default/files/2021-06/</a>
Department of Planning, Housing and Infrastructure	<a href="#">Regional Vulnerability Assessments (Enabling Regional Adaptation)</a>	This project collects local knowledge to understand vulnerabilities on a regional scale and includes a guide that sets out the steps involved in identifying climate change vulnerabilities.	<a href="https://www.climatechange.environment.nsw.gov.au/enabling-regional-adaptation">https://www.climatechange.environment.nsw.gov.au/enabling-regional-adaptation</a>

Author	Resource	Description	Location*
Department of Planning, Housing and Infrastructure	<a href="#">Climate Risk Ready NSW Guide</a>	The guide has been developed by the Department of Planning, Housing and Infrastructure with support from NSW Treasury to help NSW Government staff to lead, influence and enable their organisations to better understand their exposure to climate change risks and opportunities, and to develop plans to address them. Applying this guidance will support NSW Government to successfully adapt to climate change and seize potential opportunities.	<a href="https://www.climatechange.environment.nsw.gov.au/how-state-government-can-adapt">https://www.climatechange.environment.nsw.gov.au/how-state-government-can-adapt</a>

Table 13. Risk assessment guidance and emergency management – Landslide

Author	Resource	Description	Location*
National Parks and Wildlife Service (NPWS)	<a href="#">Guidelines for Quantitative Risk to Life Calculations for Landslides</a>	These guidelines outline the NPWS’ approach to calculating the impact of landslides. Although the guidelines are specific to national parks, the guidance can be applied more broadly when managing the risk and the impact of landslides.	<a href="https://www.environment.nsw.gov.au/research-and-publications/publications-search/quantitative-risk-to-life-calculations-for-landslides-guidelines">https://www.environment.nsw.gov.au/research-and-publications/publications-search/quantitative-risk-to-life-calculations-for-landslides-guidelines</a>

## Research and other reference material

Table 14. Research and other reference material – General

Author	Resource	Description	Location*
Government Architect NSW	<a href="#">Connecting with Country</a>	This framework is used for developing connections with Country that can inform the planning, design, and delivery of built environment projects in NSW.	<a href="https://www.planning.nsw.gov.au/government-architect-nsw/policies-and-frameworks/connecting-with-country">https://www.planning.nsw.gov.au/government-architect-nsw/policies-and-frameworks/connecting-with-country</a>
2020 Royal Commission into National Natural Disaster Arrangements	<a href="#">Royal Commission into National Natural Disasters Arrangements Final Report</a>	The royal commission looked at natural disasters generally. They considered disaster arrangements at the national level and focused on what could be done to improve arrangements before, during and after a disaster. Chapter 12 specifically talks about planning for evacuation while Chapter 19 looks at land-use planning and building regulations.	<a href="https://naturaldisaster.royalcommission.gov.au/">https://naturaldisaster.royalcommission.gov.au/</a>
Arup International Development with the Rockefeller Foundation	<a href="#">City Resilience Framework</a>	The framework aims to provide a lens through which to understand the complexity of cities and the numerous factors that contribute to a city's resilience. The framework focusses on a strategic methodology to enhance the performance of city systems in the face of multiple hazards, rather than traditional disaster risk management, which focusses on single events.	<a href="https://www.rockefellerfoundation.org/report/city-resilience-framework/">https://www.rockefellerfoundation.org/report/city-resilience-framework/</a>
Australian Institute for Disaster Resilience	<a href="#">Australian Disaster Resilience Knowledge Hub</a>	The knowledge hub provides a range of national resources for understanding disaster resilience, such as the Australian Journal of Emergency Management and a historical record of disaster events that have affected Australia.	<a href="https://knowledge.aidr.org.au/">https://knowledge.aidr.org.au/</a>

Author	Resource	Description	Location*
Risk Frontiers	<a href="#">Insights</a>	Risk Frontiers is a private organisation providing risk management and catastrophe modelling and solutions. While most information is only available to clients, a range of briefing notes are available on subjects such as catastrophe loss models, hailstorm, and flood.	<a href="https://riskfrontiers.com/insights/">https://riskfrontiers.com/insights/</a>
NSW Health	<a href="#">Emergency Preparedness: Natural disasters and severe weather</a> and <a href="#">Major Evacuation Centres: Public Health Considerations</a>	The NSW Health website contains a section dedicated to emergency preparedness, which may be a useful resource for incorporating public health into natural hazards planning. In addition, the site contains factsheets such as ‘Major Evacuation Centres: Public Health Considerations’.	Emergency Preparedness: Natural disasters and severe weather: <a href="https://www.health.nsw.gov.au/emergency_preparedness/weather/Pages/default.aspx">https://www.health.nsw.gov.au/emergency_preparedness/weather/Pages/default.aspx</a>  Major Evacuation Centres: Public Health Considerations: <a href="https://www1.health.nsw.gov.au/pds/Pages/doc.aspx?dn=GL2018_002">https://www1.health.nsw.gov.au/pds/Pages/doc.aspx?dn=GL2018_002</a>
Adapt NSW	<a href="#">Impacts of climate change</a>	This site collates information relating to the projected impacts of climate change on a wide range of natural hazards, including bushfire, east coast lows, floods and storms, extreme heat, and sea level rise.	<a href="https://www.climatechange.environment.nsw.gov.au/impacts-climate-change">https://www.climatechange.environment.nsw.gov.au/impacts-climate-change</a>
Adapt NSW	<a href="#">Towards a Resilient Sydney Adaption Review Paper 2014</a>	This paper, which forms part of the Towards a Resilient Sydney project, examines global examples to identify ‘best-practice’ principles and actions for urban adaptation planning for climate change.	<a href="https://www.climatechange.environment.nsw.gov.au/metropolitan-sydney">https://www.climatechange.environment.nsw.gov.au/metropolitan-sydney</a>

Author	Resource	Description	Location*
Department of Planning, Housing and Infrastructure	<a href="#">NSW Climate Change Policy framework</a>	This document aims to maximise the economic, social and environmental wellbeing of NSW in the context of a changing climate and current and emerging international and national policy settings and actions to address climate change.	<a href="https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/taking-action-climate-change">https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/taking-action-climate-change</a>
City of Sydney on behalf of the metropolitan councils of Sydney	<a href="#">Resilient Sydney: A strategy for city resilience 2018</a>	This strategy sets the direction metropolitan councils have committed to take to strengthen their ability to survive, adapt and thrive in the face of increasing global uncertainty and local shocks and stresses. This strategy calls for business, government, academia, communities, and individuals to lead and work as one city to build resilience.	<a href="https://www.cityofsydney.nsw.gov.au/governance-decision-making/resilient-sydney">https://www.cityofsydney.nsw.gov.au/governance-decision-making/resilient-sydney</a>

Table 15. Research and other reference material – Bushfire

Author	Resource	Description	Location*
2009 Victorian Bushfires Royal Commission	<a href="#">Volume II: Fire Preparation, Response and Recovery: Planning and Building</a>	The ‘Planning and Building’ section of the report evaluates the function of the Victorian planning system and the system’s performance in terms of resilience to natural hazards. The section also contains some reflection on the importance of strategic planning for natural hazard preparedness.	<a href="http://royalcommission.vic.gov.au/Commission-Reports/Final-Report/Volume-2/Chapters/Planning-and-Building.html">http://royalcommission.vic.gov.au/Commission-Reports/Final-Report/Volume-2/Chapters/Planning-and-Building.html</a>
2020 NSW Bushfire Inquiry	<a href="#">Final Report of the NSW Bushfire Inquiry</a>	Section 4 ‘Preparation and Planning – Land and Assets’ of the inquiry’s report looks at using the planning system for greater bushfire protection. It also talks about how to prepare critical infrastructure for bushfire events, the impacts of roads in emergencies and how to differentiate some sort of risk assessment for protection.	<a href="https://www.dpc.nsw.gov.au/publications/categories/nsw-bushfire-inquiry/">https://www.dpc.nsw.gov.au/publications/categories/nsw-bushfire-inquiry/</a>

Author	Resource	Description	Location*
<p>The Intergovernmental Panel on Climate Change (IPCC)</p>	<p><a href="#">Climate Change 2023 AR6 Report and Synthesis Report</a> and <a href="#">Climate Change 2022: Impacts, Adaptation and Vulnerability</a></p>	<p>The AR6 report addresses the most up-to-date physical understanding of the climate system and climate change, bringing together the latest advances in climate science, and combining multiple lines of evidence from paleoclimate, observations, process understanding, and global and regional climate simulations.</p> <p>The IPCC has also finalised the Synthesis Report (SYR) of the IPCC Sixth Assessment Report (AR6) summarises the state of knowledge of climate change, its widespread impacts and risks, and climate change mitigation and adaptation. It integrates the main findings of the Sixth Assessment Report (AR6) based on contributions from the three Working Groups and the three Special Reports.</p> <p>The second part of the sixth assessment report known as ‘climate change 2022: ‘Impacts, adaption and vulnerability’ which recognises the strong interdependent relationships between climate, people and nature. It also reviews vulnerabilities and the capacities and limits of the natural world and human societies to adapt to climate change.</p>	<p>AR6 Report: <a href="https://report.ipcc.ch/ar6/wg1/IPCC_AR6_WGI_FullReport.pdf">https://report.ipcc.ch/ar6/wg1/IPCC_AR6_WGI_FullReport.pdf</a></p> <p>Synthesis Report: <a href="https://www.ipcc.ch/report/sixth-assessment-report-cycle/">https://www.ipcc.ch/report/sixth-assessment-report-cycle/</a></p> <p>Climate Change 2022: Impacts, Adaptation and Vulnerability: <a href="https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/">https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/</a></p>