

Department of Planning and Environment

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Handbook for the Strategic Guide to Planning for Natural Hazards

December 2021



Acknowledgement of Country

The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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About the guide and this handbook

Strategic planning plays a significant role in shaping future growth, development, and community resilience. Strategic planning that effectively considers the impacts of natural hazards at an early stage in decision-making limits exposure and vulnerability to risk through appropriate zoning and development controls that account for the constraints that natural hazards place on land

We developed the Strategic Guide to Planning for Natural Hazards and an accompanying resource kit to help planning authorities and councils create more resilience in the community and build economic stability, protect valuable assets, integrate environmental principles and balance these with housing and industry demand.

This guide supports the Minister's Planning Principles through the theme Resilience and Hazards which aims to manage risks and build resilience in the face of natural and development related hazards and climate change.

The guide aims to inform the consideration of natural hazards in the preparation of:

- regional and district plans
- local strategic plans and community strategic plans
- planning proposals
- other strategic planning activities that relate to land use planning.

This handbook is a quick reference guide that provides information about key elements of the guide. The checklist in Attachment A will help planners keep track of the principles and how to consider them.

The resource kit

A resource kit has been developed to help planning authorities find the natural hazard information they need. Figure 1 outlines where the guide and resource kit (which together are known as the Natural Hazards Package) fit into the planning framework.



Figure 1. The Natural Hazard Package and the NSW Planning Framework

Natural hazards covered in the guide

The Strategic Guide to Planning for Natural Hazards covers natural hazards identified as posing a high or extreme risk to NSW¹. It also covers natural hazards that are considered to pose a risk due to the effects of climate change. Figure 2 shows a graphic of the risks considered.



Figure 2. Shows the natural hazards that are included in the Guide

¹ State Level Emergency Risk Assessment (NSW Office of Emergency Management, 2017)

Understanding natural hazard risk

A natural process has the potential to turn into a natural hazard risk when:

1. there is a presence or probability of a **natural hazard** occurring (such as those described in Appendix B of the guide),
2. people and/or property are **exposed** to the hazard
3. characteristics of a community make it **vulnerable** to the damaging effects of the hazard.

Risk reduction is achieved by decreasing the contribution from one or more of these 3 components, whilst not increasing others or increasing these to the same extent or less. Sustainable development seeks to reduce long-term risk to people and property from natural hazards. Even where little can be done to reduce the probability of natural hazards, it may be possible to reduce the exposure and/or vulnerability of a community to those hazards, and hence the risk.

Figure 3 illustrates how hazard, vulnerability and exposure contribute to natural hazards risk.

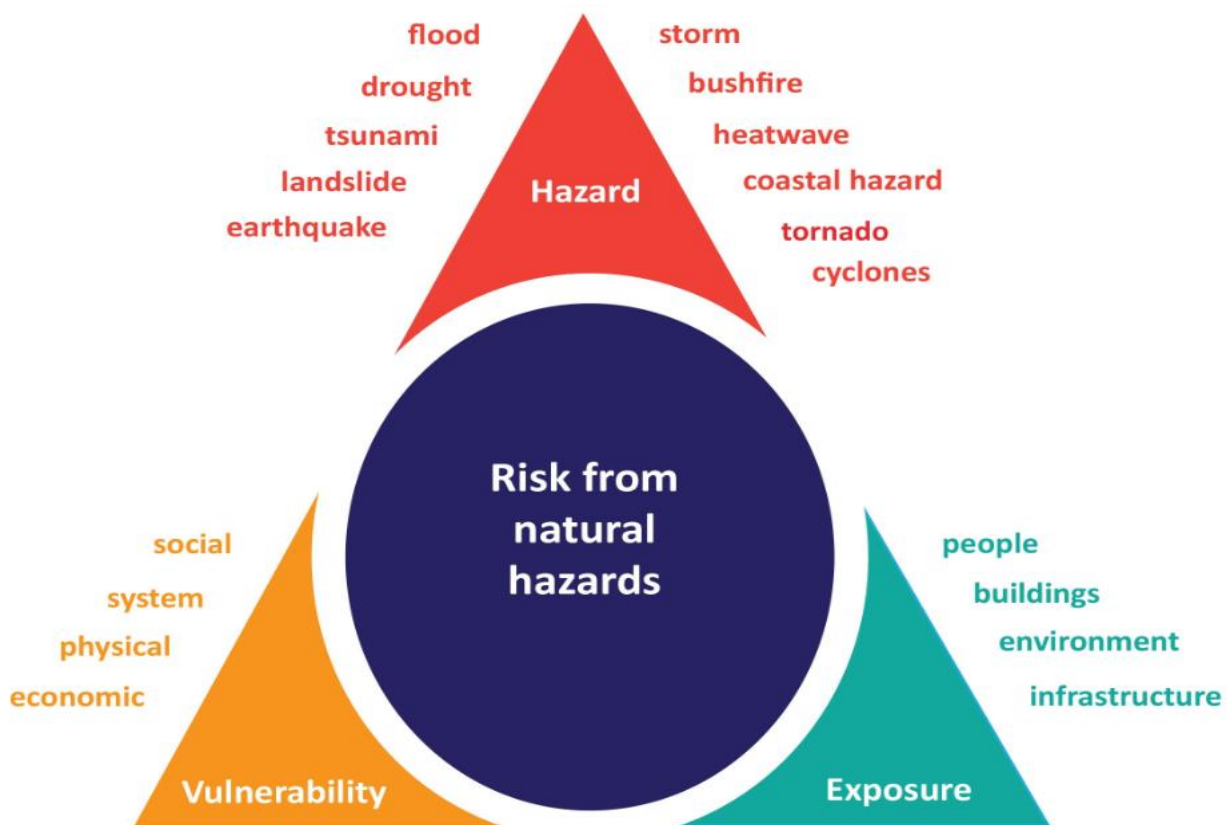


Figure 3. Example of a natural hazard risk triangle

Guiding principles to planning for natural hazards

The Strategic Guide to Planning for Natural Hazards identifies 8 guiding principles to support communities to be more resilient to natural hazards through strategic land-use planning:

1. ***Be strategic, consider risks from natural hazards early***
By considering natural hazard risk early, we can plan our communities to avoid inappropriate development in areas at risk from natural hazards.
2. ***Protect vulnerable people and assets***
Vulnerability changes over time - we need to consider the influence of trends such as population changes, fluctuations due to tourism and climate change.
3. ***Adopt an “all-hazards” approach***
NSW is faced with a diversity of natural hazards – consider each hazard in its own right, as well as the impact of coincident or cascading hazards.
4. ***Involve the community in conversations about risk and values***
For hazard mitigation efforts to be successful, the public must understand the need to change where we build, what we build, and how we build and what's of value.
5. ***Consider emergency response and evacuation***
Consider disaster response and evacuation processes - nominate evacuation routes, identify recovery facilities, and take into account vulnerable populations.
6. ***Be information driven and evidence based***
Increase the provision, use and sharing of natural hazard and settlement vulnerability mapping and scientific backing as part of strategic planning processes.
7. ***Plan to build and rebuild for the future with a changing climate***
Provide for building and recovery in a way which enhances future resilience and does not simply replace what existed with the same thing.
8. ***Understand the relationship between natural processes and natural hazards.***
Look for opportunities to utilise natural assets as a cost-effective mitigation strategy such as buffers provided by wetlands, dune systems and riparian areas.

The ‘Attachment: Considerations checklist’ section of this handbook provides the key considerations for each of the 8 principles. Use this checklist to make sure you are appropriately considering the Strategic Guide to Planning for Natural Hazards in your planning processes.

Each of these principles requires multi-disciplinary collaboration. Strategic planning calls for engagement and collective decision-making across state and local government, including with risk and emergency managers and asset owners, to manage risk in communities.

By incorporating these principles into the preparation of strategic plans we can build community resilience through multi-agency collaboration.

Attachment: Considerations checklist

Please choose the natural hazards that could pose a risk

Natural Hazard	At risk
Bushfire	YES / NO
Coastal hazards	YES / NO
Cyclone	YES / NO
Drought	YES / NO
Earthquake	YES / NO
Flood	YES / NO
Heatwave	YES / NO
Landslide	YES / NO
Severe thunderstorm	YES / NO
Tornado	YES / NO
Tsunami	YES / NO

The following checklist includes the Strategic Guide to Planning for Natural Hazards' 8 principles and key considerations. Use this checklist to ensure you consider natural hazards at the early stages of strategic planning.

1. Be strategic, consider risks from natural hazards early	Considered
Are all relevant natural hazards identified in regional and district plans?	YES / NO
Are all relevant hazards identified at the regional scale captured by local strategic planning statements with the appropriate level of detail that reflects the local context?	YES / NO
Do strategic land use plans appropriately reflect the best available natural hazard information including hazard studies and risk management plans?	YES / NO
Have any gaps in natural hazard information been identified?	YES / NO
<ul style="list-style-type: none"> Has filling these gaps been prioritised, especially for areas where development or redevelopment likely to be impacted by natural hazards is being planned? 	YES / NO
Do development controls and guidance provided in the relevant local environmental plan and development control plans require amendment to address relevant natural hazard risks, build resilience and reflect the outcomes of strategic planning processes?	YES / NO
2. Protect vulnerable people and assets. A vulnerable community is one that is susceptible to the impacts of a hazard based on physical, social, economic and environmental factors. Communities of greater vulnerability may have one or more of the following characteristics	Considered
Are there changes in population?	YES / NO
Are there significant numbers of older or young persons?	YES / NO
Are there lower socio-economic groups?	YES / NO
Is the area regional or remote from emergency services?	YES / NO
Are there people with mobility issues?	YES / NO
Are there people with language barriers?	YES / NO
Could people be isolated during and after a hazard event	YES / NO
Is there infrastructure located in areas of high risk or that will fail/must cease operating when an event occurs?	YES / NO

3. Adopt an 'all-hazards' approach	Considered
Have all-natural hazards relevant to your local government area been identified and considered?	YES / NO
Have the areas they affect been identified and how these effects vary?	YES / NO
Have you considered the likely consequences of coincident, compound or cascading events?	YES / NO
Would a settlement, its physical infrastructure and formal and informal socio-economic supports withstand natural disaster event?	YES / NO
<ul style="list-style-type: none"> • Or compounding events? 	YES / NO
<ul style="list-style-type: none"> • Have you considered any contingencies that need to be put in place? 	YES / NO
How will climate change influence existing natural hazard risk over time?	YES / NO
Has the interaction of risk from natural and other known hazards been considered and/or mapped to ensure strategic planning considerations are adequate?	YES / NO
Do strategic plans respond proportionately to the likelihood and consequences of existing and future hazards?	YES / NO

4. Involve the community in conversations about risk and values	Considered
Has local knowledge about impacts from natural hazards including learnings from past events, especially in communities that face unique challenges such as remoteness, been captured?	YES / NO
Have local Aboriginal groups been consulted regarding Indigenous knowledge systems and land management practices?	YES / NO
Have partnerships been established to promote regional-scale coordination for natural hazard risks and infrastructure networks that are regional in scope?	YES / NO
Have natural hazard risks that may originate in other jurisdictions or cross local government boundaries, such as flooding flow-on impacts or bush fire paths, been considered?	YES / NO
Have combat agencies including Ambulance NSW, Fire and Rescue NSW, NSW Police Force, NSW Rural Fire Service, NSW State Emergency Service as well as natural hazard lead agencies been consistently involved in land-use planning to ensure collective decision making that considers the best available natural hazard information?	YES / NO
Have key stakeholders including community organisations, business enterprises and vulnerable groups been engaged and accounted for?	YES / NO
Have decision-makers, particularly elected representatives of councils, been adequately informed and briefed throughout strategic planning process?	YES / NO

5. Consider emergency response and evacuation	Considered
Have long-term population trends such as increases in populations of the very young, elderly or those with language barriers been considered?	YES / NO
Have shorter-term changes such as seasonal traffic flows and transient populations (for example, workforce and tourists) been considered?	YES / NO
Has the location of evacuation centres and other key community infrastructure been considered?	YES / NO
Are there pockets of increased density or intensity of development that may require specific evaluation planning?	YES / NO
Is more than one transit route provided in different directions to ensure people do not become trapped in a locality?	YES / NO
Is the road capacity likely to handle the amount of traffic for an evacuation of proposed and existing development in the locality?	YES / NO

6. Be information driven and evidence based	Considered
Has any relevant hazard information, including hazard studies, risk management studies and risk management plans been considered?	YES / NO
Are hazards identified in a relevant environmental planning instrument or development control plan?	YES / NO
Were the relevant hazard, risk and vulnerability studies prepared by an appropriately qualified expert?	YES / NO
Has historical data been used?	YES / NO
Has any relevant scientific modelling (such as relating to sea level rise and climate variability) been published?	YES / NO
Has the advice for best-practice principles such as those identified in the resource kit been updated?	YES / NO
Have you considered Aboriginal knowledge systems and land management practices?	YES / NO

7. Plan to build and rebuild for a future with a changing climate	Considered
Have you considered how to plan to adapt to reoccurring events?	YES / NO
Have you considered the lessons learnt from previous events?	YES / NO
Have you considered how to recover better, stronger and more resilient from events so that the next and subsequent events are less disruptive and damaging?	YES / NO
Have you identified the anticipated risks and systematically scoped out land-use planning issues that will likely need to be rectified post disaster, identifying recovery options?	YES / NO
Have you used the expertise of any lead natural hazard management agencies and disaster recovery agencies to help inform future options?	YES / NO
Have you actively involved the community and considered local intelligence to develop post-disaster settlement recovery options and inform future land-use planning directions?	YES / NO
Were any reviews of land-use and building policy/regulation following an event conducted to identify areas that need improvement?	YES / NO

8. Understand the relationship between natural processes and natural hazards	Considered
Is the relationship between biophysical features, environmental assets and 'green infrastructure' in the landscape, and the natural processes they support, understood?	YES / NO
Has a holistic view of what social, economic and environmental risks and opportunities may arise from natural processes that occur in the area been adopted?	YES / NO
Have opportunities to improve resilience by better accommodating natural processes, especially if the landscape has been disturbed in the past, been identified?	YES / NO
What lessons of past events have been learned, so that the factors that contribute to natural processes becoming natural hazard risks or disasters are better accounted for in strategic planning?	YES / NO
Has the integration of green infrastructure with the built environment been prioritised to enhance community and environmental resilience?	YES / NO
Have indigenous knowledge systems and land management practices been considered?	YES / NO