WESTERN AUSTRALIAN PLANNING COMMISSION

STATE PLANNING POLICY No. 3.4

NATURAL HAZARDS AND DISASTERS

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PREPARED UNDER SECTION 26 OF THE PLANNING AND DEVELOPMENT ACT 2005 BY THE WESTERN AUSTRALIAN PLANNING COMMISSION AND ISSUED WITH THE APPROVAL OF THE MINISTER FOR PLANNING AND INFRASTRUCTURE AND HIS EXCELLENCY THE GOVERNOR

NATURAL HAZARDS AND DISASTERS

STATE PLANNING POLICY

1. CITATION

This is a State Planning Policy made under Section 26 of the *Planning and Development Act 2005*. It applies to the planning and development of land that may be affected by natural disasters and hazards. This policy may be cited as State Planning Policy 3.4 Natural Hazards and Disasters.

2. BACKGROUND AND PURPOSE

Natural disasters in the form of rapid on-set events (as opposed to those that occur over longer periods, such as salinity or acid sulfate soils) are a common feature in Australia generally, and in Western Australia specifically.

In June 2001, the Council of Australian Governments agreed to undertake a review of natural disaster relief and mitigation arrangements.

In 2002, Emergency Management Australia released *Planning safer communities*, a manual that considers the application of the emergency risk management process to the land use planning process, as it applies to natural hazards. That manual makes the point that 'land use planning can play a key part in reducing current and future community risk. Responsible management of the environment and its resources, and flexible and responsive development can prevent or mitigate negative impacts'.

Western Australia is subject to a range of natural disasters such as floods, cyclones, storm surge, severe storms, landslide, bush fires and earthquakes. The cost of recovery and response activities associated with these disasters is immense. The most effective strategy for reducing the long-term impact of natural hazards is to integrate mitigation activities into the process of land use planning.

Mitigation can be defined as meaning measures taken in advance of, or after, an emergency aimed at decreasing or eliminating its impact on society and environment or, to use the vernacular, "prevention is better than cure". Mitigation encourages the long-term reduction of hazard vulnerability with the aim of saving lives and reducing property damage.

Land use planning has traditionally taken into account the impact of flooding when locating land uses or determining applications for development. In December 2001, the Western Australian Planning Commission (WAPC) in conjunction with the Fire and Emergency Services of Western Australia released the guidelines entitled *Planning for bushfire protection*. The approach to planning for other natural hazards has been less systematic and has not necessarily been seen as a requirement, more as an option.

A number of natural hazards are addressed in the policy.

For **flood** risk, a floodplain management study is necessary to enable meaningful application of statutory planning instruments on flood prone land.

For **bush fire,** the guidelines *Planning for bushfire protection* were produced jointly by the Department for Planning and Infrastructure, and the Fire and Emergency Services Authority, and published by the WAPC in December 2001.

While **landslides** do occur in Western Australia, the risk is relatively low. As well as the potential for landslides, earth movement can occur in areas of limestone formations especially in **karst** areas or where erosion processes have created dangerous and/or fragile cliffs.

Western Australia is vulnerable to **earthquakes** but the amount of detailed information as to the vulnerability of different areas is patchy. Geoscience Australia recently released the publication "Natural Hazard Risk in Perth" under the banner of the 'Cities Project Perth', which looks at various natural hazards in Perth and beyond. A new earthquake hazard map has been produced for the area between Cervantes and Bunbury, and east beyond Meckering and Cadoux. This includes information on attenuation and return periods, both of which are important inputs into the potential for structural damage.

Cyclonic activity in Western Australia is generally restricted to the north of the State, above the 26th parallel (as shown on Map 1).

The WAPC's state coastal planning policy (SPP 2.6) covers **coastal erosion**.

Severe storms are difficult to predict spatially, as well as in terms of their intensity and duration. Some work has been done for the metropolitan region in the 'Cities Project Perth' to produce spatially located wind speed topographic multiplier values. These modify wind speeds and may provide information to indicate those areas where wind speeds may increase, thereby increasing the risk to property damage.

Storm surge can be associated with a combination of unusually high tides, strong winds and extreme low pressure. Traditionally, storm surge is considered as one of the possible accompaniments to cyclones.

Impacts similar to those caused by storm surge can be experienced from **tsunami**, although the causes are completely unrelated. Earthquakes in subduction zones, where one of the rigid tectonic plates that comprise the earth's surface dives beneath another, usually generate tsunami. The subduction zone, which lies offshore Indonesia to the northwest of Australia, is the one that presents the most direct tsunami hazard to Australia (Geoscience Australia, 2005). These tsunami appear capable of having a severe impact on the northwest coast and to a lesser extent along the west coast of the State, but the severity of the impact will be directly related to both the strength of the earthquake that generates the tsunami and the way in which the tectonic plates slip against one another, and this is virtually impossible to predict in advance.

This policy has been prepared under Section 26 of the *Planning and Development Act 2005* and local governments must have regard to this policy in the preparation or amendment of town planning schemes, strategies and policies, and when providing comment and advice that deal with applications that may be affected by natural hazards. The **purpose** of this Policy is to encourage local governments to adopt a systematic approach to the consideration of natural hazards and disasters when performing their statutory or advisory functions.

Related planning policies are—

- State planning strategy (1997)
- Statement of Planning Policy No. 2—Environment and natural resources (SPP 2)
- Statement of Planning Policy No. 2.5—Agricultural and rural land use planning (SPP 2.5)
- Statement of Planning Policy No. 2.6—State coastal planning policy (SPP 2.6)
- Statement of Planning Policy No. 2.7—Public drinking water sources policy (SPP 2.7)
- Statement of Planning Policy No. 3—Urban Growth and Settlement (SPP 3)
- Statement of Planning Policy No. 3.2—Planning for Aboriginal communities (SPP 3.2)
- Fire planning (development control policy 3.7)
- Planning for hazards and safety (development control policy 4.2)
- Planning for bushfire protection (2001).

3. APPLICATION OF THE POLICY

This policy applies throughout Western Australia, although not all natural hazards apply equally across the State.

The provisions of this policy apply to the preparation and assessment by the WAPC of—

- Region planning schemes and strategies
- Local planning strategies
- Town planning schemes and amendments to town planning schemes
- Structure plans and outline development plans
- Planning guidelines and non-statutory plans and policies
- Subdivision applications
- Development applications.

4. POLICY OBJECTIVES

Consistent with the purpose of the policy, the objectives of this policy are to—

- Include planning for natural disasters as a fundamental element in the preparation of all statutory and non-statutory planning documents, specifically town planning schemes and amendments, and local planning strategies; and
- Through the use of these planning instruments, to minimise the adverse impacts of natural disasters on communities, the economy and the environment.

5. POLICY MEASURES

5.1 General measures

Regional and local planning strategies, structure plans, schemes, subdivisions, strata subdivision and development applications, as well as other planning decisions and instruments should have regard to the natural elements that may combine to create hazards including—

- Climate
- Geology
- Soils
- Vegetation cover
- Slopes
- Landforms
- Hydrology.

Other factors to be taken into account would include—

- The built environment
- Community awareness
- The history of hazard events in the region
- The potential for long-term changes to risk such as climate and land use change.

Considering all of these elements will enable the definition of natural hazard management areas in planning strategies and schemes.

5.2 Hazard Considerations

Flood

Proposed development on a floodplain is considered acceptable with regard to major flooding as long as it does not produce an adverse impact on surrounding development and it has an adequate level of flood protection. Land uses in flood prone areas should not allow development that will obstruct floodways.

Floodplain development strategies generally delineate a floodway that is the part of the floodplain where floodwaters are flowing fast and deep. Development proposed within a floodway that is considered obstructive to major flooding is not acceptable as upstream flood levels may increase.

The 100-year average recurrence interval flood should be used as the defined flood event. The floodplain of a defined flood event should be used as the area over which controls on land use and development need to recognise the impacts of flooding. All habitable, commercial and industrial buildings should have their floor levels above the level of the defined flood event.

Flash floods, by definition, are high intensity but short duration storm events. In areas that may be susceptible to flash flooding, additional drainage infrastructure may be required to deal with these extreme events.

The Department of Water is the state government's lead agency in floodplain mapping and floodplain management strategies.

Severe storms and cyclones

Requirements for structures to be able to withstand cyclonic winds and rain are contained within the Building Code of Australia. This policy confirms those requirements, and incorporates them by reference.

Storm surge

Where storm surge studies have been undertaken and show that inundation may occur, new permanent buildings should be constructed to take account of the effects of storm surge (including wind and wave set-up).

In areas where storm surge studies have not been undertaken, but evidence is available to demonstrate vulnerability to inundation, any development proposals should be supported by studies that demonstrate inundation will not occur.

Reference should also be made to the state coastal planning policy (SPP 2.6), for assistance in determining appropriate setbacks in coastal locations.

Tsunami

Because of the direct relationship between the strength of an earthquake, the way the tectonic plates slip against one another, and the severity of tsunami, it is not possible to be precise about setbacks that should be applied in those areas of the State considered to be most vulnerable.

The impacts of recorded tsunami, including evidence of tsunami deposited material, should be used as a guide for setbacks for any permanent or semi-permanent structures.

Coastal erosion

Development in areas affected by coastal processes, especially erosion, should take into account the requirements contained in the state coastal planning policy (SPP 2.6).

Bush fires

This statement of planning policy incorporates by reference the provisions and requirements contained in the guidelines *Planning for bushfire protection* (2001), development control policy 3.7 Fire planning, and *Rural urban bush fire threat analysis* (2003), and should be used by governments to determine those areas that are most vulnerable to bushfire and therefore where development should not be recommended.

Landslides and other land movements

As a general rule, steep slopes of approximately 15% or greater may be at risk of landslide, depending on the nature of the land (for example, whether it is rock or sand). If development is proposed in these areas, additional geotechnical investigations may be required, or specific measures taken in the construction of buildings.

If infrastructure is proposed across slopes that may increase the possibility of land moving, additional measures may be required in order to mitigate against landslides.

The Building Code of Australia contains advice on construction required in areas of landslide risk.

In areas of limestone formation, such as karst areas or limestone cliffs, development proposals must have regard to the specific conditions that exist, which may prohibit certain types of development while requiring others to have particular engineering standards applied to them.

Earthquakes

While new information has been gathered by the 'Cities Project Perth', the best available existing information on earthquakes should be used, and requirements of the Building Code of Australia for developments in earthquake prone areas should be followed as necessary.

6. IMPLEMENTATION

The purpose of this policy is to inform and guide the WAPC in the undertaking of its planning responsibilities, and in integrating and coordinating the activities of State agencies that influence the use and development of land that may be affected by natural hazards. The policy will also guide local governments, other agencies, the State Administrative Tribunal and state government of those aspects of state planning policy concerning natural hazard mitigation that should be taken into account in planning decision-making.

There are many agencies that have the power to permit development that may be subject to natural hazards. While recognising these responsibilities, this policy provides a checklist to enable the delivery of a consistent approach to natural hazard mitigation.

Implementation of the policy primarily will be through the preparation of regional and local strategic plans, statutory planning schemes and management plans, as well as through the day-to-day process of decision-making on zoning, subdivision, strata subdivision and development applications, and the actions of other State agencies in carrying out their responsibilities. New or amended region or town planning schemes should be consistent with the objectives and policy content of the policy. Local governments and state agencies should refer to this policy as an aid to consistent decision-making.

This policy also provides guidance for situations where planning decisions occur outside the framework of the *Town Planning and Development Act 1928*, such as for unallocated Crown land, pastoral leases, indigenous and conservation estate land.

Information support

Good planning requires comprehensive, accurate and up-to-date information on natural hazards. The WAPC and the Department for Planning and Infrastructure can assist with the provision of information related to natural hazards. Other agencies such as the Department of Water and the Fire and Emergency Services Authority can supply specific hazard information.

If information related to specific sites is not available, proponents may be requested to supply necessary information where the decision-making authority believes it is necessary to enable decisions to support the policy, and where the scale and nature of the development proposal makes such a request appropriate.

Commission may prepare guidelines

The Western Australian Planning Commission may prepare more detailed guidelines on the individual hazards identified in this policy, in consultation with local government and relevant state and Australian government agencies to meet the objectives of this policy and, if prepared, these should be taken into account in the determination of proposals.

7. REFERENCES

Emergency Management Australia *Planning Safer Communities* Canberra, 2002.

Queensland State Government *Draft State Planning Policy for Natural Disaster Mitigation*, Brisbane, 2002.

Federal Emergency Management Agency, various publications can be accessed through http://www.fema.gov/fima/planning.shtm

Fire and Emergency Services Authority of Western Australia *Rural Urban Bush Fire Threat Analysis*, Perth, 2003.

Standing Committee on Agriculture and Resource Management Report *Floodplain Management in Australia: Best Practice Principles and Guidelines, 1973.*

Geoscience Australia *Natural Hazard Risk in Perth*, Canberra, 2005

Map 1. Cyclonic Activity in Australia 1970-2002

Source: Commonwealth Bureau of Meteorology

Red dots: Cyclones category 3 or above

Black dots: Cyclones category 1 or 2