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**WESTERN AUSTRALIAN PLANNING
COMMISSION**

**STATE COASTAL PLANNING POLICY
GUIDELINES**

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GUIDELINES FOR COASTAL PLANNING

1 Introduction

The key objective of these guidelines is to provide detailed guidance for the application of the policy measures.

2 General Measures

The policy requirements should be applied at the earliest appropriate stage of any planning process, e.g. the foreshore reserve width should be determined during the rezoning of land. In the event this has not occurred, the foreshore reserve width should be determined at the first planning process stage initiated post rezoning; generally being structure planning of land. Community engagement should occur during any management plan formulation and coastal hazard risk management and adaptation planning should occur at structure planning, and/or strategy planning stage. Should this not have occurred it should be done as part of subdivision.

3 Development and Settlement

3.1 Development and Settlement

State Planning Policy No. 2 Environment and Natural Resources Policy sets out the principles and considerations that apply planning in terms of the environment. Coastal planning should reflect consideration of these guidelines where applicable.

State Planning Policy No. 3 Urban Growth and Settlement sets out the principles and considerations that apply planning urban growth and settlement. The aim is to facilitate sustainable patterns of urban growth and settlement by setting requirements of sustainable settlements and communities and accommodating growth and change. Coastal planning should reflect consideration of these guidelines where applicable.

In addition to the above, the following elements should also be considered.

- Coastal planning should result in sustainable development which recognises the need to balance competing economic, social and environmental demands.
- Development should not result in discharges such as sewerage, fertilisers or toxic chemicals into the coastal environment.
- Development should not result in changes to nearshore water circulation patterns. Such changes may have an adverse impact on the biodiversity or public use of foreshore areas.
- Development should not substantially alter existing natural drainage patterns, nutrient and organic matter cycling processes, near shore sediment transport patterns or water quality.
- Coastal waters support primary food production for marine fauna and flora. Coastal habitats, particularly areas of high biological productivity and biodiversity should be protected.
- Disturbance of existing vegetation during construction should be minimised. However, if unavoidable, the area should be rehabilitated after disturbance with native species of local origin to stabilise land in and around developments.
- Coastal vegetation corridors should be retained, not fragmented, and where possible, enlarged (widened and lengthened), and rehabilitated if necessary.
- Places of unique landscape, scientific and cultural significance should be conserved and managed including geomorphological, ecological, anthropological and historical sites.
- Coastal areas that provide nesting sites for marine reptiles, mammals, resident and migratory shorebirds, and sea birds should be protected from impacts of development.
- Development should be designed to prevent invasion of native habitats by introduced species/pests.
- Off-road vehicle use should be managed and kept from degrading coastal dunes, vegetation, and habitats.
- Disturbance of any endangered, threatened or priority listed species and communities present in the area should be avoided and assessed based on the applicable legislation.

3.2 Earthworks and soil

The *Acid Sulfate Soils Planning Guidelines* was released by the Western Australian Planning Commission in December 2008. The guidelines provide a practical guide outlining the range of matters required to be addressed during planning decision making processes ensuring land containing acid sulfate soils are planned and managed to avoid potential adverse effects on the natural and built environment. Ideally, coastal planning should reflect consideration of these guidelines where applicable.

In addition to the above, the following elements should also be considered.

- Development should not occur on or adjacent to unstable or mobile dunes.
- Natural sediment processes, including lithification and wind or water transport should not be significantly or permanently altered by development.
- Topsoil should be stockpiled (for as short a time as possible) and respread on bare areas. While being stockpiled topsoil should be reasonably protected from moisture to preserve the viability of the seed bank.
- Development may be restricted during certain times of the year when high wind rates may impact upon the amenity of surrounding land uses, particularly residential uses.
- Livestock should be kept from grazing in coastal dunes.

3.3 Water Resources and Management

State Planning Policy 2.9 Water Resources provides guidance for the protection and management of water resources and the implementation of total water cycle management principles in the land use planning system. Although SPP2.9 is not directed explicitly at coastal areas it is to be referred to in relation to SPP2.6 where any of the policy aims, objectives and measures are relevant and applicable to coastal planning.

The *Better Urban Water Management* document was released by the Western Australian Planning Commission in October 2008. The document provides guidance on the implementation of SPP2.9. It is designed to facilitate better management land use of urban water resources and provides a framework for how water resources should be considered at each planning stage by identifying various actions and investigations required to support planning decisions being made.

Liveable Neighbourhoods was released in 2007 to provide the strategic and operational framework for the planning and implementation of structure planning and subdivision development. Element 5 - Urban water management seeks to encourage water-sensitive urban design through the application of best planning practices and encourage innovative urban water management solutions through the application of best management practices to manage both the quantity and quality of urban stormwater run-off in a form that adds value to the adjacent land uses. The document provides guidance on the implementation of SPP2.6.

Water management issues are to reflect consideration of the SPP2.9, *Better Urban Water Management* and *Liveable Neighbourhoods*.

Stormwater management should be consistent with the *Stormwater Management Manual for Western Australia* (Department of Water 2004 - 2007) and *Decision Process for Stormwater Management in Western Australia* (Department of Water 2009).

Piped drainage outlets shall not be constructed through foreshore areas directly onto the beach. Piped drainage outlets shall terminate outside foreshore reserve areas, unless approved in an urban water management plan.

In addition to the above, the following elements should also be considered.

- Development adjacent to enclosed or partly enclosed water bodies (such as bays, estuaries, lagoons and marshes) should not impact upon processes such as nutrient cycling and should seek to avoid eutrophication or altered nutrient loads.
- Development should not alter existing sediment movement processes either towards or into water bodies from natural (or current) levels.

- Natural water movements, including ocean water and groundwater should not be significantly altered or affected by development.
- Polluted and contaminated run-off should be treated at the source. The *Contaminated Sites Act 2003* sets out obligations and responsibilities for contaminated land.
- Well vegetated margins of water bodies should be maintained to act as natural nutrient and sediment filters.
- Waste discharge into enclosed or poorly circulated water bodies should be prevented.
- Where on-site effluent treatment and disposal systems are proposed, account must be taken of soil depth, sod absorption rates, soil absorption ability and whether the superficial water table is in hydrologic connection with the sea and enclosed water bodies.
- All waste disposal facilities including rubbish tips, waste transfer stations, septic tanks, liquid and industrial waste holding areas and similar facilities shall be located landward of the foreshore reserve boundary and be designed/lined to isolate waste from the sea and other enclosed water bodies and prevent leaching.
- Stormwater retention and/or infiltration areas and, for major flow events, overland flow paths onto the beach are permitted, subject to minimal adverse impacts on the environment, including landform modifications within the dune system.

3.4 Visual Landscape

The *Visual Landscape Planning in Western Australia - a manual for evaluation, assessment siting and design* was released by the Western Australian Planning Commission in November 2007. The manual provides a suite of visual assessment techniques for incorporating landscape factors into the planning system and in Part 3, specifically addresses coastal landscapes in detail (pages 73-80). Landscape, seascape and visual landscape elements of coastal planning are to reflect consideration of the manual.

4 Coastal Hazard Risk Management and Adaptation Planning

Coastal hazard risk management and adaptation planning is intended to ensure an appropriate risk assessment and management planning framework for incorporating coastal hazard considerations into decision-making processes. It promotes the development of long-term adaptive capacity for managing coastal hazard risk through adoption of adaptive management. The primary focus of a coastal hazard risk management and adaptation plan are steps v and vi below, which are also intended to be reviewed periodically to enable the plan to adapt over time.

Coastal hazard risk management and adaptation planning should be undertaken by an appropriately qualified professional person and/or organisation.

4.1 Coastal Hazard Risk Management and Adaptation Planning Process

Coastal hazard risk management and adaptation planning should include, but not be limited to, the following elements:

- (i) Establishment of the context –determine the coastal hazard risk management context (objectives) and establish the structure of the analysis (including responsibilities and stakeholders) and risk evaluation criteria (tolerability) against which risk will be assessed.
- (ii) Coastal hazard risk identification – identify coastal hazards and the when, where, why and how of their aspects and impacts. Vulnerability assessment – identify the exposure, sensitivity and adaptive capacity of a system.
- (iii) Coastal hazard risk analysis – consequence and likelihood can be combined to produce an estimated level of risk (the likelihood of each coastal hazard risk; the consequence should this likelihood be realised; and the level of resulting coastal hazard risk for each of the potential impacts). In terms of consequence and likelihood, analyse controls (existing management strategies) and the range of consequences in the context of the controls.
- (iv) Coastal hazard risk evaluation – compare established levels of coastal hazard risk with the pre-established criteria (ranking coastal hazard risks by severity). Coastal hazard risks can then be ranked to identify priorities for their management (identifying those that require additional options). Coastal hazard risks identified as low priority can possibly be accepted, subject to ongoing monitoring and review.

- (v) Coastal hazard risk adaptation planning – develop and implement a management plan (through the identification and selection of the most appropriate risk management and/or adaptation options) that includes consideration of unintended side effects, funding arrangements (initial and ongoing), maintenance requirements, ability to accommodate future uncertainties, other resources, site requirements and timeframes.
- (vi) Monitor and review – the performance of the risk management (adaptation) and any changes that may affect it.
- (vii) Communicate and consult - develop and implement a communication and consultation plan to ensure that those responsible for implementing risk management, and those with a vested interest, understand the basis on which decisions are made and why adaptation actions are required.

Further guidance with regard to coastal hazard risk management and adaptation planning should be based on the latest Australian Standard. Throughout Australia the AS/NZS ISO 31000:2009 is commonly used in coastal planning risk management. This standard provides a set of internationally endorsed principles and guidance on how decision-makers can integrate decisions about risk and responses into their existing management and decision-making processes. Recently Standards Australia published AS 5334:2013 *Climate change adaptation for settlements and infrastructure – A risk based approach*, which has been adapted from ISO 31000:2009 to specifically deal with the impact of climate change on settlements and infrastructure.

Figure 1 illustrates the coastal hazard risk management and adaptation planning process.

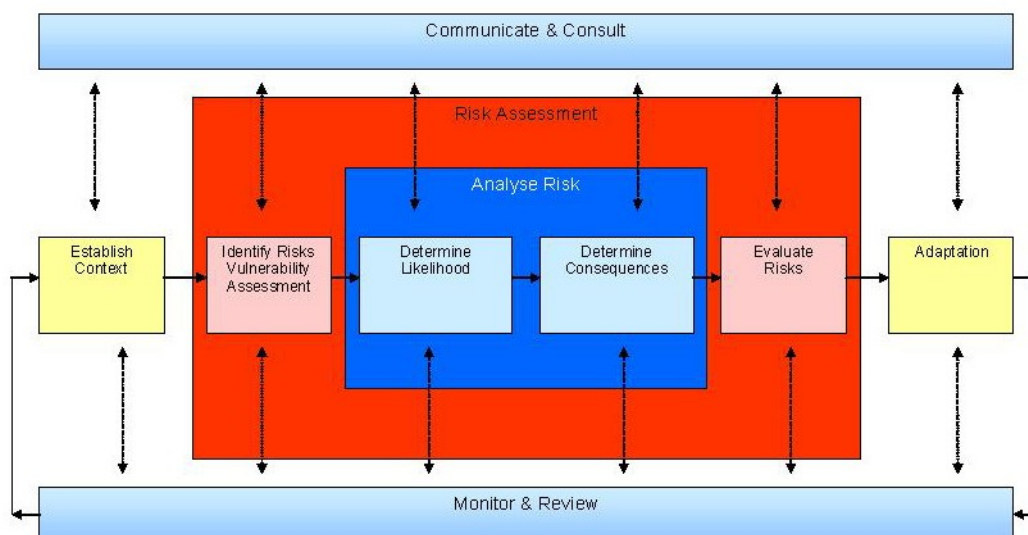


Figure 1. Coastal Hazard Risk Management and Adaptation Planning Process

4.2 Vulnerability Assessment

Vulnerability assessment is an important component of the coastal hazard risk management and adaptation planning process. It adds value by providing an understanding of how a system (where a system can be an organisation, ecosystem, physical structure and so on) such as a coastal settlement is likely to respond to external influence such as climate change, taking into account the socio-economic and ecological functions of that system. A vulnerability assessment can enable a broader view of risk issues to be identified early in the risk assessment process.

The vulnerability of a system is a function of three overlapping elements: exposure, sensitivity (potential impacts) and adaptive capacity of a system. Potential impacts are a function of exposure and adaptive capacity, while vulnerability is a function of potential impacts and adaptive capacity. Understanding the functions of the elements describes how the different elements of vulnerability are related to each other. Also understanding these elements assists with identifying threats, opportunities and potential adaptation measures arising from climate change, and provides important context and data sources for the coastal hazard risk management and adaptation planning process. Figure 2 illustrates the components of a vulnerability assessment.

Exposure

This relates to the influences or stimuli that impact on a system. This element captures the weather events and patterns that affect the system, also capturing broader influences such as changes in related

systems brought about by climate effects. Exposure represents the background climate conditions against which a system operates, and any changes in those conditions.

Sensitivity

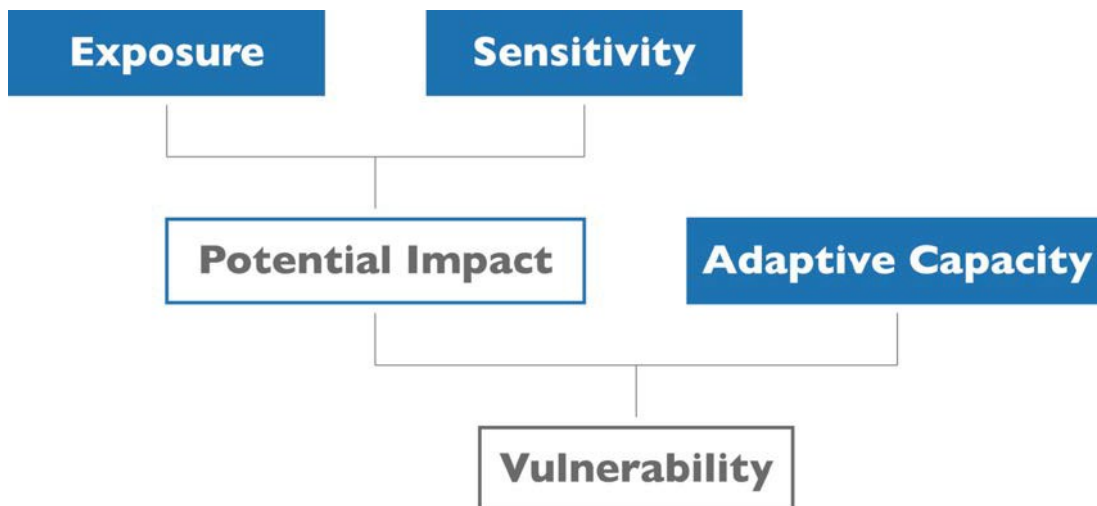
This reflects the responsiveness of a system to climatic influences, and the degree to which changes in climate might affect it in its current form. Sensitive systems are highly responsive to climate and changes to it. Understanding a system's sensitivity also requires an understanding of the thresholds at which it begins to exhibit changes in response to climate influences, whether these system adjustments are likely to be sudden 'step changes' or gradual, and the degree to which these changes are reversible.

Potential Impacts

This reflects all the potential impacts that may occur to a system given the project's environmental change and is a product of its exposure and sensitivity. However, it does not include consideration of any planned adaptation.

Adaptive Capacity

This reflects the ability of a system to change in a way that makes it better equipped to deal with external influences (coastal climate change impacts). Adaptive capacity may be increased by factors such as information about climate change impacts and effective adaptation options, resources to carry out adaptation measures and the willingness or ability of a system to implement adaptation measures.



Source: Allen Consulting Group (2005) Climate change risk and vulnerability promoting an efficient adaptation response in Australia; Australian Report to the Australian Greenhouse Office, Government Department of the Environment and Heritage

Figure 2. Components of vulnerability assessment.

4.3 Assessing Risk Adaptation Options

One of the key tasks of section 4.1 step (v) above is to select the most appropriate risk management measure or adaptation option. Adaptation options need to be assessed in terms of their:

- potential benefits;
- effectiveness in reducing losses;
- cost of implementation and ongoing maintenance; and
- impact of the adaptation option on other objectives, including the introduction of new risks or issues.

Challenges of managing risks arising from coastal hazards include long timeframes associated with changing coastal environments and uncertainties that arise from complex climatic and coastal systems. A key step in assessing potential risk adaptation options is to consider the implications of a given risk adaptation measure, on the ability of future decision makers to select risk adaptation options from the same range of risk adaptation options available in the present. This involves assessing the potential of

a risk adaptation option to restrict future risk adaptation opportunities.

Risk adaptation options that maintain a wide range of potential future risk management options should always be considered more favourably than those that (either directly or indirectly) act to limit future risk management options. By allowing a greater range of risk adaptation measures to be considered by future decision makers, risk management processes can more effectively address the challenges of uncertainty and long timeframes associated with coastal hazards. Effectively, this concept of maintaining future flexibility for risk management options is about creating coastal communities that are resilient to the uncertainties of planning in coastal environments.

It is on this rationale that the 'Avoid – Planned or Managed Retreat – Accommodate – Protect' adaptation hierarchy has been established, where 'Avoid', 'Planned or Managed Retreat', 'Accommodate' and 'Protect' refer to four broad categories of potential adaptation options available for the management of risks from coastal hazards. These four categories are described below with examples. Generally, as risk adaptation options are selected further down this hierarchy (from avoiding areas at risk to protecting development from those risks), future risk management options will diminish. As such, avoiding the placement of sensitive development within areas that are at risk from coastal hazards provides the most resilience to future (uncertain) coastal hazards. Conversely, using protection structures to allow sensitive development within areas that would otherwise be at risk from coastal hazards provides the least resilience to future (uncertain) coastal hazards.

CHRMAP is not a one-off linear process, but a continual cyclical process. Ongoing review is essential to ensure that the management plan remains relevant. Factors that may affect the likelihood and consequences of an outcome may change, as may the factors that affect the suitability or cost of the treatment options. It is therefore necessary to repeat the risk management cycle regularly.

Actual progress against the intended outcomes of risk adaptation plans provides an important performance measure and should be incorporated into the organisations performance management, measurement and reporting system.

The adaptation hierarchy is not rigidly imposed; rather it sits within the CHRMAP framework as the adaptation options available at any given point in time, during initial CHRMAP or during any subsequent review/modification of the plan as discussed above. For example, an adaptation option today to accommodate risk may, in 50 years time no longer be appropriate. Upon choosing to protect or retreat results in retreat being preferred as opposed to protecting. In this instance the decision made today has not extinguished future decision maker's flexibility in choosing from the adaptation hierarchy available within the overall CHRMAP process.

4.4 Adaptation

4.4.1 Avoid

May consider elements such as:

- rejecting the site and finding another;
- transferring development rights to another parcel better able to accommodate development; and
- avoiding development within primary and fore dunes and low-lying coastal areas.

4.4.2 Planned or Managed Retreat

May consider elements such as:

- requirement for disclosure of hazards/vulnerability, eg. notification on title;
- prevention of further development;
- leaving land and resources unprotected;
- demolition and removal of infrastructure as they become at risk by coastal hazards;
- applying easements or planning zones to allow for rolling change of land-use as it becomes affected by coastal hazards;
- prohibiting high value developments and infrastructure in at risk areas in favour of low cost activities (such as recreation, grazing etc.);
- locating major roads and key community infrastructure away from the coast with sacrificial

- connecting roads to vulnerable areas; and
- retaining public coastal land in public ownership.

4.4.3 Accommodate

May consider elements such as:

- requirement for disclosure of hazards/vulnerability e.g. notification on title;
- preparation of emergency evacuation plans to reduce the human consequences of coastal hazards;
- applying easements or planning zones to allow for rolling change of land-use as it becomes affected by coastal hazards;
- raised buildings and infrastructure in areas prone to inundation and flooding, for which:
 - building foundations should remain intact and functional
 - habitable rooms and/or floors should be sufficiently elevated to prevent floodwaters from entering the elevated building envelope during the design event
 - utility connections (e.g. electricity, water, sewer, natural gas) should remain intact or be easily restored
 - buildings should be accessible and useable following a design-level event
 - damage to enclosures below the design flood level should not result in damage to the foundation, the utility connections, or the elevated portion of the building;
- locating development on the least hazardous portion of the site;
- combining lots or parcels;
- reducing the footprint of the proposed building, and shifting the footprint away from the hazard;
- shifting the location of the building on the site by modifying or eliminating ancillary structures and development;
- seeking variances to lot line setbacks along the landward and side property lines (in the case of development along a shoreline);
- modifying the building design and site development to facilitate future relocation of the building;
- altering the site to reduce its risk to coastal hazards;
- only permit development of temporary or low value assets;
- do not permit increases in development density (rezoning/ subdivisions);
- do not permit development of high value assets (community centres, schools, hospitals);
- reduce risk to defined acceptable levels for an estimated time period;
- be designed to be durable and effective for the estimated time period and/or have reasonably well known maintenance and operating costs for the design period;
- indicate the anticipated response at the end of the estimated extended period when risks again approach intolerable levels;
- lower portions of structures are constructed of flood resistant materials and are designed to withstand water forces;
- for roads, alternative routes or other emergency contingency plans exist;
- apply appropriate risk management strategies to vulnerable areas; and
- the design of temporary or relocatable structures, or structures that could be readily repaired or reinstated following the impacts of the likely coastal hazards.

4.4.4 Protect

May consider elements such as:

- requirement for disclosure of hazards/vulnerability, eg. notification on title;
- implementation of a protection scheme;
- beach nourishment or replenishment;
- dune management;
- flood and sea walls;
- groynes;
- off-shore breakwaters or reefs;
- there is likely to be long-term commitment to a high level of development in the area to

- justify the long-term costs;
- the area will remain ultimately defensible;
- there are compelling reasons why this area rather than a less vulnerable, higher elevation areas nearby should attract continued development and occupation;
- development is located and designed so that it can be appropriately protected from risks and impacts such as inundation and coastal erosion;
- construction of coastal protective structures, or allowing space for their future construction; and
- emergency management; and construction methods or materials that reduce the consequences of inundation and/or reduce the costs of relocation.

Further to the above adaptation options, particular consideration should be given to the location outside of coastal hazard risk areas, of development such as hospitals, schools, child-care or aged-care facilities; and development of a hazardous or potentially hazardous nature, such as manufacture or storage of hazardous or dangerous materials, or waste disposal.

4.5 Ongoing Risk Management & Adaptation Planning

Ongoing monitoring and review is important to ensure that risk management and adaptation planning remains relevant. The monitoring and review process effectively converts the risk management process from a one-off linear process to a continual cyclical process.

Step vi of the risk management process described above concerns the ongoing monitoring and review of the performance of a chosen risk management and adaptation strategy or strategies. This step is important for effective risk management and is crucial to risks arising from coastal hazards, given that our understanding of coastal processes is always improving and given the long timeframes associated with some types of coastal processes and some types of coastal development. Also factors that may affect the likelihood and consequences of outcomes may change, as may factors affecting the suitability and/or cost of adaptation options. It is therefore important that monitoring and review arrangements are agreed during the original risk management process and not left until that risk management process is completed. It is therefore important to repeat the risk management cycle regularly.

As a minimum, monitoring and review arrangements need to address:

- what is being monitored and why;
- who is undertaking the monitoring work; and
- what resources are required to undertake the monitoring and who is providing those resources.

What triggers are there for a review of the risk management process to be repeated / reviewed (such as a change to the identified coastal hazards; change in community values; changes in land use; or simply a time period review).

4.6 Communication and Consultation

Communication and consultation is a key element of the risk management and adaptation planning process and should be monitored and reviewed in the same way as the risk management process, to ensure that it is meeting the objectives specified when the context of CHRMAP was being established.

S5.8(ii) of the policy further requires consultation and engagement strategies with the community based on encouraging informed input into decision-making processes. S7.1 of the guidelines further expands with guidance on what content and context such planning should include and that as is the case with CHRMAP, communication and consultation should be an ongoing process that continues to inform and be informed by the risk management process.

The existing policy requirements for CHRMAP and community consultation and engagement strategies adequately provides the requirement and framework in which communication and consultation should not be a one-off linear process, but an ongoing cyclical process constantly being monitored and reviewed and repeated as part of the CHRMAP process.

4.7 Management Authority

Coastal hazards present direct and indirect risks to management authorities. Management authorities should consider developing and implementing coastal hazard risk management and adaptation plans to enable them to prepare for and reduce or manage the impact of these risks on their operations and practices. Coastal hazard risk management and adaptation plans should be endorsed and adopted by the relevant management authority that will ultimately be the custodian and implementer of the plan.

4.8 Coastal Adaptation and Protection Grants Scheme

A responsible management authority is eligible to apply for funding assistance from the Department of Transport under the coastal adaptation and protection grant scheme, for the following purposes.

- Coastal monitoring and data collection – implementation of monitoring programs including beach and hydrographic surveys, wave and water level recordings, aerial photography and photogrammetry.
- Coastal risk management and adaptation planning – investigations/studies to determine the causes of existing coastal problems and the likely impacts of climate change, risk assessments and the development of adaptation/management solutions.
- Asset management - condition inspections of existing coastal protection infrastructure (e.g. groynes, seawalls) and development of asset management/maintenance programs.
- Construction of new coastal protection structures – design and construction of new coastal protection structures (e.g. groynes, seawalls) or ongoing beach re-nourishment. Can include preparation of tender documents and construction supervision.
- Maintenance of existing coastal protection structures.

5 Infill Development

A coastal proposal may be considered infill development if the subject site is between existing lots and adjacent to approved development. Figure 3 provides an example of an infill development site. It does not apply to coastal land adjacent to existing development on only one side (such as at the edge of a town site or zone) or where there is a reasonable distance between the lots to negate the benefit of a shared coastal hazard risk management and adaptation planning.

Figure 4 and 5 show an example of coastal development that would not be considered as infill.

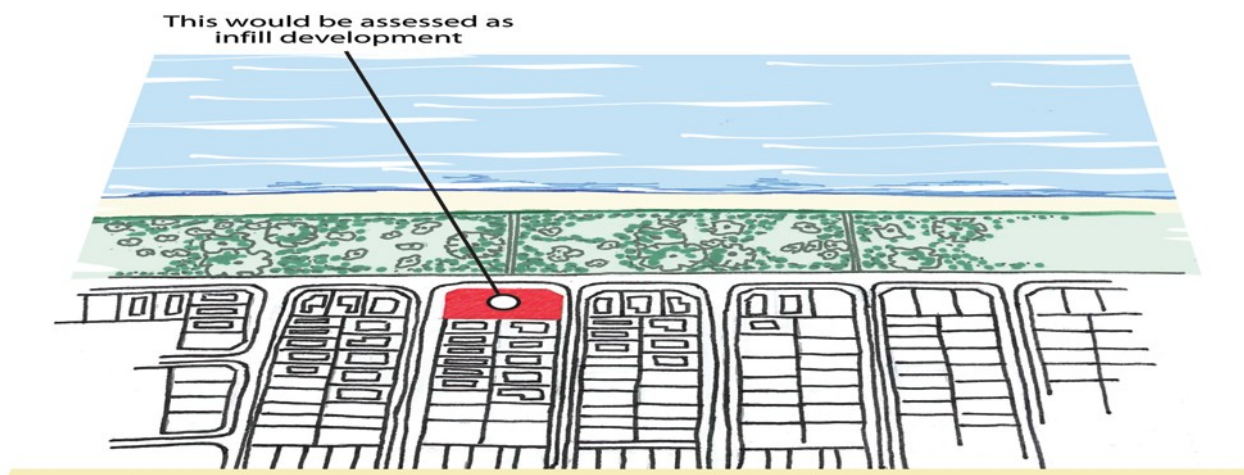


Figure 3. Assessed as coastal infill development site

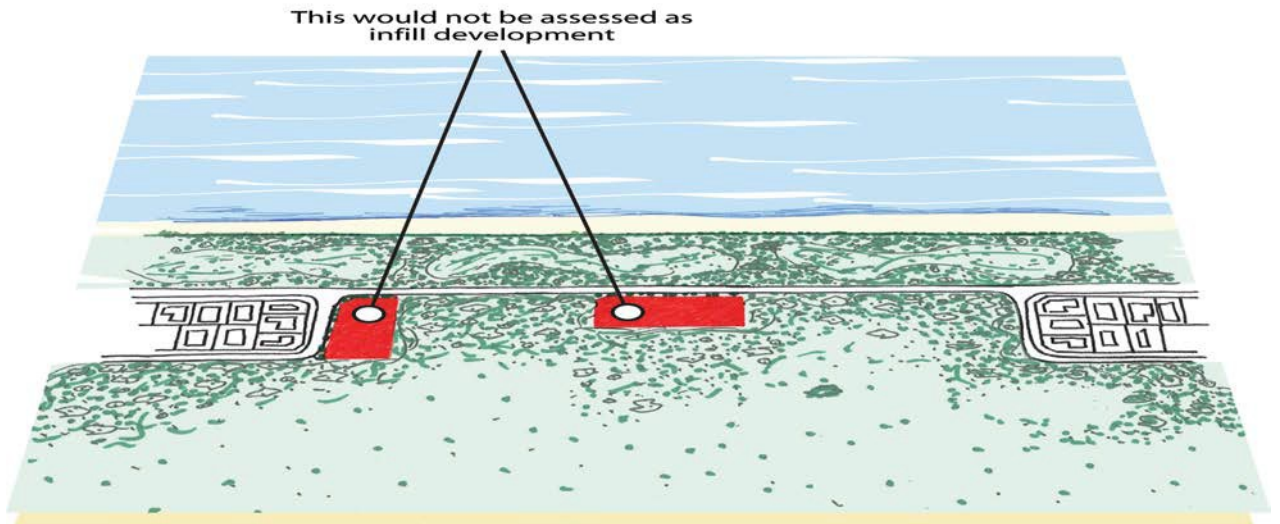


Figure 4. Not be assessed as coastal infill development site

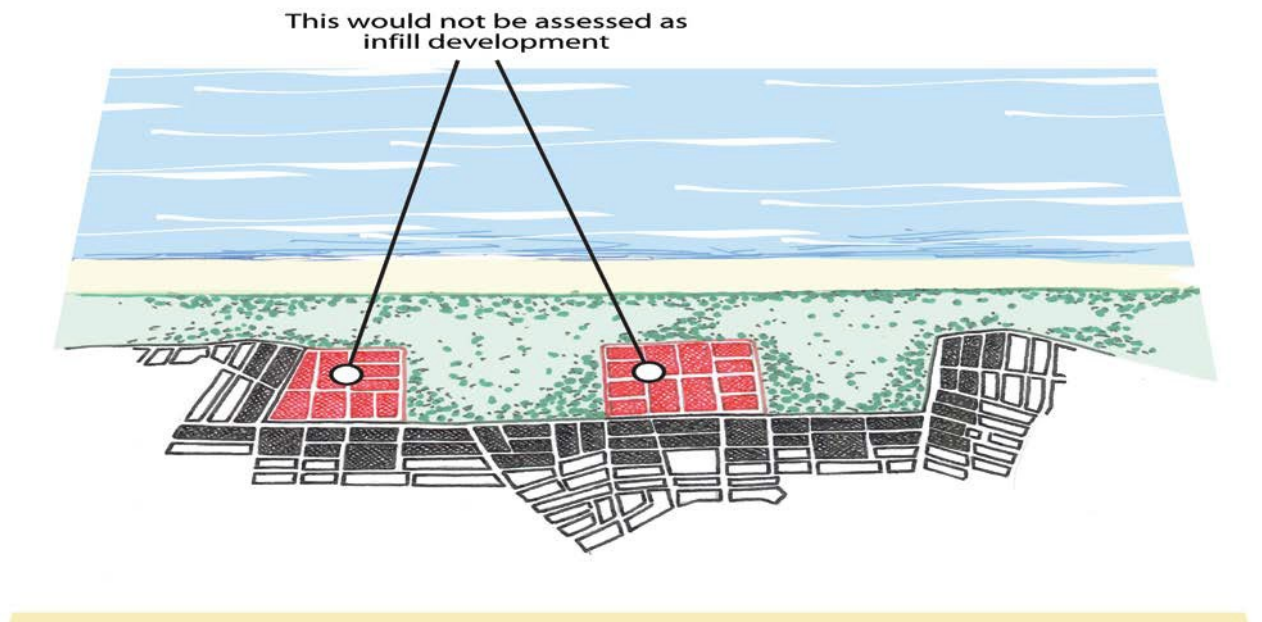


Figure 5. Not be assessed as coastal infill development site

6 Coastal Protection Works

As per SPP2.6 General Policy measures section 5.7 for protection works, and the Coastal Protection Policy for Western Australia.

7 Public Interest

7.1 Community Engagement

The risk management approach requires community understanding and engagement to be effective. Risk management measures within this policy require consideration of both coastal hazards and the consequences of those hazards. Assessing those consequences requires a full understanding of the value of all assets (natural and artificial) within potentially affected areas.

While determining likely coastal hazards may be able to be done by technical experts in isolation from affected local communities, assessing consequences is best done as an open process with input from an informed community. The following is a list of some of the benefits of engaging communities in this way.

- The true consequences of a given set of coastal hazards are best determined by those who will be directly affected by those consequences. Therefore, affected local communities and not coastal management experts are best placed to determine the acceptability or otherwise of the consequences of various coastal hazards.
- More innovative risk management measures (adaptations or treatments) are more likely to come from a wider pool of contributors to a risk management process. Potential solutions or responses to identified intolerable risks from coastal hazards should be sought from as many sources as possible, to encourage the most innovative and locally tailored solutions to be considered.
- Outcomes of a risk management process are more likely to be accepted and to be successful if the affected communities have been integrally involved in their development and take 'ownership' of risk management.

A key component of designing a community engagement strategy for the coastal hazard risk management process is to determine what type of community participation is appropriate for each key decision or stage of the process. This could range from seeking to inform or educate the community; collaborating with or empowering the community; or somewhere in the middle of this spectrum.

Determining the most appropriate type of community participation should then guide the design of the community engagement strategy including the selection of an appropriate mechanism for engaging the community. There are many different mechanisms for enabling public participation in the risk management process. These include community reference groups; steering committees; general and specific stakeholder workshops; surveys and questionnaires; public information/ education and consultation programs; the release of a draft document for public feedback; or, combinations of these.

Community engagement should also be treated as an ongoing process that continues to inform and be informed by the risk management process, rather than as a one-off event. On this basis there may be more than one stage in the process where community engagement is sought.

It is also important for consultation and community participation measures to be demonstrated and documented through any relevant planning process.

Additional guidance is provided in section 3.7 Community Consultation of the *Coastal Planning and Management Manual — A community guide for protecting and conserving the Western Australian coast* released by the Western Australian Planning Commission in August 2003. The manual provides a practical guide to coastal planning and management in Western Australia and an overview of important considerations for planning and management to protect and conserve to coast. Ideally, coastal strategies and management are to reflect consideration of the manual. Additional guidance should be sourced from this document during the formulation of a coastal planning strategy and/or foreshore management plan.

7.2 Public access

Include consideration of recreational attributes that attract people to the coast such as safe swimming beaches, surfing spots, and interesting landscape or seascape features.

Ensure connectivity with adjacent uses such as public open space, public transport access, cafes, shops, entertainment, established car parking facilities, higher density development etc.

Provide obvious and logical public access to the coast especially in the design of new subdivisions and developments to encourage the local community to walk, rather than drive to the beach.

Provide a level of public access consistent with appropriate use of the coastal location (eg. a remote coastal foreshore will not require the same level of access as an urban area).

Include consideration of safety to users. Where a known danger exists, either natural (eg. undermined cliff, slippery rock platform or strong ocean rip) or manmade (port facilities, industry including inlets or outfalls), consideration should be given to discouraging or managing access to the coast to promote

safety of coastal users (i.e. safety to lives). For example, major access to a location adjacent to a known dangerous rip may encourage people to swim there. Where such access is supported, additional management will be required to address safety.

Minimise public access (in particular off road vehicles) over eroding or steep dunes, rocky areas or other difficult terrain unless there is a demonstrated public benefit. This type of access may be susceptible to erosion or require frequent or costly maintenance.

Ensure protection of significant conservation or heritage areas through controlled access.

7.3 Coastal Roads

Generally, coastal roads should not be developed within the coastal foreshore reserve. Ideally, they should be provided within adjacent land. Construction and design of coastal road networks should generally:

- cater for continued or improved public access to the coast;
- avoid unstable or potentially unstable land;
- be designed where possible to avoid vegetation removal, alterations to natural topography, battering or other earthworks;
- consider emergency access needs to and from the coast;
- provide appropriate drainage for stormwater run-off;
- unobtrusively complement existing and proposed recreational amenities;
- be consistent with the level of access and type of recreational experience planned for an area (eg. easy access to intensive use sites, minor access to remote areas);
- provide clear demarcation between public and private land, preferably in the form of a gazetted road, Suitable road alignment should be considered when determining a foreshore reserve boundary;
- include provision for coastal dual use or pedestrian paths;
- incorporate appropriate structures to prevent uncontrolled pedestrian and vehicular access (simple fencing or barriers) to the foreshore;
- consider the need for on-street car parking to cater for coastal recreation; and
- consideration of potential view corridors .

7.4 Coastal Car Parks

Coastal car parks (for public recreation purposes) should be located:

- landwards of the likely impacts of coastal processes;
- for major car parks, landwards of the coastal foreshore reserve boundary. Where an existing or proposed coastal road separates the landward boundary of a coastal foreshore reserve, the car park may be located on the seaward side of such a road to allow for unimpeded pedestrian access;
- unobtrusively, such as behind dunes;
- to avoid prominent locations, such as the crest of a dune or coastal headland to minimise any potential impact on visual amenity, landscape or seascape features. An exception to this may be considered where a demonstrated net public benefit will result through a designated look out or viewing area; and
- to minimise environmental impacts such as sand drift, erosion and habitat loss.

7.5 Coastal Pedestrian Access

Fenced pedestrian paths should provide access to and between coastal car parks, roads, adjacent residential or other developments; and the coast. In urban areas, paths should be spaced approximately 150 metres apart, unless public access needs or local topography demonstrates a need for greater or lesser pedestrian access.

Pedestrian paths should be located to either, direct people away from environmentally sensitive or unsafe areas or toward recreational opportunities such as safe swimming beaches.

Pedestrian access paths should be sustainably designed to minimise erosion, wind tunnelling and maintenance.

Pedestrian access paths should be justified in terms of a coastal public access purpose (usually through a foreshore management plan). Their design should incorporate maximum retention of natural topography and vegetation; access to sheltered or popular locations; respect historical patterns of access such as existing tracks (if sustainable); be located on stable landforms; and if possible, be located to encourage regeneration and/or rehabilitation of degraded areas.

Pedestrian paths should be considered to encourage visitors for attraction reasons taking in areas of cultural, indigenous and natural attractions. The design should include public furniture and interpretation/signage.

Pedestrian access should provide for a range of coastal access options including special needs access (eg. wheelchair, pram or visually impaired access) at strategic locations.

7.6 Coastal Dual Use Paths

In most urban areas dual use paths (shared bicycle, wheelchair and pedestrian paths) are required to provide access along the coast. Sufficient space should be allocated for their positioning, design, construction and maintenance. Dual use paths should be:

- generally positioned landward of the coastal foreshore reserve area width required to allow for coastal processes;
- designed to promote safety to cyclists and pedestrians through clear visibility and passive surveillance from adjacent developable areas;
- located so as not to fragment remnant vegetation;
- designed to avoid vegetation removal, alterations to natural topography, battering or other earthworks; and
- where appropriate provide clear demarcation between public and private land.

Additional guidance for section 7.3–7.6 above is provided in the *Visual Landscape Planning in Western Australia — a manual for evaluation, assessment sitting and design* as described at 3.4 above.

8 Coastal Foreshore Reserve

The varied and unique nature of the coastal environment in Western Australia requires that flexible approaches are used in foreshore reserve planning and management. This policy advocates the use of the biological and physical features associated with coastal environments and its values, functions, uses and pressures to determine foreshore reserve areas. This approach allows flexibility and ‘outcome-based’ decision-making by considering a range of criteria rather than using a nominal ‘setback’ requirement. It is a sustainable approach to foreshore reserve management and does not restrict the social and economic opportunities of the coastal environment while adequately protecting the values, functions, and uses of foreshore reserves.

An appropriate coastal foreshore reserve will include the allowance for physical processes (as per Schedule One) and appropriate width to ensure a coastal foreshore reserve is maintained should the physical processes impacts be realised over the planning timeframe. In determining an appropriate foreshore reserve width, the intent is that all the values, functions and uses prescribed for current foreshore reserves today will be available at the end of the planning timeframe. Figure 6 shows a diagrammatic example of this.

This policy requirement also supports the coastal hazard risk management and adaptation planning requirement with particular regard to maintaining flexibility in long-term decision-making by not unduly diminishing future risk management options.

Assessment of a foreshore reserve width should take into consideration the beach classification (eg. Regional beach, district beach or local beach), and reasonable information to support and inform the delineation of a coastal foreshore reserve should be provided (eg. foreshore management plan, flora

and fauna survey, utilisation survey). This information must be to the satisfaction of the relevant responsible authority and provided at the earliest appropriate planning stage.

Regional Beach

Regional beaches attract numbers of people from the local area and region. They should provide large capacity car parks, cycle tracks, toilets, showers, a kiosk, parkland, lifesaving facilities and shade. Regional beaches have a relatively high level of facilities, infrastructure, commercial development and use. Examples include Hillarys, Scarborough and Cottesloe.

District Beach

District beaches are used by people living in the vicinity and will be accessed by foot, bicycle and car. They will have some recreational attractions in addition to the beach. Appropriate facilities will include car parks, cycle racks, toilets, showers and a kiosk. District beaches usually have a range of basic facilities, commercial activities and uses. Examples of district beaches include Mullaloo Beach, Whitfords, South Beach and Secret Harbour.

Local Beach

Local beaches are those that are used by people living close by and are often accessed by foot or bicycle, as well as by car. Local beaches usually have very few facilities and infrastructure, and generally record relatively low rates of use. Examples include Shoalwater Bay and Challenger Beach.

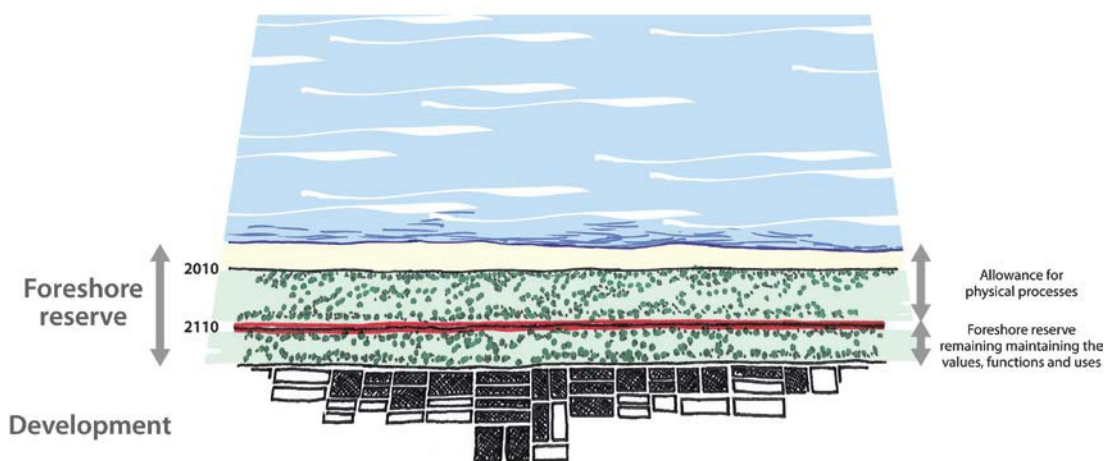


Figure 6. Coastal foreshore reserve – sandy coast example

Figure 6 illustrates a typical foreshore reserve on a sandy coast.

Additional guidance is provided in the *Coastal Planning and Management Manual – A community guide for protecting and conserving the Western Australian coast* released by the Western Australian Planning Commission in August 2003.

8.1 Ecological Values

The coastal foreshore reserve should be planned to maintain the ecological processes of the coastal location, including the functionality of the physical, hydrological and biological attributes of the area.

Current (i.e. less than five years old) spring flora surveys and fauna studies should provide accurate information on, but not limited to, existing flora and fauna, threatened ecological communities, endangered, priority listed and/or declared rare fauna and flora for the entire proposal area including the foreshore.

The boundary of the foreshore reserve should provide sufficient connectedness between habitats and ecological communities and, if appropriate, buffers.

The foreshore boundary should be located to retain and complement the existing topography and geography of the locality.

Development and subdivision proposals should seek to avoid battering or terracing in the foreshore reserve and the interface with adjoining land. If battering is required to facilitate a proposed development or subdivision, it should generally be located outside of the foreshore reserve, on zoned land at the expense of the developer. A way to avoid unnecessary battering is to locate the foreshore reserve boundary within a swale behind dune systems thus reducing the need for earthworks in the foreshore.

Where necessary, the foreshore boundary should be positioned to minimise light spill from development (including car parks) disturbing breeding grounds or other critical habitats of species that are adversely impacted by artificial light, such as turtle breeding and nesting areas.

Where other state or Commonwealth agencies are responsible for the administration of a relevant management plan, policy or legislation (such as the *Environmental Protection and Biodiversity Conservation Act 1999*), advice should be sought from the agency during the planning process.

In the event a significant alteration to existing or natural topography is supported as part of a proposal, the treatment of the development interface with the coastal foreshore reserve must be resolved prior to the commencement of any works. It is the developer's responsibility to remediate any impacts in a foreshore reserve, construct earthworks, battering or treatment resulting from the development to the satisfaction of the responsible authority. All such works should be located on the development site, be undertaken at the developer's cost, and be in accordance with an approved foreshore management plan.

8.2 Landscape, Seascape and Visual Landscape

As per Part 3.4 above.

8.3 Indigenous Heritage

Indigenous heritage may relate to a place that is significant to a particular group or groups of indigenous people for a variety of reasons including practice, observance, custom, tradition, beliefs or history.

The *Aboriginal Heritage Act 1972* prescribes requirements and obligations regarding Aboriginal heritage. The *Native Title Act 1993* governs processes for land that may be the subject of native title.

8.4 Cultural Heritage

Cultural heritage includes knowledge, places and things, including those made or changed by humans, that have aesthetic, historic, scientific, social or spiritual significance or other special value for past, present and future generations. This generally relates to European heritage as indigenous heritage is separately legislated. All levels of government are accountable for cultural heritage in Australia.

Any identified culturally significant coastal heritage sites should be incorporated into the coastal foreshore reserve with practical buffers and management to ensure protection of their values.

8.5 Public Access

As per Part 7.2 - 7.6 above.

8.6 Coastal Processes

As per SPP2.6 section 5.9 and Schedule One.

9 Coastal Strategies and Management Plans

9.1 Coastal Plan Requirements

A coastal planning strategy and/or foreshore management plan should be prepared to support proposals on the coast. The coastal planning strategy or foreshore management plan should:

- (i) take into account —
 - coastal processes
 - coastal hazards
 - landform and stability
 - natural vulnerability
 - climate change
 - ecological values
 - water quality
 - recreation and public access
 - marine resource use and access
 - landscape, seascape and visual landscape
 - indigenous heritage
 - cultural heritage
 - land capability.
- (ii) set out requirements for —:
 - coastal foreshore reserves
 - location and extent of public use, access and facilities
 - integration of coastal/marine planning and land use planning
 - protection of significant views and vistas
 - protection of significant natural landscapes
 - protection of significant indigenous heritage
 - protection of significant cultural heritage
 - protection of ecological systems
 - protection of threatened species and ecological communities.
- (iii) provide guidelines and criteria for development addressing —
 - form and scale of development
 - foreshore tenure and management
 - location, form and land use within development nodes
 - wastewater
 - stormwater and water sensitive urban design
 - coastal hazard risk management and adaptation
 - financial responsibilities for ongoing maintenance and management of foreshore areas including any foreshore protection structures.

The currency of plans relates to their need for review and is based on factors such as continued relevance, the extent and nature of change and pressures operating in the area covered by the plan.

A coastal planning strategy and/or foreshore management plan should be endorsed and adopted by the relevant management authority that will ultimately be the custodian and implementer of the plan.

Additional guidance is provided in the *Coastal Planning and Management Manual – A community guide for protecting and conserving the Western Australian coast*.

10 Precautionary Principle

The precautionary principle in coastal decision-making requires decision makers to act in response to the best available science, knowledge and understanding of the consequences of decisions and in the context of increasing uncertainty, to make decisions that minimise adverse impacts on current and future generations and the environment. In the application of the precautionary principle, private and public decisions should be guided by:

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and
- (ii) an assessment of the risk weighted consequence of various options.

11 Information Support

Proper and orderly planning requires a basis in comprehensive, accurate and up-to-date information on the current status and trends of natural resources, including use, tenure and degradation. The Western Australian Planning Commission and the Department of Planning support coastal planning and management activities through a number of sources including the:

- Coastal Planning Program; and
- Coastal Planning and Management Manual.

Specialist coastal engineering advice, including advice regarding the Coastal Protection Policy for Western Australia and the collection and analysis of data measuring the physical characteristics of the coastal zone can be obtained from the Department of Transport.

It is recognised that comprehensive, accurate and up-to-date information on the current status and trends of natural resources including use, tenure and degradation may not be immediately available to decision-maker or the community. Proponents should be requested to supply necessary information where decision-makers believe it is necessary to enable decisions to support the policies. Any information provided should ensure all methodologies and data used in an analysis is appropriate, transparent and verifiable and may be used as part of a consultation concerning a proposal.