7 MANAGEMENT RECOMMENDATIONS

7.1 Objectives for Management

The management objectives seek to maintain the values and uses of the study area (Section 5), consistent with the guiding principles for coastal management outlined in the QCP and SPP for Coastal Protection (Section 4.2.2). The objectives represent 'desired outcomes' from the SEMP.

The management objectives are also used as assessment criteria in the options assessment (see Section 2.8.3 and Appendix D).

The management objectives are listed in Table 7.1, along with some accompanying notes that provide further detail on the objective as required.

Table 7.1: Management Objectives

Management Objective	Accompanying Notes
Environmental Objectives:	
Coastal Processes Natural coastal processes are maintained.	The QCP and SPP for Coastal Protection identify a preference for maintaining natural coastal processes and fluctuations in the shoreline, including in response to SLR. This management objective articulates this preference. This objective has been translated into an options assessment criterion that considers the potential for the management option to interrupt natural coastal processes. This primarily relates to sediment transport processes (incl. erosion and accretion), but also includes the regular tidal inundation and currents. Reference is made to Table 2.1 for an overview of the potential impacts of the different management policies and options on coastal processes.
Catchment Flooding The impact of shoreline erosion management options on catchment flooding is minimised.	Catchment flooding is a natural hazard that also affects coastal areas, but that is not explicitly considered in the QCP or SPP for Coastal Protection. It is important to consider the potential impacts of the management policies and options on catchment flooding processes so as to ensure the SEMP does not result in an increase in flood hazard for any locations by, for example, impeding the passage of flood waters. In addition, the impact of catchment flooding on the technical feasibility and design life of some options has also been considered.
Ecology The ecological values of the coastal zone are maintained and enhanced where possible.	The QCP and SPP for Coastal Protection both include a number of policy outcomes that relate to coastal ecology, the general theme of which is that the ecological values of the coastal zone should be conserved and enhanced where possible. The ecological values of the area relate to a range of different features, such as coral reefs, seagrasses, foreshore vegetation, dune systems, wetlands, and the species that inhabit the study area. This objective has been translated into an options assessment criterion that considers the potential for the management policy or option to impact on the ecological values of the study area. Some of the ecological values of the study area will be protected under the legislation, which can also have implications for implementation of a particular option. In some cases, a management policy or

Management Objective	Accompanying Notes
	option may have a positive impact by protecting an ecological value.
Socio-Economic Objectives:	
Cultural Heritage The cultural heritage of the coastal zone, including both non-Indigenous heritage and that of Indigenous Traditional Owners, is maintained.	The QCP includes as a policy outcome the need to preserve Indigenous cultural heritage and traditional uses of the coastal zone. This policy outcome has been translated into a broader management objective that also relates to non-Indigenous cultural heritage. This objective has been translated into an options assessment criterion that considers the potential for the management policy or option to impact on the cultural heritage values of the study area. Both Aboriginal and European cultural heritage sites and items are protected under the relevant legislation and any options proposed should not negatively impact on any listed sites. In some cases, a management policy may have a positive impact by providing protection for a heritage site. An effort has also been made to consider the intrinsic cultural value associated with the landscape and access to the coastal zone.
Recreational Access and Amenity The recreational access and amenity of the study area is maintained and enhanced for current and future generations.	The QCP and SPP for Coastal Protection each include a policy outcome that relates to the maintenance and enhancement of public access and use of the coastal zone. This has been articulated in a management objective relating to recreational access and amenity. The options assessment criterion that has been developed in relation to this management objective seeks to assess the potential impact of an erosion management policy or option on recreational access and amenity. Reference is made to Table 2.1 for an overview of the potential impacts of the different management policies and options. It considers: - The areal extent of foreshore parks, - Public access to and use of bathing reserves, - Public access along the foreshore and between the foreshore and waterway, - Recreational facilities, and - Rates of utilisation of the various foreshore parks by the community. Those items listed above may be classed as 'public property' for the purposes of this report, being distinct from private property.
Visual Amenity The visual amenity of the shoreline is maintained or enhanced, where possible.	The SPP for Coastal Protection includes a policy outcome relating to scenic amenity, which has been translated into a management objective. The landscape character (which is a significant component of visual amenity) was identified as a highly valued feature of the Fraser coastline by members of the community. The landscape character may be defined by landscape features (e.g. headlands), particular types of vegetation, or development patterns. The way members of the public experience views is also important, be it looking towards the waterway, or looking back from the shoreline. The visual amenity and landscape character is highly variable across the study area.

Management Objective	Accompanying Notes
	This objective has been translated into an options assessment criterion that considers the potential for the management policy or option to impact on the visual amenity of the study area.
Public Safety & Critical Infrastructure The risk to public safety and critical infrastructure is minimised.	The QCP and SPP for Coastal Protection provide for the protection of communities and development from adverse coastal hazards. This management objective has been developed to address the public property and public safety aspects of 'communities and development'. Critical infrastructure may be classed as 'public property' for the purposes of this report, being provided for public benefit and used by all members of the community. Public safety and critical infrastructure are inter-related attributes. Damage to critical infrastructure (utilities or services) can act as a hazard to members of the public in the affected location. In addition, disruption or permanent loss of a service will as a minimum result in social disruption, but may also result in loss of life where an individual is dependent on a piece of critical infrastructure (e.g. access to medical services). Other aspects of public safety considered under this management objective include hazards such as tripping and falling down an erosion scarp, or exposure to a storm event. These are hazards that may be mitigated through the implementation of an erosion management policy or option.
Private Property The risk to private property is minimised.	The QCP and SPP for Coastal Protection incorporate a number of policy outcomes that are relevant to the protection of private property from shoreline erosion, noting that buildings and structures should only be located in the EPAs where they cannot be feasibly located elsewhere. This management objective has been developed to provide for consideration of the potential impacts of shoreline erosion on private property. It also considers the potential impacts of any erosion management policy or option on private property. Private property includes freehold land and any associated structures located on that land, as distinct from public property. It represents those values and uses of the study area that benefit a smaller number of members of the community.
Economic Sustainability The current values and/or uses of the coastal zone are maintained or enhanced (where possible) so as to provide for the economic sustainability of the Fraser Coast LGA.	The policy outcomes of the SPP for Coastal Protection emphasise the sustainable development of the coastline, and the protection and maintenance of coastal dependent development. This is particularly important as it relates to coastal dependent public and private development that supports the economy. This management objective was developed to ensure the Fraser Coast SEMP supports the sustainable economic development of the LGA. The economic sustainability is therefore interlinked with the other values and uses of the study area provided for under the other management objectives. Both residents and visitors are attracted to the study area because of its natural coastline. Therefore, the shoreline has an intrinsic economic value. There are, however, a range of commercial activities that support the use and enjoyment of the coastline by

Management Objective	Accompanying Notes
	members of the public as discussed in Section 5.4.4. This objective has been translated into an options assessment criterion that considers the potential for the management policy or option to impact on the economic sustainability of the study area.

7.2 Management Policies

In accordance with FCRC's brief, overarching management policies (or strategies) were developed to focus the options development process. As outlined in Table 3.1, there are five general policies available:

- No Active Intervention;
- Managed Retreat;
- Planning Controls
- Hold the Line; or
- Managed Realignment.

Management policies were developed for each of the Management Zones in accordance with the methodology outlined in Section 2.8.2. For each Management Zone the preferred and least preferred policies are listed (noting that the policy of Planning Controls effectively relates to all zones). For most Management Zones, these preferred and least preferred policies effectively divide the Management Zone into sub-zones.

An alternative management policy of Managed Realignment is also listed for each Management Zone for comparative purposes only.

Cross references are provided as to the relevant management options corresponding to each policy.

The preferred management policies have been listed in Table 7.2 and mapped in Appendix H. They have been based on an operational planning horizon of 2030 and strategic planning horizon of 2100.

Policies of No Active Intervention and Managed Retreat are not considered feasible in any location due to either the level of risk to existing development, or the need to avoid increasing the future level of risk. For the 2030 planning horizon, Hold the Line was identified as the preferred policy for those locations within each Management Zone that are currently developed. The Planning Controls policy is the preferred policy where there is presently no development at risk, although it is noted that this policy will in reality apply to the entire study area due to its focus on managing future levels of risk.

Table 7.2: Management Policies for the 2030 Planning Horizon

All Management Zones		
Management Policies:		*Management Options:*
Planning Controls: Supporting policy for 2030 planning horizon, preferred policy for 2100 strategic planning horizon (aimed at minimising future risk).		Options 6.01 – 6.05
Management Zone 1 – Burrum Heads to Eli Creek		
Risk Ratings:		
Average risk rating Storm Event*	15.67 – moderate level of risk due to proximity of existing development to the shoreline, albeit at a lower density.	
Average risk rating Long Term Erosion*	16.38 – moderate to low level of risk due to lower development densities.	
Management Policies:		*Management Options:*
No Active Intervention / Managed Retreat	Not feasible due to existing level of risk to development.	-
Hold the Line	Preferred policy where development is at risk in the short term.	Options 1.01 – 1.20
Planning	Preferred policy where there is no development is at risk.	
Managed Realignment	Alternative policy where development falls within the 2030 EPA.	Option 1.21
Management Zone 2 – Point Vernon		
Risk Ratings:		
Average risk rating Storm Event*	17.88 – lower level of risk due primarily to topography and presence of bedrock.	
Average risk rating Long Term Erosion*	18.06 – lower level of risk due primarily to topography and presence of bedrock.	
Management Policies:		*Management Options:*
No Active Intervention / Managed Retreat	Preferred policies; acceptable level of risk to development.	-
Hold the Line	Least preferred policy in the short term.	Option 2.01
Managed Realignment	Alternative policy where development falls within the 2030 EPA.	Option 2.02
Management Zone 3 – Pialba to Urangan		
Risk Ratings:		
Average risk rating Storm Event*	14.42 – moderate to high level of risk due to density of development and proximity to the shoreline.	
Average risk rating Long Term Erosion*	14.74 – moderate to high level of risk due to density of development and proximity to the shoreline.	
Management Policies:		*Management Options:*
No Active Intervention / Managed Retreat	Not feasible due to existing level of risk to development.	-
Hold the Line	Preferred policy where development is at risk in the short term.	Options 3.01 – 3.19

Managed Realignment	Alternative policy where development falls within the 2030 EPA.	Option 3.20
Management Zone 4 – Urangan Boat Harbour to River Heads		
Risk Ratings:		
Average risk rating Storm Event*	16.20 – moderate to low level of risk lower development densities and distance of development from the shoreline.	
Average risk rating Long Term Erosion*	16.75 – moderate to low level of risk due to lower development densities.	
Management Policies:		*Management Options:*
No Active Intervention / Managed Retreat	Not feasible due to existing level of risk to development, with a small number of developed areas at risk.	-
Hold the Line	Preferred policy for small number of locations where development is at risk in the short term.	Options 4.01 – 4.02
Managed Realignment	Alternative policy where development falls within the 2030 EPA.	Option 4.03
Management Zone 5 – Boonooroo to Tinnanbar		
Risk Ratings:		
Average risk rating Storm Event*	15.31 – moderate level of risk due to proximity of development to the shoreline, albeit at lower densities.	
Average risk rating Long Term Erosion*	15.81 – moderate level of risk due to lower densities of development.	
Management Policies:		*Management Options:*
No Active Intervention / Managed Retreat	Not feasible due to existing level of risk to development, with a small number of developed areas at risk.	-
Hold the Line	Preferred policy for small number of locations where development is at risk in the short term.	Options 5.01 – 5.10
Managed Realignment	Alternative policy where development falls within the 2030 EPA.	Option 5.11

*Low risk ratings represent a higher level of risk. High risk ratings represent a lower level of risk.

7.3 Management Options

A total of 62 management options have been developed for the preferred and alternative policies for each Management Zone in accordance with the methodology outlined in Section 2.8.2. In some locations FCRC may wish to consider implementing more than one option, and so the list of options includes some key combinations of options (e.g. seawall plus beach nourishment).

Each of the management options was then subjected to a cost:benefit assessment and ranked against each other using the approach detailed in Section 2.8.3. A total of 15 options were considered not technically feasible, and a total of 9 options were considered incompatible with the statutory framework. Once these options had been knocked out of the assessment, a total of 38 options remained for consideration by FCRC.

The full list of unranked options is provided in Appendix I. The outcome of the options assessment is presented in Appendix J as a list of ranked options, from highest ranked option to lowest ranked option.

The total cost of implementation of the full list of options that technically feasible and compatible with the statutory framework is $600 million, representing a capital cost of implementation of $403.9 million and an annually recurrent cost of implementation of $18.4 million over a 20 year period of implementation. However, it is important to understand that not all management options would be implemented. Some of the 38 management options remaining after the knock-out factors were applied are mutually exclusive, or may not be adopted in the Fraser Coast SEMP. The cost of implementation would therefore be subject to change and this would result in a lower cost of implementation.

It should be noted that the organisation or individuals identified (Appendices I and J) as having responsibility for implementation of various options may not have the responsibility for sourcing the funding. Potential sources of funding have not been considered herein, and it is recommended that they be discussed once FCRC has identified a final list of management options for implementation under the SEMP.