

Princess Royal Harbour CHRMAP

Chapter Report: Establish the Context

City of Albany

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EXECUTIVE SUMMARY

In the context of climate change, sea level rise, increased coastal inundation and erosion, the Western Australia Government introduced the Western Australian Planning Commission's State Planning Policy No. 2.6: State Coastal Planning Policy (WAPC, 2013, herein referred to as "SPP2.6"). SPP2.6 recommends management authorities develop a Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) for land use or development that is vulnerable to coastal hazards. Specific CHRMAP Guidelines have been developed to assist in this process (WAPC, 2019).

The Princess Royal Harbour region has been identified in Western Australia as a projected inundation hazard location and Little Grove (located within Princess Royal Harbour) is in the watchlist for coastal erosion (Seashore Engineering, 2019). This coastal hazard risk is a key trigger for the requirement of this CHRMAP. The aim of the present study is therefore to investigate and plan for coastal hazards which are likely to affect Princess Royal Harbour—refer Figure 1-1 for locality and study area extent. The study area is a semi-enclosed, natural harbour in Albany on the south coast of Western Australia. The Harbour is approximately 4 km wide and 8 km long, with an approximate area of 28 km² within the City of Albany. The harbour contains subtidal seagrass meadows and the working Port of Albany, which is a significant exporter for the state.

This CHRMAP project is expected to increase knowledge and understanding of coastal hazard risks and identify risk management and adaptation measures for implementation. The outcomes will be used to inform local government policies, strategies and plans, including (but not limited to); planning strategies, community strategic plans, drainage strategies, asset management plans, emergency management plans, and foreshore management plans. The project will adhere to the WAPC (2019) guidelines with scope and deliverables to be consistent with the objectives identified by these guidelines and SPP2.6. The project will identify the strategic direction for coastal adaptation scenarios from the present to 2122 (100-year management time frame), and identify an implementation plan to achieve this direction. Overall, this CHRMAP will develop a flexible adaptation pathway for the region and serve as a key reference for management, planning and policy making for the short-term (0-25 years), medium-term (25-50 years), and long-term (100 years).

This report presents the Stage 1 - Establish the Context Chapter Report, which outlines the key management and adaptation issues that need to be considered in the CHRMAP. The flow chart displayed in Figure 1-2 indicates where this component sits with reference to the greater study; the Establish the Context stage has the following sections— Purpose, objectives, scope, study area, community and stakeholder engagement, values, existing controls and success criteria.

The study area consists of five segments of shorelines called Management Units (MU). The Management Units have been defined by considering shoreline orientation and natural and manmade shoreline features.

- MU1 - Point King to Melville Point: hardened shoreline with natural rocks and coastal rock protection. Area of Albany Port and Albany Waterfront Marina.
- MU2 - Melville Point to Rushy Point: sandy coastline with intertidal flats. Paths and roads close to the shoreline.
- MU3 - Rushy Point to Limekilns Point: sandy and rocky coastline fronted with private properties. It is the Little Grove area and contains the Princess Royal Sailing Club.
- MU4 - Limekilns Point to Geake Point: sandy and rocky coastline. Contains the major area of Vancouver Peninsula.
- MU5 - Geake Point to Possession Point / Uredale Point: sandy and rocky coastline with presence of seawalls.

Section 7 presents a summary of the relevant planning framework for Princess Royal Harbour and the key considerations for the CHRMAP. Presently there are no location specific coastal hazard controls in place in



the study area. For context, available planning controls for addressing coastal hazards within the study area are presented in Table 7-2, together with their advantages and disadvantages.

Physical controls for the study area are summarised in Section 7.2.

During Stage 1, a Community and Stakeholder Engagement Plan was developed in order to identify relevant stakeholders and determine the structure and pathways for their engagement throughout the CHRMAP process. The objective of the engagement process is to facilitate an understanding of coastal challenges, hazards and risks, and to select appropriate adaptation strategies to respond to the risks. The activities undertaken during this stage were: Coastal Value Survey, Information Session and Intercept Surveying, Community and Business Reference Group (CBRG), and Project Awareness Campaign. A summary of the engagement findings to date is presented in Section 6. The Community and Stakeholder Engagement will resume at: Stage 3 Vulnerability Analysis with CBRG meeting, Stage 5 Risk Treatment with Community and Stakeholder Survey, and Stage 8 – Final CHRMAP with Community, Stakeholder and CBRG information.

The coastal values collated from the engagement to date have been used to generate the success criteria for the vulnerability and risk assessment component of the CHRMAP. These will be key to the whole CHRMAP as it is these that will ultimately drive the selection of adaptation options. The success criteria are defined in Section 8. These criteria will be revised during the course of the CHRMAP to ensure the final document reflects all stakeholder views. The current success criteria are listed below:

- Ensure future land use and development does not accelerate coastal erosion or inundation risks or have a detrimental impact on the functions of public reserves.
- Manage land at risk of coastal erosion and inundation to avoid inappropriate land use and development.
- Maintain the harbour for environmental health, including flora and fauna habitat.
- Conserve, enhance and maintain the natural environment and character of the study area
- Sustain the ability for the current and future generation to recreate along the harbour.
- Protect and or manage appropriately the provision of recreational assets in the coastal zone
- Maintain safety for all.
- Retain the widest possible range of risk management options for future users of the coast

The next report will cover Stage 2 - Risk identification where the following tasks will be conducted and presented:

- Hazard Assessment to identify 100-year ARI erosion and 500-year ARI inundation extents for various planning timeframes (up to and including 100 years from time of assessment).
- Identification of coastal assets both man-made and natural (social, economic, environment), public and private impacted by coastal hazards at each project planning timeframe.



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1 INTRODUCTION

It is internationally recognised that the mean sea level has been rising globally since the nineteenth century and is predicted to rise at an increasing rate in the future (IPCC, 2021). Rising sea levels and intensifying storm activity will increase the risk of coastal inundation (temporary coastal flooding), storm erosion and long-term shoreline recession. State governments across Australia have introduced obligations that require local governments to consider and plan for these hazards. In Western Australia (WA), the governing policy is the Western Australian Planning Commission's State Planning Policy No. 2.6: State Coastal Planning Policy (WAPC, 2013, herein referred to as "SPP2.6"). SPP2.6 recommends management authorities develop a Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) for land use or development that is vulnerable to coastal hazards. Specific CHRMAP Guidelines have been developed to assist in this process (WAPC, 2019).

One of the key objectives of SPP2.6 is to establish coastal foreshore reserves which include allowances for the protection, conservation and enhancement of coastal values across the state. Risk assessment processes are then utilised to identify risks that are intolerable to the community, and other stakeholders such as local governments, indigenous and cultural interests, and private enterprise. Adaptation measures are then developed according to the preferential adaptation hierarchy outlined in SPP2.6.

The study area for this CHRMAP is the entire shoreline within Princess Royal Harbour, Albany, within the City of Albany local government area (refer Figure 1-1). It consists of various shoreline types and many coastal assets, involving multiple stakeholders:

- Port and breakwaters protected by physical controls
- Roads along the shoreline protected by physical controls
- Shallow sandy foreshore backed by vegetation
- River mouths and channels through the sand bar
- Sailing club, boat ramp and other coastal infrastructure
- Presence of rock features

This CHRMAP project is expected to increase knowledge and understanding of coastal hazard risks and identify risk management and adaptation measures for implementation. The outcomes will be used to inform local government policies, strategies and plans, including (but not limited to); planning strategies, community strategic plans, drainage strategies, asset management plans, emergency management plans, and foreshore management plans. The project will adhere to the WAPC (2019) guidelines with scope and deliverables to be consistent with the objectives identified by these guidelines and SPP2.6. The project will identify the strategic direction for coastal adaptation scenarios from the present to 2122 (100-year management time frame) and detail an implementation plan describing risk management measures to be undertaken to achieve preferred risk treatments. Overall, this CHRMAP will develop a flexible adaptation pathway for the Princess Royal Harbour and serve as a key reference for management, planning and policy making for the short-term (0-25 years), medium-term (25-50 years), and long-term (50-100 years).

This report presents the Establish the Context Chapter Report, which outlines the key management and adaptation issues that need to be considered in the CHRMAP. The flow chart displayed in Figure 1-2 indicates where this component sits with reference to the greater study; the 'Establishing the Context' phase is the top bubble shaded in red.

Delivery of this project will occur over 8 stages (as summarised in Figure 1-2), each of which represents a key hold point. The staged approach is developed according to the City of Albany's scope and is in line with CHRMAP Guidelines (WAPC, 2019).



A project Steering Committee has been established to provide guidance and oversight on, and make decisions in relation to, all aspects of the CHRMAP process, including review of project deliverables. The Steering Committee plays an advisory role in the project and consists of various representatives. The members of the Steering Committee are summarised in Table 1-1.

Table 1-1 Steering Committee members

Organisation	Role of organisation in the CHRMAP process
City of Albany	Local coastal / estuarine land manager. Responsible for the execution of the project and own the outcomes of the process, advise and review deliverables based on deep understanding of local issues and priorities.
Department of Planning, Lands and Heritage (DPLH)	Technical scoping, advice and review; data custodians, presence required by funding agreement for project
Department of Transport (DoT)	Technical scoping, advice and review; data custodians.
Southern Ports (Albany)	Local coastal land manager; data custodians
Community	Two community representatives

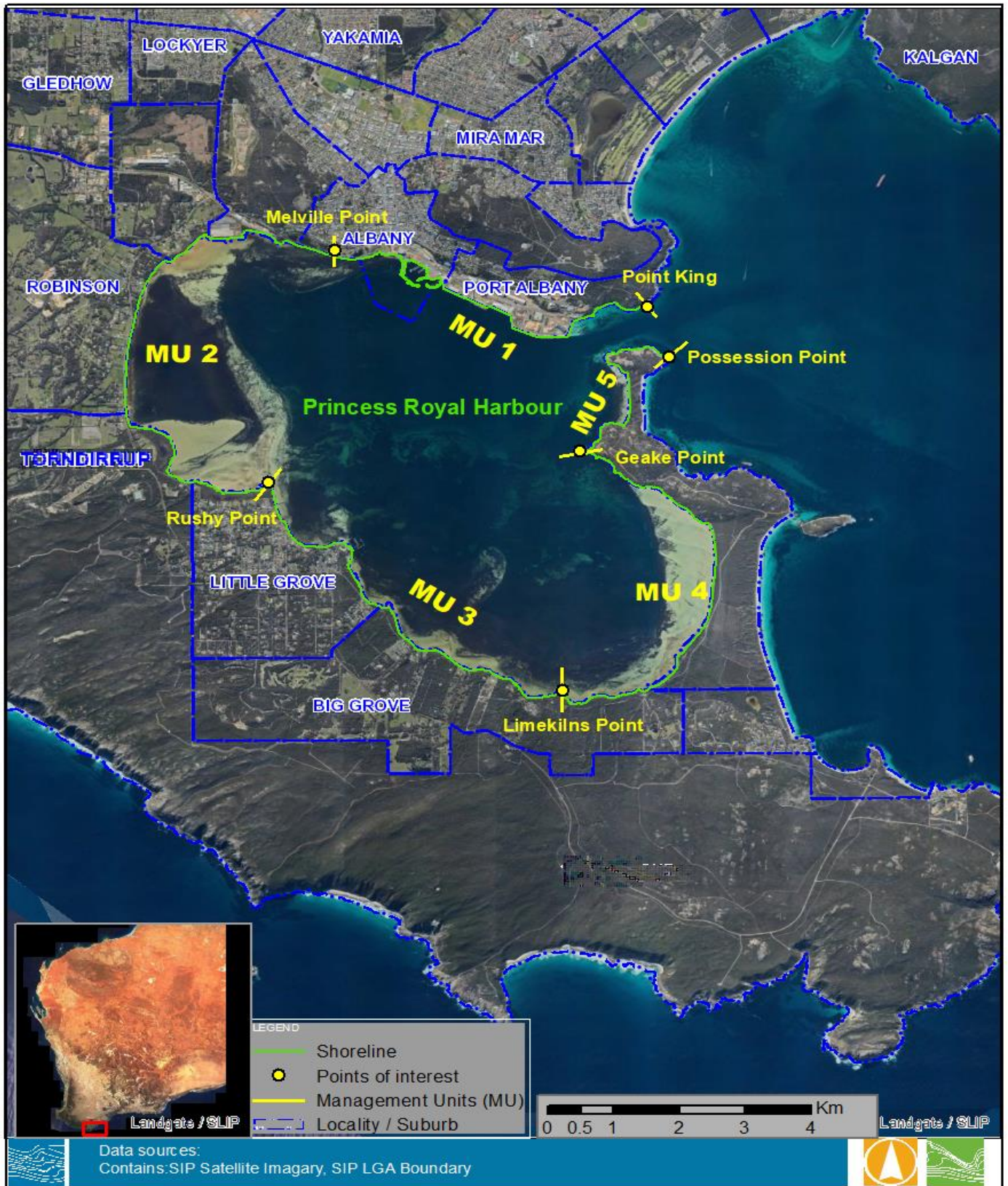


Figure 1-1 Princess Royal Harbour Study Area

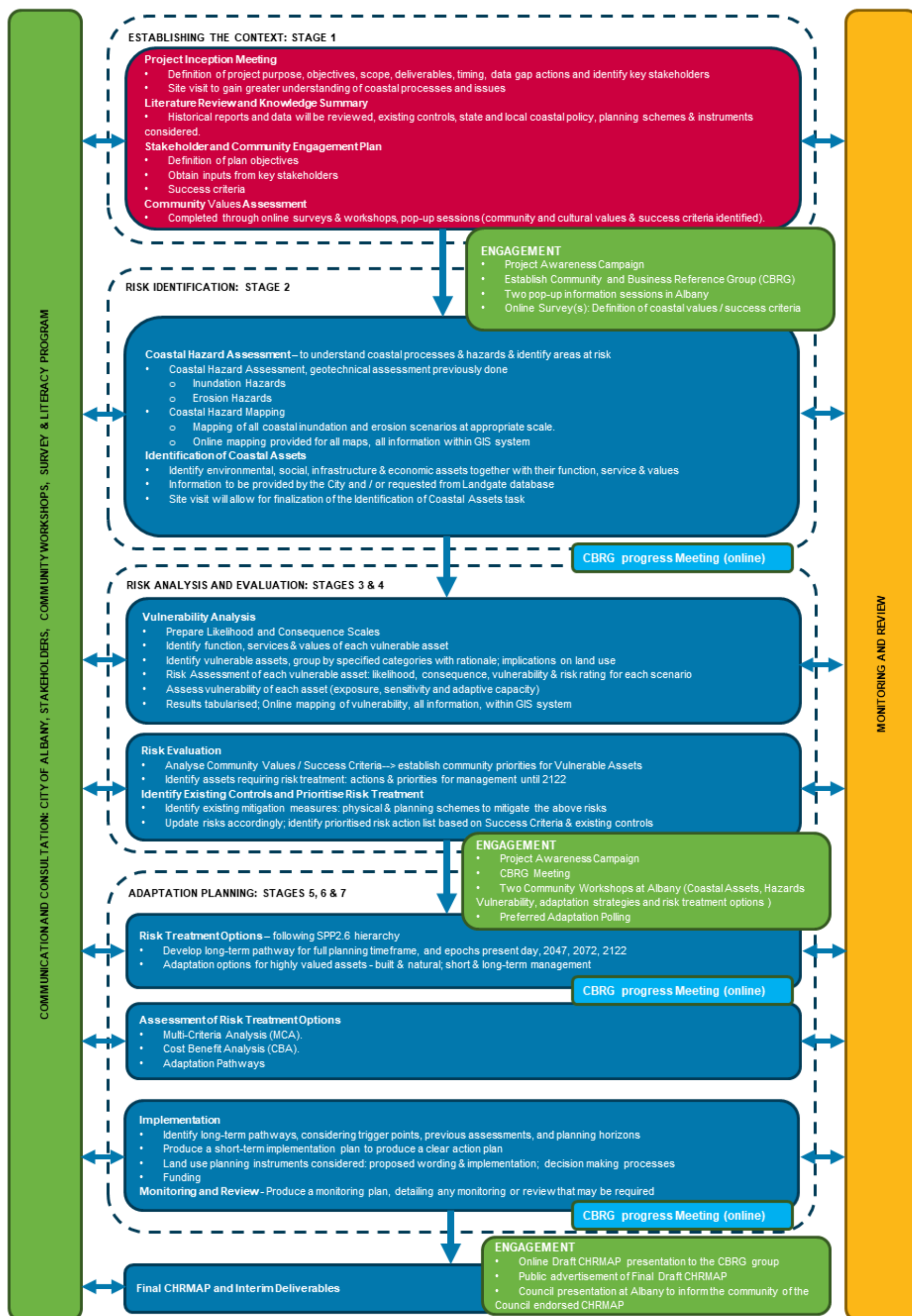


Figure 1-2 CHRMAP methodology summary



2 PURPOSE

The purpose of this project is to prepare a Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) for Princess Royal Harbour – City of Albany.

The CHRMAP will set the framework for the assessment, by identifying coastal hazards, analysing vulnerability for specific assets, identifying and prioritising management and adaptation responses, and providing an implementation plan. It will also inform the community and stakeholders about potential coastal hazard risks; identify community and stakeholders' values as well as key coastal infrastructure and assets at risk; and provide a clear pathway for the City of Albany to address coastal hazard risks over time. Ultimately, the CHRMAP will provide strategic guidance for coordinated, integrated and sustainable land use planning and management decision-making by the City of Albany. The CHRMAP will also guide necessary changes to the City of Albany Local Planning Strategy, Local Planning Scheme and other relevant strategies and local planning policies.

The CHRMAP will be prepared in accordance with the CHRMAP Guidelines and State Planning Policy 2.6 – State Coastal Planning Policy (SPP2.6).



3 OBJECTIVES

The project objectives will be achieved by the production of a CHRMAP for the study area in accordance with the CHRMAP Guidelines and SPP2.6, which is adopted by the City of Albany and used to guide future decision making for vulnerable assets in its coastal zone.

The objectives of this CHRMAP are to:

- Improve understanding of coastal features, processes and hazards in the study area
- Consider rainfall and catchment flooding in addition to storm surge inundation
- Identify significant vulnerability trigger points and respective timeframes for the relevant sediment cells to mark the need for immediate or medium-term risk management measures
- Identify assets (natural and man-made) and the services and functions they provide situated in the coastal zone
- Gain an understanding of asset(s)' vulnerability
- Identify the value of the assets that are vulnerable to adverse impacts from coastal hazards
- Determine the consequence and likelihood of coastal hazards on the assets, and assign a level of risk
- Identify possible (effective) risk management measures (or 'actions') and how these can be incorporated into short and longer-term decision-making
- Engage stakeholders and the community in the planning and decision-making process.



4 SCOPE

The full scope of the CHRMAP is presented in Figure 1-2. This report is the first stage called “Establish the Context” and its specific sections are presented below.

As per CHRMAP Guidelines (WAPC, 2019) the Stage 1 report presents:

- Purpose
- Objectives
- Scope
- Study area
- Community and Stakeholder engagement
- Community and Stakeholder coastal values (social, environmental, infrastructure, and economic)
- Existing controls
- Success criteria



5 STUDY AREA

Princess Royal Harbour is a semi-enclosed, natural harbour in Albany on the south coast of Western Australia (Figure 1-1). The Harbour is approximately 4 km wide and 8 km long, with an approximate area of 28 km². It is oriented in a north-west to south-east direction and is connected via the Ataturk entrance to the more exposed coastal waters of King George Sound and the southern Indian Ocean. The harbour is not connected to any rivers but receives freshwater inflow from rainfall runoff, groundwater seepage and drainage discharge associated with the adjacent land catchment and drainage infrastructure. The harbour contains substantial subtidal seagrass meadows and the working Port of Albany, which is a bulk products port, exporting mainly grain and woodchips, in the order of 3 to 4 million tonnes per annum. Other smaller trades are the export of silica sand and the import of fertiliser and fuel.

Princess Royal Harbour is classified as a 'tidal reach of inland waters' by SPP2.6 (WAPC, 2013). This means that it is an inland waterbody that is predominantly controlled by coastal related processes, such as tides and sea level variations. Within the harbour there are areas of 'sandy', 'rocky' (generally 'hard rock') and 'mixed sandy and rocky' coast per the definitions in SPP2.6, as well 'hardened' shorelines being controlled by coastal structures (see Section 7.2).

The harbour's coastline has been divided into 5 sections of shoreline called "Management Units" (MU) for further shoreline description and classification (refer to Figure 1-1). The Management Units have been defined by considering shoreline orientation and natural and manmade shoreline features, such as extended shoreline hardening (e.g. seawalls) and points established by geological features and/or localised sediment transport regimes. This is a similar process to that applied for the definition of 'coastal sediment cells' (see Stul, 2015), which have not been defined previously for Princess Royal Harbour.

5.1 Site Description

5.1.1 Management Unit 1: Point King to Melville Point

MU1 extends from Point King to Melville Point and is almost entirely hardened shoreline, due to naturally occurring rock or the installation of coastal rock protection. A natural rocky coastline is present from the edge of the study area at Point King to the edge of the Port of Albany at Spit Head. From here the coastline is protected by rock structures to Melville Point including, consecutively:

- Rock seawalls and sheet-piled revetments adjacent the Port infrastructure (Figure 5-1)
- Albany Waterfront Marina rock breakwaters and internal seawalls (Figure 5-1); and
- Seawall from the marina to Melville Point, along Point Frederick and adjacent Hanover Bay (Figure 5-2).

For the purpose of coastal hazard assessment/identification in the CHRMAP, the coastline protected by these structures is assumed to be sandy. The control exhibited by the structures will be considered when calculating hazard extents, based on the profile, effectiveness and remaining design life of the structures.

The bathymetry in this segment has also been modified extensively by dredging for the port's facilities. The shipping channel through the Ataturk Entrance is approximately 200 m wide and maintained to a depth of around 13 m. The manoeuvring and berthing areas directly adjacent the port are twice the width of the channel, extending alongshore nearly 2 km, and are maintained to depth between 10 and 12 m.

Land use adjacent to the coastline in this MU consists of the port, special use and a major road. Behind these is a mix of residential, regional centre and parks and recreation / public use.



Figure 5-1 Albany Waterfront Marina and Port of Albany captured in November 2016 (image source: airviewonline, 2022)



Figure 5-2 Hardened shoreline (seawall) between Point Frederick and Melville Point captured in January 2022 (image source: City of Albany, 2022)

5.1.2 Management Unit 2: Melville Point to Rushy Point

MU2 extends from Melville Point to Rushy Point and has been assessed as a gentle-sloping, sandy coastline (Figure 5-3). The shoreline is vegetated up to the water's edge and includes intertidal flats. This is suggestive of a low-energy shoreline. Sections of the shoreline have been hardened by rock protection, adjacent the Wool Stores and Frenchman Bay Road (see Section 7.2). Small rocks and gravel were found to be present among finer sediment at some areas of the shoreline, which may be naturally occurring or present due to infrastructure constructed in close proximity to the shoreline (e.g. paths and roads).

Land use adjacent to the coastline in this MU consists of the industry, tourist residential, parks and recreation major and priority roads, and rural small lot holdings and rural residential.



Figure 5-3 A section of shoreline in Lockyer Bay captured in December 2021

5.1.3 Management Unit 3: Rushy Point to Limekilns Point

MU3 extends from Rushy Point to Limekilns Point and contains both rocky and sandy coastlines (Figure 5-4). Much of the coastline in this MU is fronted by private property, which prevented proper inspection during the site visit. The undulating nature of the shoreline is likely due to various rocky outcrops acting as controlling features, among sandy areas of shoreline. The northern half of the MU contains several continuous stretches of sandy coast, facing eastwards. This include the stretch directly south of Rushy Point, where erosion was evident and ad-hoc protection (placed boulders) had been implemented along the high-water line. The southern portion of the MU appears to be predominantly rocky, with intermittent areas of sandy beach. A seawall is present in the MU, defending a short stretch of shoreline at the Princess Royal Sailing Club.

Land use adjacent to the coastline in this segment consists of residential, parks and recreation, local and priority roads, public use, future urban, general agriculture, caravan and camping and rural residential.



Figure 5-4 A section of shoreline to the south of Rushy Point captured in December 2021.

5.1.4 Management Unit 4: Limekilns Point to Geake Point

MU 4 extends from Limekilns Point to Geake Point and contains distinct areas of sandy and rocky coastline (Figure 5-5). The MU includes a major portion of the Vancouver Peninsula, which forms the shallow waters of Shoal Bay. The wide shallow bay is suggestive of a low energy environment. The coastline is rocky from Limekilns Point to Jessica's Beach (approximately half of the MU), then sandy for a continuous stretch along Vancouver Beach, before becoming rocky again at Quarantine Hill.

Land use adjacent to the coastline in this segment consists of parks and recreation, local and priority roads, general agriculture, rural residential and special residential.



Figure 5-5 Vancouver Peninsula and Shoal Bay captured in November 2016 (image source: airviewonline, 2022)

5.1.5 Management Unit 5: Geake Point to Possession Point / Uredale Point

MU 5 extends from Geake Point to Possession Point / Uredale Point and contains distinct areas of sandy and rocky coastline (Figure 5-6). The sandy coastline is an isthmus extending between the rocky outcrops of Quarantine Hill and Bramble Point, and is also likely to be underlain by rock at some level, given its stability. A seawall has been installed to control the shoreline at Camp Quararup – Geake Point (Figure 7-2). This MU is all zoned as parks and recreation.



Figure 5-6 Vancouver Peninsula captured in November 2016 (image source: airviewonline, 2022)

5.2 Coastal Processes

5.2.1 Geomorphology and Bathymetry

Princess Royal Harbour is a shallow, natural basin with gently sloping, sandy margins. The site's geology is associated with the Nornalup Complex of the Albany Belt, which is dominated by granite. This granite is prominent along the edge of the harbour in several areas, including the formation of the entrance between the rocky outcrops of King Point and Possession Point. Sediment within the harbour is likely to be derived from a combination of silica-based lithogenic (broken down geological material) and calcium carbonate-based biogenic (remains and products of marine organisms) sources, though testing of the composition of sediment has not been undertaken. A range of sediment grain size is found around the shoreline of the harbour, ranging from fine at Shoal Bay to medium within Hanover Bay (Travers et al, 2010).

The deepest natural portions of the harbour, in its north and near its entrance, reach approximately -10 m below lowest astronomical tide (LAT), with the entrance channel and port berthing areas dredged to below -12 m LAT. Shoreline profiles range from relatively steep either side of the entrance (along the harbour's north-



east) to areas of long, gentle slopes for major portions of the harbour in its south (e.g. Shoal Bay) and north-west (e.g. between Rushy Point and the Woolstores). An extract of the Albany Nautical Chart is provided in Figure 5-7.

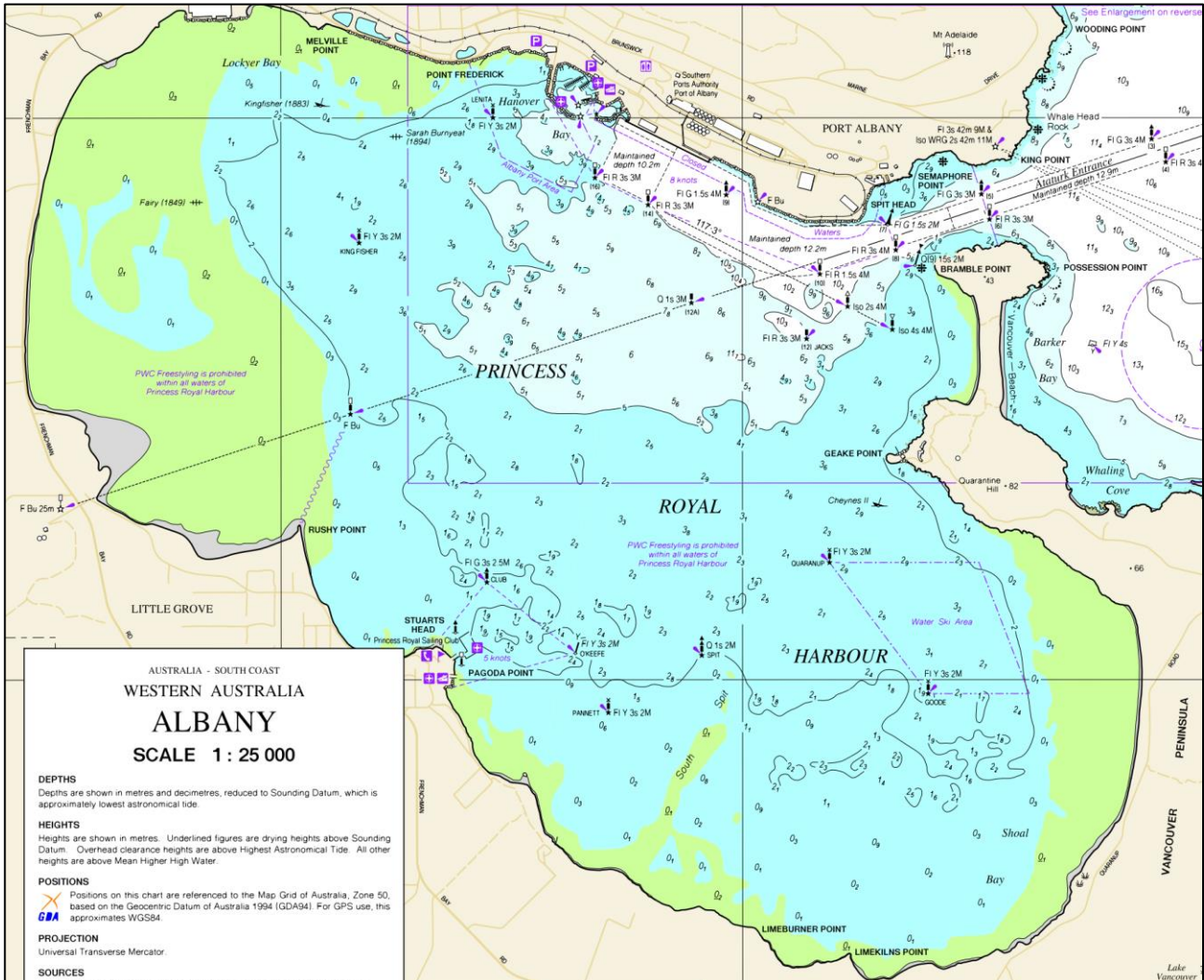


Figure 5-7 Extract of Albany Nautical Chart 1083 (DoT, 2014)

5.2.2 Wind

Albany has a variable wind climate in terms of both direction and strength. Strong winds can be experienced year-round, though the windiest period is during winter (June to September). Wind direction during this period is predominantly westerly to north-westerly. During the summer months (November to March), winds are lighter and predominantly easterly to south-easterly (Bureau of Meteorology, 2022). An annual wind rose for King George Sound is provided in Figure 5-8.

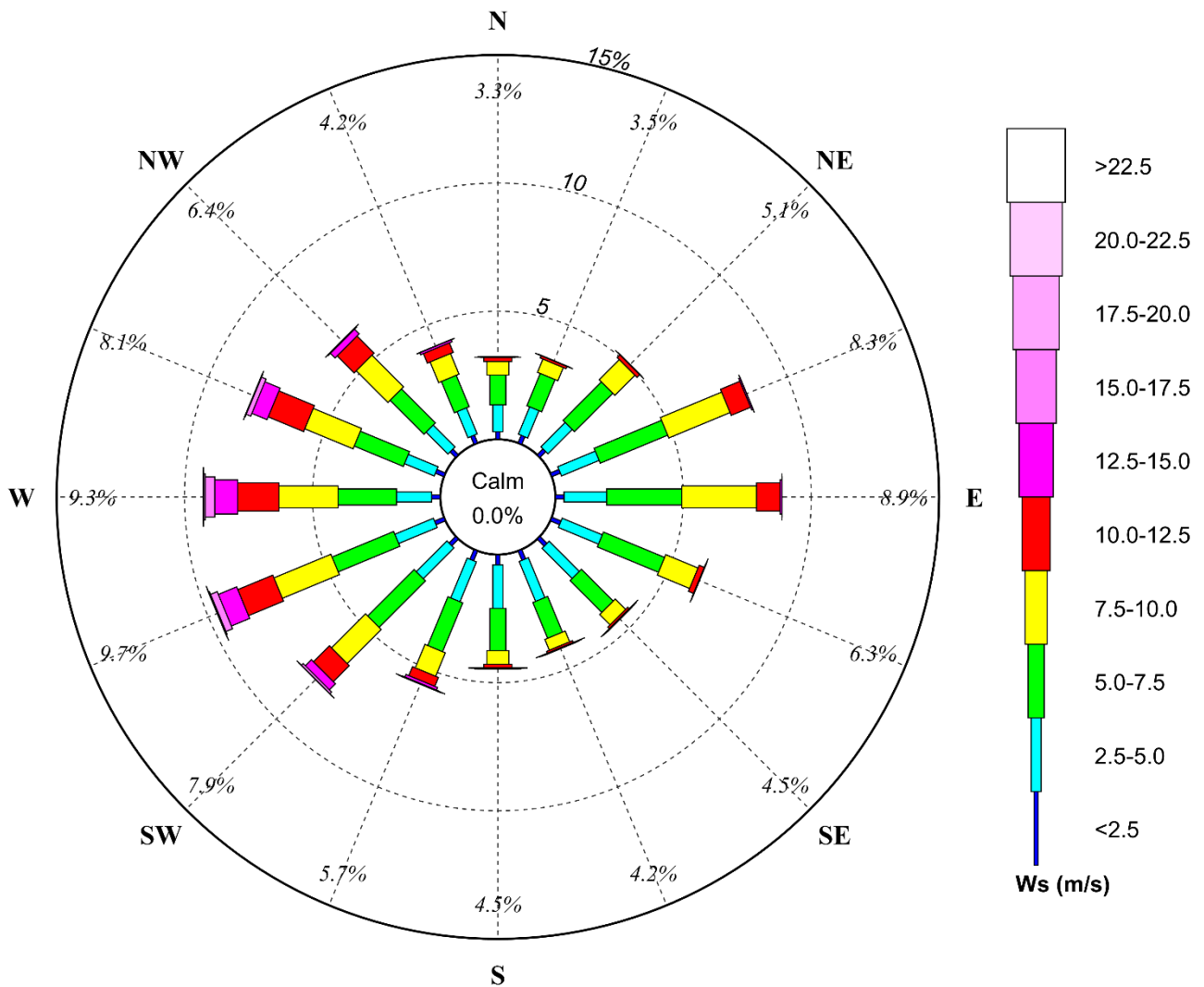


Figure 5-8 Annual Wind Rose (1979 to 2021) for King George Sound (CSIRO hindcast)

5.2.3 Rainfall

Albany experiences rainfall year-round with an annual average of 925 mm. The lowest rainfall month is February, averaging 23 mm, and the highest rainfall month is July, averaging 143 mm (Bureau of Meteorology, 2022).

5.2.4 Water Level

Tides in the study area are predominantly diurnal (one high- and one low-tide per day) but briefly become semi-diurnal (two high- and two low-tides per day) during spring and autumn. The highest recorded water level was 1.79 m in 2007, and the lowest recorded water level was -0.24 m in 1951, relative to chart datum (CD); equivalent to lowest astronomical tide (LAT) 2006. Tidal datums are presented in Table 5-1.



Table 5-1 Astronomical tide regime at Princess Royal Harbour, Albany (DoT, 2021)

Tidal Water Levels	m CD (LAT 2006)	m AHD
HAT	1.44	0.79
MHHW	1.14	0.49
MLHW	0.99	0.34
MSL	0.73	0.08
AHD	0.65	0.00
MHLW	0.47	-0.18
MLLW	0.32	-0.33
LAT	0.07	-0.58

Other factors that can affect the water levels in the harbour include wind- and wave-driven setup, storm surge within King George Sound transmitted through the entrance to the harbour and, to a minor extent, freshwater input from rainfall.

5.2.4.1 Sea level rise

Globally, mean sea level (MSL) has risen since the nineteenth century and is predicted to continue to rise, at an increasing rate, through the twenty first century (Intergovernmental Panel on Climate Change [IPCC], 2021). Changes to MSL over the past century have been observed along the WA coastline and are predicted to continue, including for Albany (CSIRO and BoM, 2015). *Sea Level Change in Western Australia – Application to Coastal Planning* (Department of Transport [DoT], 2010) reviewed information relating to SLR at a local scale and recommended an allowance for SLR be adopted for planning purposes. Recommendations were based on the upper bound of the global average SLR projections from *IPCC's Fourth Assessment Report* [AR4] (IPCC, 2007). In the intervening years, following release of the DoT document, advances in climate change science have been reflected in revisions to SLR projections, such as those documented in *IPCC's Sixth Assessment Report* [AR6] (IPCC, 2021). Current guidance on global SLR projections is derived from Shared Socioeconomic Pathways (SSP), characterising the trajectory of global society, demographics and economics over the coming century. Analogous to that used in DoT's (2010) recommendation is SSP5, which forecasts a SLR of 0.94m between 2020 and 2120 (Figure 5-9).

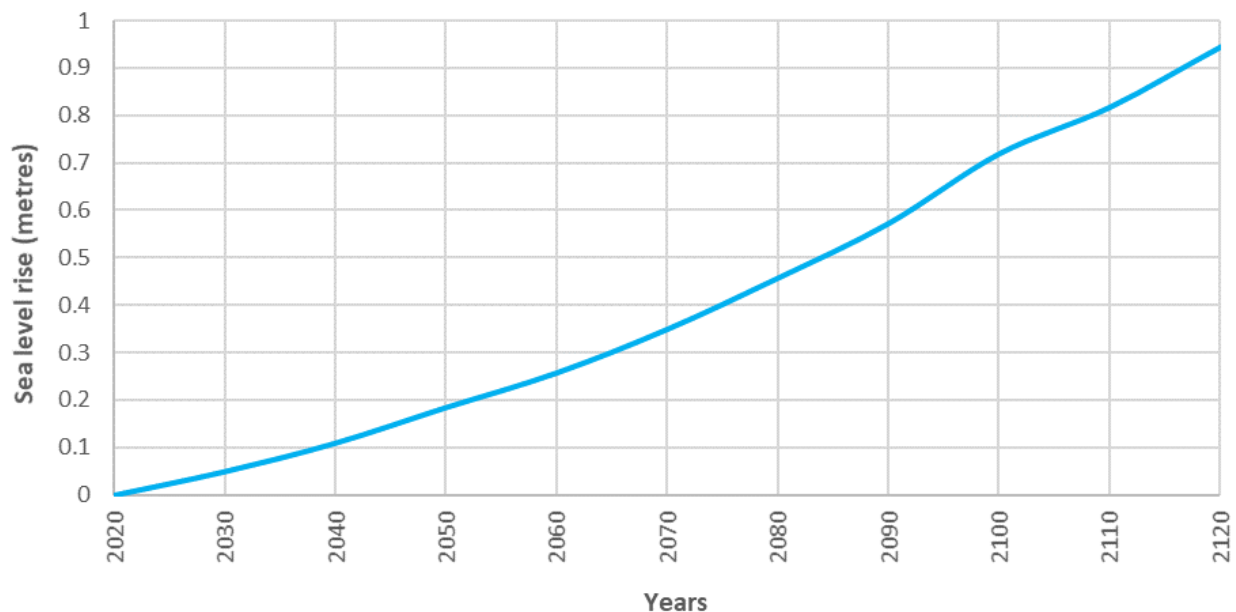


Figure 5-9 Sea level rise allowance for planning in Western Australia (adapted from DoT, 2009 and IPCC, 2021)

5.2.5 Wave Climate

Princess Royal Harbour has a sheltered wave climate, with the narrow entrance channel restricting penetration by seas and swell from King George Sound and the open ocean. This restriction means that the major driver of wave energy within the harbour is wind-waves (Travers et al, 2010).

For these locations the storm event should be defined on a case-by-case basis either by the transformation of the offshore storm event or, for fetch limited locations, the hindcasting of an equivalent storm event based on recorded or modelled winds.

Travers et al (2010) analysed the wind regime at Albany to estimate the generation of waves at a range of sites around the harbour. This assessment included waves generated for the prevailing (most common), dominant (strongest) and maximum fetch (stretch of water before land) wind directions and speeds. They found the highest waves were generated to propagate towards Hanover Bay and the Woolstores for both dominant and prevailing conditions, with lower respective wave conditions propagating towards Shoal Bay. The range of wave heights estimated at the -2m AHD contour around the harbour for the dominant wind conditions was from 25 cm to 85 cm. Bathymetry was found to be a key factor in determining the transfer of this wave energy to the shoreline, with the long, shallow terraces attenuating wave energy significantly. For example, the shallow nearshore area at the Woolstores reduced wave height by up to 75%, compared to just a 15% reduction at nearby Hanover Bay, with its steeper nearshore profile.

Under SPP2.6 guidance, the harbour should be considered a fetch-limited, sheltered coast. The following guidance is provided in the policy for such environments:

For these locations the storm event should be defined on a case-by-case basis either by the transformation of the offshore storm event or, for fetch limited locations, the hindcasting of an equivalent storm event based on recorded or modelled winds.

5.2.6 Currents and Sediment Transport

Currents and sediment transport within Princess Royal Harbour have not been measured or investigated to any great extent, to the author's knowledge. The low energy environment in terms of wave climate and low



water level fluctuations suggest that the drivers of sediment movement are subtle. Significant seagrass meadows, where present, are also likely to help stabilise the seabed sediments. The relatively infrequent maintenance dredging requirements for the port support the notion that sediment transport loads are low.

Given the low tidal regime and lack of substantial terrestrial inflow to the harbour, wind-driven currents are likely to dominate when winds are strong. This may set up circulation patterns within the harbour, moving sediment gradually around the shoreline. Modelling conducted by Mills & Brady (1985) of wind driven water circulation in Princess Royal Harbour indicated that west to north-west winds in winter generate predominantly anti-clockwise circulation. The variable wind climate and harbour bathymetry suggests that circulation patterns could be established in both directions, though likely for brief periods.



6 COMMUNITY AND STAKEHOLDER ENGAGEMENT

Key to the success of the CHRMAP project will be to ensure that the adaptation plan is underpinned by community and stakeholder values and knowledge. To this end, a Community and Stakeholder Engagement Plan has been developed in order to identify relevant stakeholders and determine the structure and pathways for their engagement throughout the CHRMAP process. The plan is intended to be fit-for-purpose, and commensurate with the size and scope of the CHRMAP – so as to avoid consultation fatigue within the community.

Supporting the overall project objectives, the engagement objectives are to:

- Promote knowledge and information sharing to and from community and key stakeholders to support the collection of coastal values, assets and preferred adaptation options, including the planning framework requirements for beneficiaries pays requirements.
 - The benefit distribution analysis will assist in educating the community on the beneficiaries pays principle, as it will define the apportioning of costs for chosen risk management measures.
- Break down complicated and technical information to be easy to understand.
- Aim to reach a diverse range of community members and key stakeholders through various methods.
- Offer accessible and convenient engagement activities for the community and stakeholders to attend.
- Keep the community interested and engaged throughout the project timeline with carefully timed communications and engagement events.

Table 6-1 summarises the engagement tools used to date; more detail is provided in the Interim Engagement Outcomes Report (refer Appendix B).

Table 6-1 Summary of engagement activities

Activity	Timeline	Participants	Key Finding
Coastal Values Survey	21 February 2022 to 11 April 2022	55	If respondents were not able to reside, visit or work at the harbour, due to the impact of coastal hazards, they noted it would have an extreme impact on their life. For most other activities, if respondents were unable to do these at the harbour it would result in a significant impact to their life, indicating their strong value in the ability to interact with Princess Royal Harbour.
Information Session and Intercept Surveying	2 April 2022	45	Most participants considered it very important that in 20 years, land in the coastal zone associated with the harbour will be managed to ensure land use and development does not accelerate coastal erosion or inundation risks or have a detrimental impact on the functions of public reserves.
Community and Business Reference Group	21 February 2022 - ongoing	12 (11 community + 1 business)	CBRG membership will be open to encourage additional business representatives. One meeting to date to introduce the project
Project Awareness Campaign	3 April 2022	N/A	Over 20 flyers and 700 letters to residents were distributed to promote the survey and continue to raise awareness of the project. The project was promoted online with webpage, e-mail campaign, social media post, e-newsletter.

7 EXISTING CONTROLS

7.1 Existing Planning Controls

Planning in Western Australia is guided and regulated by the State Planning Framework, which includes strategic and statutory planning functions set out in the Planning and Development Act 2005. The planning system is hierarchical, requiring increasing levels of detail as a proposal progresses through the state and local planning systems, including subdivision and development of individual sites. The relationships of the various policies are presented in Figure 7-1.

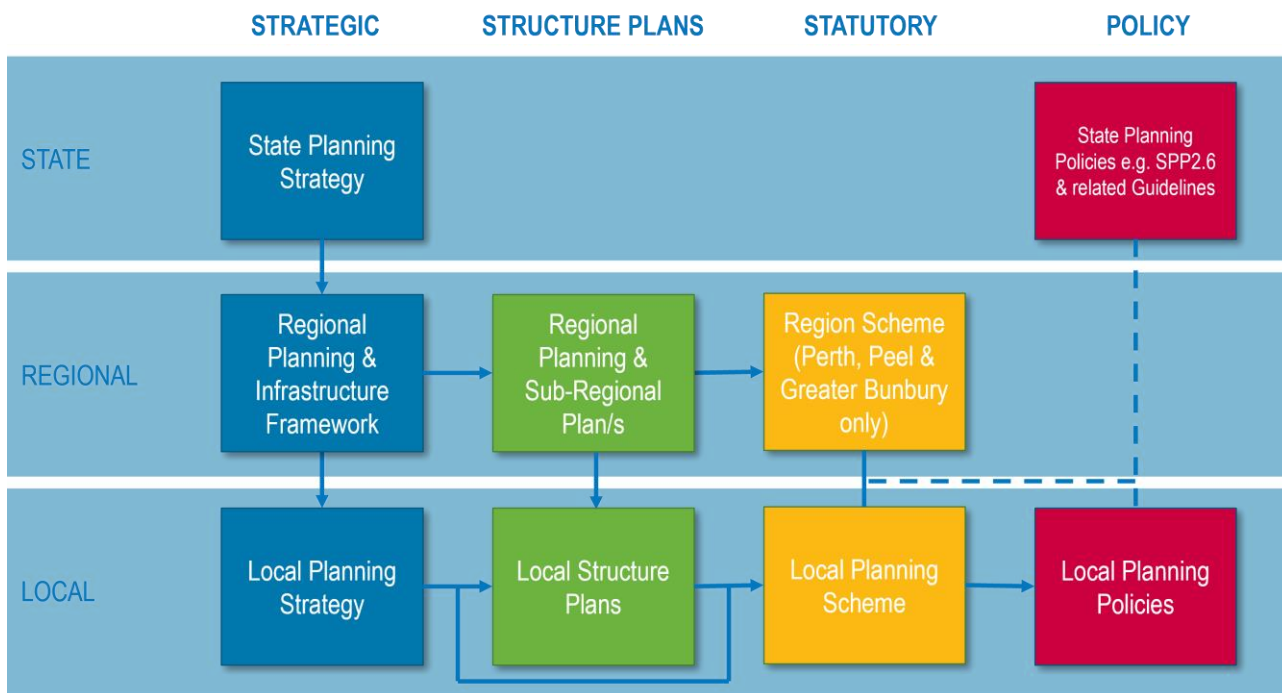


Figure 7-1 State Planning Framework for Western Australia

This section reviews the planning documents within this Framework which are relevant to coastal hazard planning in the project area; additional information is provided in Appendix A. This review will help to: assess the adequacy of the existing planning documents for addressing coastal hazards; identify gaps that need to be addressed through the CHRMAP process (such as planning controls that are required or need amending to enable implementation of CHRMAP recommendations); identify any potential planning issues that may constrain the CHRMAP process; and ensure that the adaptation plan aligns with state, regional and local planning frameworks.

A summary of information from the planning documents relevant to the coast is included in Table 7-1 below and in Appendix A. This will all be considered as part of the vulnerability / risk assessment and development of adaptation options for the CHRMAP, with appropriate text included in the relevant planning documents as required. The implementation plan will identify these adaptation measures and include proposed wording, implementation methods/process and supporting information.

Presently there are no location specific coastal hazard controls in place in the study area. For context, available planning controls adjustments for addressing coastal hazards within the City are presented in Table 7-2, together with their advantages and disadvantages. These will be discussed in more detail in later stages of the project.



Table 7-1 Summary of relevant planning framework

Framework function	Document	Purpose
Relevant Planning Legislation	Planning and Development (Local Planning Schemes) Regulations 2015	Regulations introduced by the State government to ensure a consistent structure, format and approach to local planning schemes and planning mechanisms across the state of Western Australia.
State Planning Framework	WA Coastal Zone Strategy	Integrated framework for collective action to manage and adapt to threats and pressures along the coast. The fundamental aim of this strategy is to ensure that coastal development is sustainable in the long term and meets community, economic, environmental and cultural needs.
State Planning Framework	State Planning Policy 2.6: State Coastal Planning and Guidelines	Guides decision making in relation to planning along the state's coastline and stipulates the requirement for the preparation of this CHRMAP.
State Planning Framework	Coastal hazard risk management and adaptation planning guidelines	Guide for decision-makers to develop and implement effective coastal hazard risk management and adaptation plans.
State Planning Framework	State Planning Policy 3.4: Natural Hazards and Disasters	Guide to ensure that land use planning appropriately considers the risk of natural hazards and disasters.
State Planning Framework	Lower Greater Southern Strategy	Provides guidance and actions to help meet these challenges and balance economic, social and environmental considerations of the Great Southern.
Local Framework	City of Albany Strategic Community Plan 2032	Overarching strategy to achieve the vision for the development of the City over the next 10 years and beyond.
Local Framework	City of Albany Corporate Business Plan 2021 - 2025	Outlines the projects and services that will be delivered over the next four years, directly influenced by the City's Long-Term Financial, Asset Management and Workforce Plans. The Corporate Business Plan guides the development of the annual budget, service plans and annual project plans, in alignment with the City's Strategic Community Plan.
Local Planning Framework	City of Albany Local Planning Strategy	Establishes the vision and long-term planning directions for the City into the future.
Local Planning Framework	City of Albany Local Planning Scheme No. 1	The principal statutory planning document which applies land use and development controls within the City at a local level.
Local Planning Framework	Local Planning Policies	Outline procedures, land uses, development requirements and design guidelines for a variety of matters within the City, inclusive of coastal areas relevant to Princess Royal Harbour.
Local Planning Framework	Local Structure Plans	A plan for the coordination of future subdivision and zoning of an area of land.



Table 7-2 Possible planning controls for the City

Statutory Measure	Advantages	Disadvantages
Structure Plan / Activity Centre Plan (formally known as an Outline Development Plan)	Can address location specific issues i.e. identification of coastal physical setbacks and areas affected by erosion and inundation.	<ul style="list-style-type: none"> Does not have the force and effect of the Scheme. Decision makers to have due regard only. Structure Plan cannot specify / enforce built form requirements. Location specific only and therefore cannot address coastal hazard issues on a broad scale. Generally, requires the land to be appropriately zoned to require the preparation of a structure plan
Local Development Plan (formally known as a Detailed Area Plan)	<ul style="list-style-type: none"> Can specify built form requirements to address location specific coastal hazard issues i.e. increased setbacks, minimum habitable floor levels, etc. Has statutory weight of the local planning scheme. Can vary 'deemed-to-comply' development requirements. 	Location specific only and therefore cannot address coastal hazard issues on a broad scale
Local Planning Policies and Design Guidelines	<ul style="list-style-type: none"> Can address coastal hazard and risk issues at a district (broad) level and/or at a location specific level. Can include mapping of coastal hazard issues with flexibility to update mapping as and when amendments are required to be undertaken. Can vary 'deemed-to-comply' development requirements. Can be amended relatively quickly (compared to local planning scheme amendment as new coastal studies are completed). 	Is only a 'due regard' document and does not have the full force and effect as provisions contained in a local planning scheme.
Special Control Area (SCA)	<ul style="list-style-type: none"> SCAs may establish specific provisions to address a specific issue such as erosion and inundation. SCAs can broadly address unique issues that extend across multiple zones and/or reserves. SCAs can be used to require development approval for otherwise normally 'exempted' development. In this regard, SCAs are the preferred mechanism to identify where and what type of development requires development approval to allow for appropriate consideration of the risk of coastal processes. 	<ul style="list-style-type: none"> A scheme amendment would potentially need to be progressed every time mapping of the coastal issue is amended and/or updated. This may be avoided if the Special Control Area refers to a separate Local Planning Policy which may contain reference to mapping of coastal hazards.
General Development Provisions of LPS1	<ul style="list-style-type: none"> Can establish provisions which broadly address coastal hazards. Can introduce provisions which relate to a local planning policy addressing coastal hazards and which may contain coastal hazard mapping. 	Given the specific nature of coastal issues, including the varied locational extent to which it may affect land within a district, specific development requirements would more appropriately be established within an SCA as opposed to general provisions within the scheme.
Supplemental Provisions to Schedule 1 and 2 of the Regulations	May be used to supplement the standard scheme provisions set out in Schedule 1 and 2 of the Regulations to address specific coastal process issues.	Given the specific nature of coastal issues, including the varied locational extent to which it may affect land within a district, specific development requirements would more appropriately be established within an SCA as opposed to the supplemental provisions of a scheme.

7.2 Existing Physical Controls

Existing controls should be identified while establishing the CHRMAP context, as recommended in the CHRMAP Guidelines (WAPC, 2019). In the context of coastal processes, controls are physical and include structures that currently interact, or have the potential to interact in the future, with oceanographic conditions and coastal processes. Such structures include seawalls, groynes and breakwaters. Controls also include ongoing management/intervention activities, such as beach nourishment, dredging and sand by-passing. The existing physical controls identified for the study area are outlined in Table 7-3.



Figure 7-2 Camp Quararup Seawall captured by Peter Bowdidge – date unknown (Department of Local Government, Sport and Cultural Industries, 2022).



Table 7-3 Summary of existing physical controls in the study area

Control	Location	Purpose	Year implemented	Assumed design life / management timeframe
'Hard' engineering controls				
Port of Albany rock seawall and sheet-piled wharf (Figure 5-1)	Along the northern side of the entrance to Princess Royal Harbour, between Spit Head and Albany Waterfront Marina	Stabilise the shoreline and protect landside Port assets, as well as facilitate vessel berthing.	TBC	50 years
Albany Waterfront Marina – breakwaters and seawalls (Figure 5-1)	Adjacent Port of Albany to the north-west	Create a safe harbour and protect landside assets and development.	2011	50 years
Hanover Bay Seawall (Figure 5-2)	From Albany Waterfront Marina to Melville Point	Stabilise the shoreline and protect landside assets, such as Princess Royal Drive	TBC	50 years
Seawall in front of Albany Wool Stores	Adjacent Albany Wool Stores, Lockyer Bay	Land reclamation/retention and protection of landside assets	TBC	25 years
Rock protection along Frenchman Bay Road	Adjacent the intersection of Princess Avenue	Protect landward assets – footpath and road	2014	25 years
Informal rock protection along Rushy Point shoreline (Figure 5-4)	Approximately 400m south of Rushy Point	Protect properties from erosion	Unknown	NA
Princess Royal Sailing Club Seawalls	Shoreline directly to the south of Princess Royal Sailing Club	Land reclamation/retention and protection of landside assets	TBC	50 years
Camp Quararup Seawall (Figure 7-2)	Geake Point	Stabilisation of shoreline and protection of landside assets	TBC	50 years
'Soft' engineering controls				
Dredging Ataturk Entrance and Port of Albany vessel berths	Princess Royal Harbour entrance and adjacent Port of Albany wharves	Maintain navigable depth for vessel attending the Port	Ongoing	Ongoing
Dredging at Rushy Point	Approximately 300m south of Rushy Point	Allow boats to transit to and from the shore	Ongoing	Ongoing



8 SUCCESS CRITERIA

The values collated from the engagement to date have been used to generate preliminary success criteria for the risk assessment component of the CHRMAP. These will be key to the whole CHRMAP as it is these that will ultimately drive the selection of adaptation options. It is important that a comprehensive approach be applied at this stage of the project, in order to provide a CHRMAP applicable to the City and stakeholders.

The 'success' of the CHRMAP will be determined by the assets identified through the CHRMAP process continuing to provide their present function, services and values (or an accepted version of it as determined by community and stakeholders).

Therefore, the success criteria will be determined by the values collected in this part of the engagement process. The preliminary success criteria are outlined in tab below and will be updated as the engagement progresses; particularly after the community workshops in Stage 5 of the CHRMAP.

Table 8-1 Preliminary success criteria

- Ensure future land use and development does not accelerate coastal erosion or inundation risks or have a detrimental impact on the functions of public reserves.
- Manage land at risk of coastal erosion and inundation to avoid inappropriate land use and development.
- Maintain the harbour for environmental health, including flora and fauna habitat.
- Conserve, enhance and maintain the natural environment and character of the study area
- Sustain the ability for the current and future generation to recreate along the harbour.
- Protect and or manage appropriately the provision of recreational assets in the coastal zone
- Maintain safety for all.
- Retain the widest possible range of risk management options for future users of the coast



9 REFERENCES

City of Albany (2021). *Local Planning Scheme No. 1.*, prepared by Department of Planning, Lands and Heritage.

CSIRO and BoM (2015) *Annual Climate Report 2015*. ISSN 1837-8854.

DoT (2010) *Sea Level Change in Western Australia Application to Coastal Planning*. Department of Transport, Perth, Western Australia.

IPCC (2007) *Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland, 104 pp.

IPCC (2021): Summary for Policymakers. In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

McVicar, Tim (2011): Near-Surface Wind Speed. v10. CSIRO. Data Collection. <https://doi.org/10.25919/5c5106acbc02>

Mills, D. A. & Brady, N. D. (1985) *Water circulation and flushing characteristics of Princess Royal Harbour, Albany*, National Library of Australia (nla.gov.au).

Stul T, Gozzard JR, Eliot IG and Eliot MJ (2015) Coastal Sediment Cells for the Vlamingh Region between Cape Naturaliste and Moore River, Western Australia. Report prepared by Seashore Engineering Pty Ltd and Geological Survey of Western Australia for the Western Australian Department of Transport, Fremantle

Travers, A., Eliot, M. J., Eliot, I. G. and Jendrzeczek, M. (2010) *Sheltered sandy beaches of southwestern Australia*. Geological Society, London, Special Publications, 346, 23-42, 1 January 2010, <https://doi.org/10.1144/SP346.3>

Western Australian Planning Commission (WAPC, 2013). *State Planning Policy No. 2.6 – State Coastal Planning Policy*, prepared under the Planning and Development Act 2005.

Western Australian Planning Commission (WAPC, 2017). *WA Coastal Zone Strategy*, Department of Planning, Lands and Heritage.

Western Australian Planning Commission (WAPC, 2019). *Coastal Hazard Risk Management and Adaptation Planning Guidelines*.





APPENDIX A SUPPORTING PLANNING CONTROLS / INFORMATION





City of Albany

Princess Royal Harbour CHRMAP

Existing Planning Controls

February 2022

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Issue	Date	Status	Prepared by	Approved by
			Name	Name
1	14 February 2022	Draft	Dylan Wray	Matt Raymond

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Existing Planning Controls

Legislative and Planning Controls

Policy Framework Overview

Western Australia's planning framework includes strategic and statutory planning functions set out in the Planning and Development Act 2005. The planning system is hierarchical, requiring increasing levels of details as a proposal progresses through the state and local planning systems, including subdivision and development of individual sites.



State Planning Policy 2.6 State Coastal Planning Policy (SPP 2.6) is applicable to every stage of the planning process and provides a range of policy measures to consider in the decision-making process. The policy measures set out a risk management approach and provides a framework for coastal adaptation and risk management to inform decision making.

This CHRMAP provides the overarching blueprint for the local planning framework to deliver the requirements of SPP 2.6.

Key Planning Controls Relevant to the CHRMAP

There is a variety of existing planning controls that are applicable to land use and development within the City, with particular importance to coastal areas. The relevant planning controls are summarised in Table 1 with a detail review provided in Appendix 1 with the primary aim to:

- Ensure the CHRMAP aligns with aims and objectives of the relevant state, regional and local planning frameworks.
- Assess the adequacy of the existing planning framework and controls for addressing coastal hazards.
- Identify any potential constraints and opportunities with the existing planning framework and controls for addressing coastal hazards.

Table 1 – Summary of Existing Planning Controls

Document	Purpose
Corporate Governance Framework	
City of Albany Strategic Community Plan 2032	Overarching strategy to achieve the vision for the development of the City over the next 10 years and beyond.
City of Albany Corporate Business Plan 2021 - 2025	Outlines the projects and services that will be delivered over the next four years, directly influenced by the City's Long-Term Financial, Asset Management and Workforce Plans. The Corporate Business Plan guides the development of the annual budget, service plans and annual project plans, in alignment with the City's Strategic Community Plan.
Relevant Planning Legislation	
Planning and Development (Local Planning Schemes) Regulations 2015	Regulations introduced by the State government to ensure a consistent structure, format and approach to local planning schemes and planning mechanisms across the state of Western Australia.
State Planning Framework	
WA Coastal Zone Strategy	Integrated framework for collective action to manage and adapt to threats and pressures along the coast. The fundamental aim of this strategy is to ensure that coastal development is sustainable in the long term and meets community, economic, environmental and cultural needs.
State Planning Policy 2.6: State Coastal Planning and Guidelines	Guides decision making in relation to planning along the state's coastline and stipulates the requirement for the preparation of this CHRMAP.
Coastal hazard risk management and adaptation planning guidelines	Guide for decision-makers to develop and implement effective coastal hazard risk management and adaptation plans.
State Planning Policy 3.4: Natural Hazards and Disasters	Guide to ensure that land use planning appropriately considers the risk of natural hazards and disasters.
Lower Greater Southern Strategy	Provides guidance and actions to help meet these challenges and balance economic, social and environmental considerations of the Great Southern.
Local Planning Framework	
City of Albany Local Planning Strategy	Establishes the vision and long-term planning directions for the City into the future.
City of Albany Local Planning Scheme No. 1	The principal statutory planning document which applies land use and development controls within the City at a local level.
Local Planning Policies	Outline procedures, land uses, development requirements and design guidelines for a variety of matters within the City, inclusive of coastal areas relevant to Princess Royal Harbour.
Local Structure Plans	A plan for the coordination of future subdivision and zoning of an area of land.

Planning Controls Explained

In light of the framework set out above, there are a number of planning controls that will be considered in the CHRMAP process and recommended for implementation, where appropriate. The statutory planning mechanisms that may be available to address coastal hazards within the City are considered in the following table which outlines the advantages and disadvantages of each option.

Statutory Measure	Advantages	Disadvantages
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Structure Plan / Activity Centre Plan (formally known as an Outline Development Plan)	<ul style="list-style-type: none"> • Can address location specific issues i.e. identification of coastal physical setbacks and areas affected by erosion and inundation. 	<ul style="list-style-type: none"> • Does not have the force and effect of the Scheme. • Decision makers to have due regard only. • Structure Plan cannot specify / enforce built form requirements. • Location specific only and therefore cannot address coastal hazard issues on a broad scale. • Generally, requires the land to be appropriately zoned to require the preparation of a structure plan.
Local Development Plan (formally known as a Detailed Area Plan)	<ul style="list-style-type: none"> • Can specify built form requirements to address location specific coastal hazard issues i.e. increased setbacks, minimum habitable floor levels, etc. • Has statutory weight of the local planning scheme. • Can vary 'deemed-to-comply' development requirements. 	<ul style="list-style-type: none"> • Location specific only and therefore cannot address coastal hazard issues on a broad scale.
Local Planning Policies and Design Guidelines	<ul style="list-style-type: none"> • Can address coastal hazard and risk issues at a district (broad) level and/or at a location specific level. • Can include mapping of coastal hazard issues with flexibility to update mapping as and when amendments are required to be undertaken. • Can vary 'deemed-to-comply' development requirements. • Can be amended relatively quickly (compared to local planning scheme amendment as new coastal studies are completed). 	<ul style="list-style-type: none"> • Is only a 'due regard' document and does not have the full force and effect as provisions contained in a local planning scheme.
Special Control Area (SCA)	<ul style="list-style-type: none"> • SCAs may establish specific provisions to address a specific issue such as erosion and inundation. • SCAs can broadly address unique issues that extend across multiple zones and/ or reserves. • SCAs can be used to require development approval for otherwise normally 'exempted' development. • In this regard, SCAs are the preferred mechanism to identify 	<ul style="list-style-type: none"> • A scheme amendment would potentially need to be progressed every time mapping of the coastal issue is amended and/or updated. • This may be avoided if the Special Control Area refers to a separate Local Planning Policy which may contain reference to mapping of coastal hazards.

	where and what type of development requires development approval to allow for appropriate consideration of the risk of coastal processes.	
General Development Provisions of LPS1	<ul style="list-style-type: none"> • Can establish provisions which broadly address coastal hazards. • Can introduce provisions which relate to a local planning policy addressing coastal hazards and which may contain coastal hazard mapping. 	<ul style="list-style-type: none"> • Given the specific nature of coastal issues, including the varied locational extent to which it may affect land within a district, specific development requirements would more appropriately be established within a SCA as opposed to general provisions within the scheme.
Supplemental Provisions to Schedule 1 and 2 of the Regulations	<ul style="list-style-type: none"> • May be used to supplement the standard scheme provisions set out in Schedule 1 and 2 of the Regulations to address specific coastal process issues. 	<ul style="list-style-type: none"> • Given the specific nature of coastal issues, including the varied locational extent to which it may affect land within a district, specific development requirements would more appropriately be established within a SCA as opposed to the supplemental provisions of a scheme.

Appendix 1 - Review of Existing Controls

The existing planning controls applicable to land use and development within the City have been summarised in Table 1 with a particular relevance on planning and management in coastal areas. The following state and local planning frameworks will inform the identification of issues and opportunities relating to the preparation of this CHRMAP.

Table 1 – Relevant Planning Framework

<p>Corporation Governance Framework</p> <ul style="list-style-type: none"> • City of Albany Strategic Community Plan 2032 • City of Albany Corporate Business Plan 2021 - 2025
<p>Relevant Legislation</p> <ul style="list-style-type: none"> • Planning and Development (Local Planning Schemes) Regulations 2015
<p>State Planning Framework</p> <ul style="list-style-type: none"> • WA Coastal Zone Strategy • State Planning Policy 2.6: State Coastal Planning • State Planning Policy 2.6: State Coastal Planning Policy Guidelines • Coastal hazard risk management and adaptation planning guidelines • State Planning Policy 3.4: Natural Hazards and Disasters • Lower Great Southern Strategy
<p>City of Albany Local Planning Framework</p> <ul style="list-style-type: none"> • City of Albany Local Planning Strategy • City of Albany Local Planning Scheme No. 1 • Local Planning Policies • Local Structure Plans

1. Corporate Governance Framework

1.1 City of Albany Strategic Community Plan 2032

The City of Albany Strategic Community Plan 2032 (SCP) provides the overarching strategy to achieve the vision for the development of the City over the next 10 years and beyond. The SCP establishes the following vision for the City:

“Amazing Albany, where anything is possible.”

The SCP responds to key areas of interest to the community and outlines a vision, mission and objectives for the next 10 years. The SCP establishes a range of strategies across the five key result areas, including people, planet, place, prosperity and leadership, with the following outcomes of particular relevance to this CHRMAP:

- *A happy, healthy and resilient community.*
- *Sustainable management of natural areas; balancing conservation with responsible access and enjoyment.*
- *Shared responsibility for climate action.*
- *A resilient community that can withstand, adapt to, and recover from natural disasters.*
- *Responsible growth, development and urban renewal.*
- *Local history, heritage and character is valued and preserved.*
- *A safe, sustainable and efficient transport network.*
- *Proactive, visionary leaders who are aligned with community needs and values.*
- *A well informed and engaged community.*

The strategies outlined in the SCP informs the City's Corporate Business Plan and expenditure on programs relevant to foreshore and coastal planning and projects.

1.2 City of Albany Corporate Business Plan 2021 – 2025

The City of Albany Corporate Business Plan (CBP) has the critical purpose of detailing how the City plans to deliver the objectives and strategies set out in the SCP. The CBP outlines the projects and services that will be delivered over the next four years and guides the development of the annual budget, service plans and annual project plans, including the preparation of this CHRMAP. The CBP include the following key result areas to be considered as part of this CHRMAP:

1. People;
2. Planet;
3. Place;
4. Prosperity; and
5. Leadership

The CBP outlines services, projects and programs that the City will undertake in 2021 – 2025, under each of the key result areas, in alignment with the strategic objectives of the SCP. The fundamental objectives of the CBP relevant to this CHRMAP include:

- *Objective 4.1: Conserve and enhance the region's natural reserves.*
 - *Provide a review of reserves that are suitable for recreational uses and how trails and parks may safely accommodate mixed uses. Update Local Laws and the Local Planning Scheme, accordingly, to assist with sustainable land management and conservation.*
- *Objective 4.2: Provide sustainable protection and enhancement of the coastline, rivers, floodplains, wetlands and estuaries.*
 - *Facilitate access to funding to develop, and implement, Coastal Hazard Risk Management Adaptation Plans for priority areas, including Princess Royal Harbour, Oyster Harbour, Goode Beach and the Whaling Station area.*
 - *Regulate the use of vehicles on beaches to protect coastal areas, with more ranger patrols.*
 - *Provide community and visitor education to encourage the safe, responsible and sustainable use of reserves, beaches and other natural environments.*
- *Objective 6.1: Increase community readiness and resilience to bushfires and floods.*
 - *Advocate for utility companies to protect their critical infrastructure at risk due to climate change.*
- *Objective 15.1: Grow awareness, understanding and engagement in City projects, activities and decisions.*
 - *Provide an annual communications content calendar that specifies what needs to be communicated, when, how and to who, in order to meet the community's information needs and the City's strategic objectives.*

2. Relevant Legislation

2.1 Planning and Development (Local Planning Schemes) Regulations 2015

The *Planning and Development (Local Planning Schemes) Regulations 2015* (the Regulations) were introduced by the State government to ensure a consistent structure, format and approach to local planning schemes across the state of Western Australia.

The Regulations contain 'deemed provisions' under Schedule 2 which apply automatically to all local government planning schemes throughout the state and supersede corresponding provisions of these schemes.

Schedule 2 of the Regulations contain provisions relating to various planning mechanisms which have varying degrees of application to implementing adaptation approaches for coastal processes. The planning mechanisms available in the Regulations are examined below.

The regulations have recently been amended to introduce additional measures in response to the COVID-19 pandemic. These additional measures and exemptions to certain development and land use are temporary in nature and do not have any specific relevance to this study.

2.1.1 Local Planning Policy

Part 2: Division 2 of the deemed provisions relates to the preparation of local planning policies. A local planning policy may apply generally to the Scheme area or deal with a specific class or classes of matters.

In making a determination under the scheme, the authority responsible for determining a planning application must have due regard to each relevant local planning policy, to the extent that the policy is consistent with the scheme. In addition to introducing new policy measures, a local planning policy may also vary existing deemed-to-comply provisions of the Residential Design Codes, where it is considered appropriate. In the context of coastal hazard and risk planning, a local planning policy could introduce additional design requirements for development, such as elevated habitable floor levels, additional setback requirements and other relevant matters to ensure coastal hazard issues are appropriately responded to within the planning framework.

2.1.2 Structure Plans / Activity Centre Plans

Part 4 of the deemed provisions relates to the preparation of Structure Plans while Part 5 relates to the preparation of Activity Centre Plans. A Structure Plan (or Activity Centre Plan) may be prepared for a specific area if:

- (a) *The area is:*
 - i. *All or part within a zone that is identified by the scheme as being suitable for urban or industrial development; and*
 - ii. *Identified in this scheme as an area requiring a structure plan to be prepared before any future subdivision or development is undertaken; or*

- (b) A State Planning Policy requires a structure plan to be prepared for the area; or*
- (c) The Commission considers that a structure plan for the area is required for the purposes of orderly and proper planning.*

The relevant decision maker of subdivision and development applications within a structure plan area must have due regard to but is not bound by a structure plan. A structure plan therefore does not have the full force and effect of the scheme. Once adopted, a structure plan which identifies zoning and land use permissibility, would need to be normalised within a scheme by way of a scheme amendment, if the zoning and land use permissibility is to have statutory weight.

2.1.3 Local Development Plans

Part 6 of the Regulations provides for the preparation of Local Development Plans (LDP), which states:

'A local development plan in respect of an area of land in the Scheme area may be prepared if –

- (a) The Commission has identified the preparation of a local development plan as a condition of approval of a plan of subdivision of the area; or*
- (b) A structure plan requires a local development plan to be prepared for the area; or*
- (c) An activity centre plan requires a local development plan to be prepared for the area; or*
- (d) The Commission and the local government considers that a local development plan is required for the purposes of orderly and proper planning.'*

It is considered that the LDP as a statutory instrument will have limited application within the City for responding to coastal hazards and processes and that there are more appropriate mechanisms (i.e. Scheme provisions and/or local planning policy) to address such matters.

2.1.4 Special Control Areas

Special Control Areas (SCA) may be established as set out within Part 5 of the model scheme provisions (Schedule 1 of the Regulations). SCAs are typically put in place to establish special provisions to target a single issue or related set of issues often overlapping zone and reserve boundaries. The provisions of an SCA would establish the purposes and objectives of the SCA, specific development requirements and, if applicable, referral requirements to relevant agencies. A SCA could therefore be established within a scheme to comprehensively address the specific development issues associated with land prone to coastal hazard and risk issues.

A SCA would be delineated on the scheme maps by way of line work, which could follow the extent of mapped areas known to be prone to erosion and inundation.

2.1.5 General Development Provisions

Part 4 (Clause 32) of the model scheme has provisions for the establishment of additional site and development requirements in addition to those set out in the R-Codes, structure plans, activity centre plans, local development plans or State and local planning policies. General development provisions could technically set out general development requirements relating to areas subject to coastal processes. However, it is considered that given the specific nature of coastal issues and the varied locational extent to which it may affect land within a district, specific development requirements would more appropriately be established within a Special Control Area as opposed to general provisions within the scheme.

2.1.6 Supplemental Provisions

The Regulations provide for local planning schemes to establish provisions that supplement the provisions set out in Schedule 1 and 2 of the Regulations, or provisions that vary a provision established in Schedule 1. Such supplemental provisions are typically contained within a Schedule within the scheme. This section could be used to introduce additional provisions and requirements in relation to coastal planning matters.

2.1.7 Exemptions from planning approval

Regulation 61 of the deemed provisions specifies works and land uses that are exempt from the requirement to obtain development approval.

This is an important consideration of the CHRMAP process, as the specified exemptions may provide for situations where certain development may be established within an area affected by coastal processes without the requirement to obtain planning approval. However, there are ways of addressing this issue. For instance, a local planning policy or local development plan could vary the deemed-to-comply requirements of the R-Codes to put in place additional design requirements that may trigger the requirement for planning approval.

Secondly, a SCA could be established over land affected by coastal processes, which would trigger the requirement for the prior planning approval to be obtained from the responsible authority, including the requirement for the prior planning approval to be obtained for exempted development and land uses.

3. State Planning Framework

3.1 WA Coastal Zone Strategy

The WA Coastal Zone Strategy provides an integrated framework for collective action to manage and adapt to threats and pressures along the coast. The WA Coastal Zone Strategy complements SPP 2.6 and provides a framework to ensure that coastal development is sustainable in the long term and meets community, economic, environmental and cultural needs. The key objectives of the WA Coastal Zone Strategy are to:

- *Conserve the State's natural coastal values and assets through sustainable use.*
- *Ensure safe public access to the coast and involve the community in coastal planning and management activities.*
- *Provide for the sustainable use of natural coastal resources.*
- *Ensure the location of facilities and infrastructure in the coastal zone is sustainable and suitable.*
- *Build community confidence in coastal planning and management.*

The WA Coastal Zone Strategy is particularly important to this CHRMAP as it provides the integrated framework for coastal planning and management across all levels of government.

3.2 State Planning Policy 2.6 State Coastal Planning

SPP 2.6 and associated guidelines have been prepared to guide decision making policy in relation to planning along the State's coastline. SPP 2.6 provides guidance on the determination of an appropriate foreshore reserve, which acts as a natural buffer to accommodate coastal processes.

SPP 2.6 seeks to ensure coastal hazard risk management and adaptation planning is established to guide the location and form of development along the coast. The policy establishes a hierarchy for undertaking coastal hazard and risk adaptation planning. The adaptation measures of Avoid, Planned or Managed Retreat, Accommodate and Protect are to operate on a sequential and preferential as part of the coastal hazard risk management adaptation planning process.

This CHRMAP has been prepared to respond to the requirements of SPP 2.6.

3.3 State Coastal Planning Policy Guidelines

The State Coastal Planning Policy Guidelines were introduced to provide guidance on the application of SPP 2.6. These guidelines identify a range of ongoing risk management and adaptation planning measures that may be considered in the assessment of development proposals located within an area known to be subject to storm surge risk or coastal erosion hazard. The guidelines establish a process for undertaking CHRMAP, as follows:

1. Establish a context;
2. Undertake a risk vulnerability assessment;
3. Determine the likelihood of the hazard occurring;

4. Determine the consequences;
5. Evaluate the risks;
6. Set in place adaptation management measures; and
7. Undertake monitoring and review.

This CHRMAP has been prepared in accordance with State Coastal Planning Policy Guidelines.

Adaptation planning may be implemented through a range of planning mechanisms including decision-making on zoning, structure plans, subdivision and development applications.

3.4 Coastal Hazard Risk Management and Adaptation Planning Guidelines

The CHRMAP Guidelines provide guidance for decision-makers to develop and implement effective coastal hazard risk management and adaptation plans. The Guidelines outline the implementation of a policy of planned or managed retreat, applicable to 'Brownfield' and 'Infill' development, as it is these locations that are currently, and increasingly, vulnerable to coastal hazards with limited opportunities to introduce less vulnerable forms of use or development through planning controls.

The Guidelines are based on principles of social, environmental and economic sustainability and adheres to objectives set out in SPP 2.6. The approach ensures ongoing protection and provision of a coastal foreshore reserve and beach amenity and continuing undiminished public access to beaches. The policy directly references the completion of a comprehensive CHRMAP process, in order to outline necessary guidelines.

Key principles identified are as follows:

- *To ensure land in the coastal zone is continuously provided for coastal foreshore management public access, recreation and conservation;*
- *To ensure public safety and reduce risk associated with coastal erosion and inundation;*
- *To avoid inappropriate land use and development of land at risk from coastal erosion and inundation; and*
- *To ensure land use and development does not accelerate coastal erosion or inundation risks; or have a detrimental impact on the functions of public reserves.*

The guidelines outline the approach for implementing the Planned or Managed Retreat Policy, outlining planning mechanisms and their associated levels. Structure planning, local planning scheme amendment and taking of land.

3.4.1 Structure Planning:

Structure planning is identified as the first mechanism, requiring the consideration of risks identified in the CHRMAP process to feed into subdivision conditions of coastal areas where some degree of comprehensive redevelopment of land remains an option.

3.4.2 Local Planning Scheme Amendment:

A local planning scheme amendment is the second mechanism and is required to give statutory weight to the proposed Planned or Management Retreat Policy.

A scheme amendment is to be informed by SPP 2.6 and such an amendment should classify areas vulnerable to coastal processes within a SCA. The SCA may establish specific land use and development

controls which may include preventing certain land use and development in areas at risk of coastal processes, incorporating adaptation development requirements (i.e. building above the known storm surge level) or requiring development to retreat from the risk at specific trigger points.

3.4.3 Taking of Land:

Taking of land is the third planning mechanism and occurs when it is assumed that land has not been transferred or committed to the public realm through structure planning processes, and that coastal processes have advanced to the point where there is no further economic or social utility in land due to coastal changes.

Where land is reserved under the relevant planning scheme, options to move this land from private holdings to the public realm include:

- Purchase of the land by the responsible authority if the owner is willing to sell it by ordinary sale pursuant to s 190 of the PD Act; or
- Compulsory taking by the responsible authority without agreement pursuant to s 191 of the PD Act.

If land cannot be acquired under the above options, it can be argued that the land is acquired for a 'public work' (that is, for the protection of foreshores). Options available for acquiring land for a 'public work' include:

- Taking by agreement under the *Land Administrative Act 1997* (LA Act); or
- Compulsory acquisition by the Minister for Lands for the purpose of a 'public work' under the LA Act.

It is the preferred approach that the land be purchased by the responsible authority by agreement under the relevant acts above.

3.5 State Planning Policy 3.4: Natural Hazards and Disasters

State Planning Policy 3.4: Natural Hazards and Disasters (SPP 3.4) has been prepared to ensure that land use planning appropriately considers the risk of natural hazards and disasters. It addresses storm surge as well as a range of other hazards, including overland flooding. With respect to overland flooding events, SPP 3.4 requires that the 100-year average recurrence interval be used as the defined flood event in relation to the assessment of proposals.

While SPP 3.4 identifies a 100-year ARI (average recurrence interval) event for storm surge, the policy also references SPP 2.6, which requires regard to be given to a 500 year ARI storm surge event.

With respect to storm surge, SPP 3.4 further states with respect to cyclonic activity and storm surge:

- *Where storm surge studies have been undertaken and show 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.*

The preparation of this CHRMAP will assist the City in determining the appropriateness of land uses in accordance with SPP 3.4.

3.6 Lower Greater Southern Strategy (2016)

The Lower Great Southern Strategy aims to guide land use planning and provide strategic direction for the region over a 20 year period. Specifically, the Lower Greater Southern Strategy aims to:

- *Provide guidance at a sub-regional level in the use of land to balance economic, social and environmental considerations;*
- *Assist local government in preparing, reviewing and implementing local planning strategies and schemes, and other local planning and development matters;*
- *Identify additional land of regional significance that may be required for regional open space purposes; and*
- *Ensure land required for important regional infrastructure, priority agricultural land, economic growth opportunities, water sources and basic raw materials is identified and retained for those purposes.*

Section 2.12 Coastal Planning and Management of the Lower Greater Southern Strategy identifies the need to balance development, access and usage of the coast with retention of its natural beauty and values. Coastal development needs to be planned carefully and strategically to ensure beaches, dunes, estuaries and coastal wetlands are protected and the impact of storm damage, sea level rise, inundation and shoreline erosion on private and public development and infrastructure is minimised. This shall be achieved through the preparation of a CHRAMP to inform all relevant stages of the planning process.

The Strategy includes the following objectives and actions applicable to this CHRAMP:

Table 2 – Lower Great Southern Strategy – Relevant Objectives and Actions

Objectives	Relevant Actions
<i>Minimise potential environmental impacts from coastal development proposals through effective management and recognition of coastal processes including sea level rise, and sufficient setbacks.</i>	<ul style="list-style-type: none"> • <i>Carry out studies to broadly identify vulnerable coastal areas and provide guidance for more detailed risk assessments and management responses.</i> • <i>Prepare coastal and foreshore management plans in parks and reserves where there are likely to be conflicts between different user groups.</i> • <i>Include requirements for the preparation of foreshore management plans as a condition of subdivision and development likely to have impacts on coastal and estuarine foreshore areas.</i>
<i>Provide and maintain public access to coastal and estuarine foreshores.</i>	<ul style="list-style-type: none"> • <i>Identify land suitable for protection and enhancement of the coastal vegetation corridor, in order to protect biodiversity and cater for public access, and for possible regional open space.</i> • <i>Identify priority sites around the coast and estuaries required for public access in local planning strategies and protect them through relevant mechanisms in local planning schemes.</i>

4. City of Albany Local Planning Framework

The City's planning framework guides and controls land use and development at a local level. The local planning framework allows for a range of coastal planning controls to be implemented to ensure responsible and sustainable use of the City's coastal areas.

4.1 City of Albany Local Planning Strategy

The City's Local Planning Strategy (the Strategy) establishes the vision and long-term planning directions for the City over the next decade and beyond. The Strategy identifies the following key actions to respond to coastal processes and protect the City's vulnerable assets along the coastline:

- Require that coastal planning strategies or foreshore management plans are carried out as early as possible in the planning process. Foreshore management plans are to determine suitable setbacks and land required to be ceded for public foreshores reserves by an assessment of coastal processes in accordance with State Planning Policy 2.6 – State Coastal Planning;
- *Pursue funding and progressively undertake Coastal Hazard Risk Management Adaptation Plans for priority areas, including Princess Royal Harbour, Oyster Harbour, Goode Beach and the Whaling Station area; and*
- *Investigation Area 12 – Implementation of the Emu Point to Middleton Beach Coastal Hazard Risk Management Adaptation Plan Implement the recommendations of the CHRMAP for Emu Point to Middleton Beach through an Investigation Area (IA12)*

The Strategy recognises the importance of coastline management and the need to respond to climate change, including increasing coastal erosion due to sea level rise. The preparation of this CHRMAP will directly contribute to improving the quality and liveability of the City, in accordance with the Strategy.

4.2 Local Planning Scheme No.1

The City's Local Planning Scheme No. 1 (LPS1) is the principal statutory planning document which applies land use and development controls within the City at a local level.

A fundamental aim of LPS1 is to control, regulate, guide and coordinate public and private development, the use of land and buildings, the erection of buildings, and the carrying out of works in order to achieve a high quality of life for residents, appropriate educational opportunities, social wellbeing, high levels of amenity, sustainable economic growth, quality built and natural environments and the protection of natural and cultural resources for the residents and visitors to the City.

The following sections of the LPS1 provide the ability to introduce development provisions to address a specific area or range of issues and may be a suitable mechanism to introduce adaptation responses identified within this CHRMAP:

- Part 3 – Zones and Use of Land
- Part 4 – General Development Requirements

- Part 5 – Special Control Areas
- Schedule A: Supplementary Provisions

The City has adopted provisions under Part 4 to address impacts from flooding and inundation including setbacks from watercourses, minimum finished floor levels, stormwater drainage and construction requirements. These scheme provisions can be adapted to respond to the coastal hazards identified through this CHRMAP.

LPS1 also contains site specific provisions through Schedule 4 – Special Use Zones and Schedule 12 – Conservation Zone. As these are site specific provisions, it is not expected that they would be relevant to this CHRMAP which focuses on the impacts of coastal processes on a broader scale.

4.2.1 Heritage List

The Regulations require the City to prepare a heritage list which is administered under LPS1. The City has adopted a heritage list with a key aim of identifying the need to *'Protect historic buildings, areas and precincts and promote Aboriginal and European heritage awareness.'*

The City's heritage list is relevant to this CHRMAP given the City's coastline contains heritage assets of local significance. The CHRMAP will consider the local heritage assets when developing appropriate coastal adaptation and management options.

4.3 Local Planning Policies

The City has adopted various local planning policies (LPPs) relating to a number of matters, including procedures, land uses, development requirements and design guidelines. The existing LPPs that could be utilised to respond to coastal hazards within the CHRMAP study area have been summarised in Table 3.

Table 3 – City of Albany Local Planning Policies

Local Planning Policy	Purpose and Relevance to CHRMAP
Detailed Area Plans	<p>Objectives:</p> <p><i>To ensure that development on small, rear loaded or unusual lot configurations are designed in a manner that creates a high level of amenity and passive surveillance.</i></p> <p>Relevance:</p> <p>Additional detailed area plans (now referred to as Local Development Plans) could be included under this LPP to cover areas prone to coastal hazards and require additional development requirements.</p>
Development Approval Exemptions	<p>Objectives:</p> <p><i>To exempt specific development from requiring development approval.</i></p> <p>Relevance:</p> <p>This policy can be modified to remove exemptions for development impacted by coastal hazards.</p>
Development in flood prone areas	<p>Objectives:</p> <p><i>To ensure development adjacent to water bodies and land prone to flooding is appropriately located and positioned at an established finished floor level to reduce the potential for property damage.</i></p> <p>Relevance:</p> <p>The existing provisions under this policy could apply to additional properties that are mapped as being impacted by inundation over the planning timeframe.</p>
Emu Point and Big Grove Village Centres	<p>Objectives:</p>

Local Planning Policy	Purpose and Relevance to CHRMAP
	<p><i>To provide guidance to both Council and leaseholders as to appropriate forms of development to ensure existing characteristics are protected and maintained at the Emu point and Big Grove village centres.</i></p> <p>Relevance:</p> <p>This policy could include additional provisions relating to coastal hazards for development in the Big Grove Village Centre.</p>
<p>Frenchman Bay Road Residential Development Area</p>	<p>Objectives:</p> <p><i>To provide guidance on subdivision, sizes of outbuildings and positioning of future dwellings.</i></p> <p>Relevance:</p> <p>The existing provisions under this policy could apply to additional properties that are mapped as being impacted by inundation over the planning timeframe.</p>
<p>Heritage Protection</p>	<p>Objectives:</p> <ul style="list-style-type: none"> <i>To ensure that development does not adversely affect the significance of heritage places.</i> <i>To conserve and protect places of heritage and cultural significance.</i> <i>To preserve and where possible rehabilitate development that portrays the early settlement periods.</i> <i>To provide incentives to encourage the conservation of heritage buildings and the maintenance and adaptive reuse of existing buildings which contribute to the urban character of a locality.</i> <p>Relevance:</p> <p>This policy could include additional provisions for heritage listed assets that are impacted by coastal processes.</p>
<p>Relocated Dwellings</p>	<p>Objectives:</p> <p><i>To ensure relocated (second hand) dwellings are constructed in keeping with the character of existing dwellings in the street.</i></p> <p>Relevance:</p> <p>This policy will apply to transportable dwellings which may be considered where managed retreat is required for lots are impacted by inundation.</p>
<p>Public Parkland</p>	<p>Objectives:</p> <ul style="list-style-type: none"> <i>Ensure public open space is large enough, located within walking distance and has a variety of facilities to attract people of all ages and aspirations.</i> <i>Identify demand characteristics for recreation in Albany.</i> <i>Identify where public parkland is and should be located within Albany.</i> <p>Relevance:</p> <p>The acquisition of land to provide a natural buffer to coastal processes could be utilised as public parkland along the coastline. This policy could be used for the creation and funding of additional public open spaces along the foreshore.</p>
<p>Significant tourist accommodation sites</p>	<p>Objectives:</p> <ul style="list-style-type: none"> <i>To retain existing and facilitate new tourism developments that are sympathetic to community and environmental considerations.</i> <i>To provide for the sustainable growth of tourism by identifying and retaining sites for the future development of a range tourist accommodation and attractions to meet the projected demand.</i> <i>Promote the development of sustainable tourist accommodation.</i> <i>To protect identified tourism locations or sites from the encroachment of uncomplimentary or conflicting land uses.</i>

Local Planning Policy	Purpose and Relevance to CHRMAP
	Relevance: This policy could include additional provisions relating to coastal hazards for tourism developments within the study area.
Woolstores Redevelopment Site	Objectives: <ul style="list-style-type: none"> To create an innovative and comprehensively planned urban development in close proximity to the town centre. To provide a range of housing options not currently available in Albany. To ensure that site planning ameliorates the potential impacts of noise and vibration with road and rail infrastructure in close proximity to the site. To ensure that quality of the public domain is extemporary and full public access is provided to the waterfront. To promote limited mixed use development on the waterfront and facing major public spaces. Relevance: This policy could include additional provisions relating to coastal hazards for development in the policy area.

4.4 Local Structure Plans

The City has adopted a number of local structure plans to guide the subdivision and zoning of land zoned Residential, Industry, Special Residential, Rural Residential and Conservation. The existing local structure plans have been summarised in Table 4.

The existing structure plans could be amended to address the coastal impacts identified through this CHRMAP. However, given they do not have the force and effect of LPS1 and are unable to prescribe built form requirements, they are not considered the most effective planning mechanism available.

Table 4 – City of Albany Structure Plans

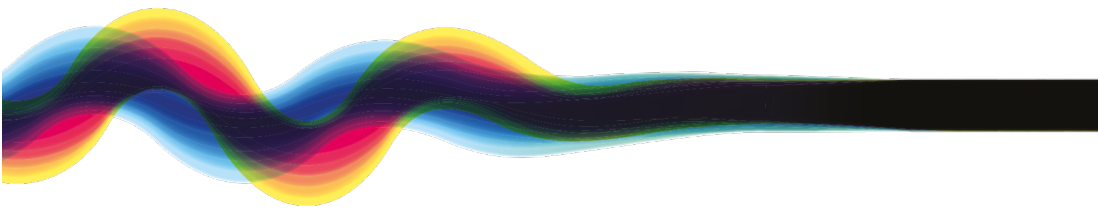
Structure Plan	Objectives
Albany Waterfront	Objectives: <i>To manage the development and use of the area in such a way that the surrounding environment and land uses are not impacted upon.</i>
Big Grove Outline Development Plan	Objectives: <i>The purpose of the Big Grove ODP is to guide and coordinate future land use, subdivision and development of land zoned 'Residential Development' within the plan area.</i>
Little Grove Structure Plan	Objectives: <ul style="list-style-type: none"> Support development and subdivision that provides for housing within the environmental parameters and character of the site and locality. Protect existing vegetation, and promote revegetation, as a means of maintaining the character of the area and minimising impact on native flora and fauna values. Provide safe and convenient vehicle and pedestrian access. Provide a stormwater system that minimises risk to public health and amenity; protections the built environment from flooding and water logging; and is economically viable in the long term. Efficiently utilise and extend existing water and waste water infrastructure. Provide active open space central to the locality. Discourage the re-contouring of land and promote building and development outcomes that complement the nature features. Mitigate the threat of bush fire to life, property and the environment within the plan area.

Local Structure Plan No. 4 – Rural Residential Area No. 43 Frenchman Bay, Harding & Home Roads, Robinson	Objectives: <i>To guide subdivision and development of Lots 84, 85, 86 and a portion of Lots 87 & 98 Home, Harding & Frenchman Bay Roads, Robinson.</i>
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APPENDIX B INTERIM ENGAGEMENT OUTCOMES REPORT





element.

City of Albany PRH CHRMAP

Interim Engagement Outcomes Report

August 2022 | 21-582

We acknowledge the Whadjuk and Menang people of the Noongar nation as traditional owners of the land on which we live and work. We acknowledge and respect their enduring culture, their contribution to the life of this city, and Elders, past and present.

Document ID: 21-582 Princess Royal Harbour CHRMAP / Project Work / Engagement / Outcomes					
Issue	Date	Status	Prepared by	Approved by	
			Name	Name	Signature
D1	14.04.22	Draft	Hayley Sellman	Cath Blake-Powell	CBP
F1	04.08.22	Final	Hayley Sellman	Cath Blake-Powell	CBP

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1. Introduction

1.1 Project Overview

A combination of natural and man-made processes has accelerated the effects of climate change and sea level rise globally, and here in Australia. Consequently, coastal hazards such as erosion and inundation are becoming more pronounced along the West Australian coastline, including along the Great Southern coastline. Following a study released by the Department of Transport in 2019, 55 coastal erosion 'hotspots' were announced along the Western Australian coastline and as such, in 2021 the State Government released a pool of available grant funding to address coastal erosion.

The City of Albany (the City) has recently received State Government funding for the development of a Coastal Hazard Risk Management and Adaptation Plan (CHRMAP), which is a strategic plan to manage and identify appropriate adaptation options for specific areas of high value assets along the coast.

1.2 Report Purpose

An important part of drafting this CHRMAP is community and stakeholder engagement. Therefore, a detailed engagement plan has been prepared to guide engagement and communications with community and stakeholders throughout the project timeline. This is an **interim** report on the outcomes of the first stage of the engagement during Stage 1 of the CHRMAP project. This report will be updated as the engagement program progresses through the various project stages.

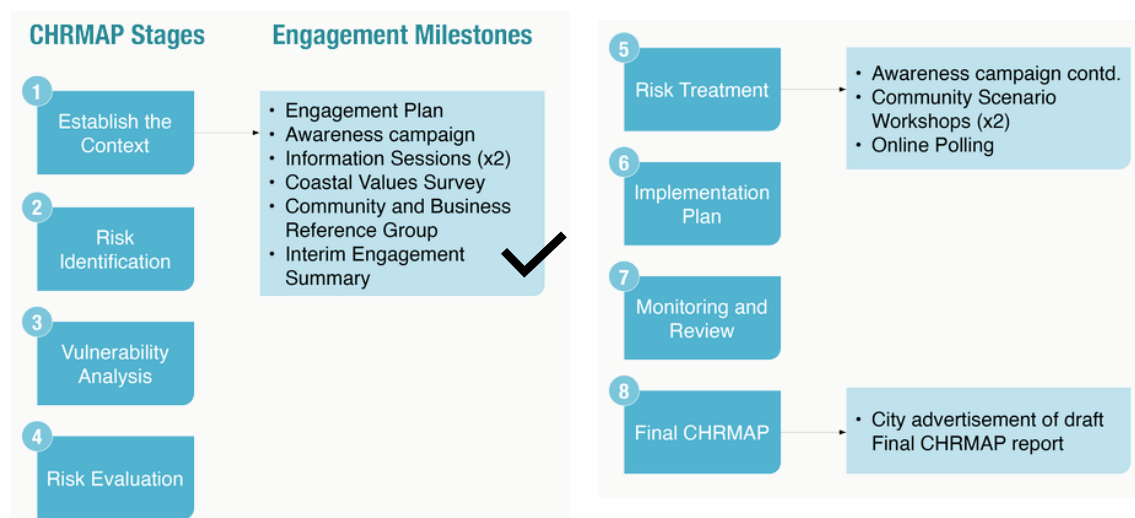


Figure 1 Project and Engagement Milestones

1.3 Project Scope

The City have engaged the consultant team of Water Technology, Cardno and element to prepare a Coastal Hazard Risk Management and Adaptation Plan for the Princess Royal Harbour. The CHRMAP will set the framework for the assessment, by:

- identifying coastal hazards (erosion and inundation);

- analysing vulnerability for specific assets;
- identifying and prioritising management and adaptation responses; and
- providing an implementation plan.

It will also inform the community and stakeholders about potential coastal hazard risks; identify community and stakeholders' values as well as key coastal infrastructure and assets at risk; and provide a clear pathway for the City of Albany to address coastal hazard risks over time.

Ultimately, the CHRMAP will provide strategic guidance for coordinated, integrated and sustainable land use planning and management decision-making by the City of Albany.

The CHRMAP will also guide necessary changes to the City of Albany's Local Planning Strategy, Local Planning Scheme and other relevant strategies and local planning policies. The CHRMAP will be prepared in accordance with the CHRMAP Guidelines and State Planning Policy 2.6 – State Coastal Planning Policy (SPP2.6).

1.4 Study area

The study area used for the engagement has been broken down into sections, illustrated by the coloured sections on the map below.



Figure 2 Albany Princess Royal Harbour CHRMAP study area

2. Objectives

2.1 Project Objectives

The objectives of the CHRMAP are to:

- Improve understanding of coastal features, processes and hazards in the study area
- Consider rainfall and catchment flooding in addition to storm surge inundation
- Identify significant vulnerability trigger points and respective timeframes for the relevant sediment cells to mark the need for immediate or medium-term risk management measures
- Identify assets (natural and man-made) and the services and functions they provide situated in the coastal zone
- Gain an understanding of asset(s) vulnerability
- Identify the value of the assets that are vulnerable to adverse impacts from coastal hazards
- Determine the consequence and likelihood of coastal hazards on the assets, and assign a level of risk
- Identify possible (effective) risk management measures (or 'actions') and how these can be incorporated into short and longer-term decision-making
- Engage stakeholders and the community in the planning and decision-making process.

2.2 Engagement Objectives

Supporting the overall project objectives, the engagement objectives are to:

- Promote knowledge and information sharing to and from community and key stakeholders to support the collection of coastal values, assets and preferred adaptation options, including but not limited to the:
 - Planning framework requirements for beneficiaries pays requirements
 - Inclusion of a Benefit Distribution Analysis to assist with apportioning the costs (capital and recurrent) of chosen risk management measures, based on the beneficiary pays principle
- Break down complicated and technical information to be easy to understand.
- Aim to reach a diverse range of community members and key stakeholders through various methods.
- Offer accessible and convenient engagement activities for the community and stakeholders to attend.
- Keep the community interested and engaged throughout the project timeline with carefully timed communications and engagement events.

3. Methodology

3.1 Engagement Tools

We used a range of engagement tools and activities to inform, consult and involve the community and key stakeholders in various ways. The main engagement tools are listed below.



Coastal Values Survey



Information Session and Intercept Survey



Community and Business Reference Group



Project Awareness Campaign

Coastal Values Survey – to collect values, aspirations and visitation along the harbour. Was structured into 12 questions (answers for questions 1 – 3 will not be included in this outcomes report as it is private information):

1. What is your name?
2. What is your street name and suburb?
3. What is your email address?
4. What age bracket do you fit into?
5. Which group do you represent? (Community member, employee in a business along the coastline, resident within 500m of the coastline, visitor or tourist to the area, none of the above)
6. How often do you visit any part of the harbour?
7. What activities do you usually undertake at the harbour's coastline?
8. If you were unable to do these activities at the PRH coast, how much would this impact your life?
9. Which section of the harbour coastline do you normally undertake these activities?
10. Why do you undertake these activities at PRH compared to other coastlines in Albany?
11. State how much you agree that it is important to manage and maintain the coastal areas adjacent to the Princess Royal Harbour in its current state for the following reasons.
12. Would you like to be kept informed about future engagement opportunities for this project?

Information Session and Intercept Surveying – to inform the community about the project, promote the survey and raise awareness

Community and Business Reference Group – to establish a group of conduits between the project team and the local community for sharing of information.

Project Awareness Campaign – to inform the community of the project, raise awareness and promote the engagement activities (such as the survey and information sessions).

3.2 Communication Channels

The 'Project Awareness Campaign' included a diverse range of communication channels to help raise awareness of the project and the engagement activities for stage 1. These were:

- Project webpage on the city of Albany 'Current Projects' site, with information on the project, FAQs and information on all engagement activities, including a link to the survey. The webpage has been promoted through all communication material and will continue to be updated as the project progresses.
- A3 posters distributed around the Albany town centre
- Letter to over 700 residents adjacent to the harbour
- Social Media Posts prompting the survey via Facebook
- E-newsletter article
- Email campaign to key stakeholders
- Direct email invitation to selected stakeholders to join the community and business reference group (plus follow up email to local businesses located along the harbour)
- Word of mouth promotion via the CBRG members.

4. Key findings

4.1 Engagement snapshot

The following table provides a quick snapshot of engagement numbers for Stage 1 of the project.

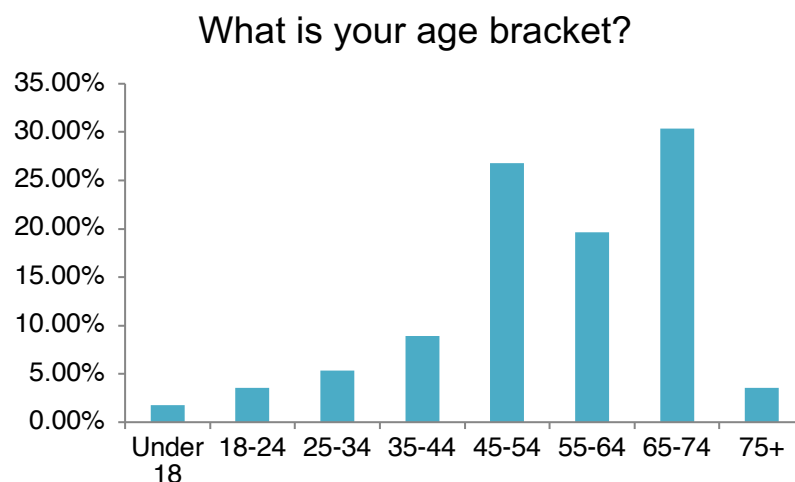
Method	Numbers	Level of engagement achieved
Survey	55 respondents	Consult
Information Session	45 attendees	Inform / consult
Intercept survey / flyer drop (opportunistic)	20+ flyers distributed	Inform / consult
Letter	700+ distributed	Inform / consult
Social media posts	5+ posts	Inform / consult
Email campaign	45+ stakeholders	Inform / consult
Community and Business Reference Group	12 members to-date.	Involve

4.2 Coastal Values Survey

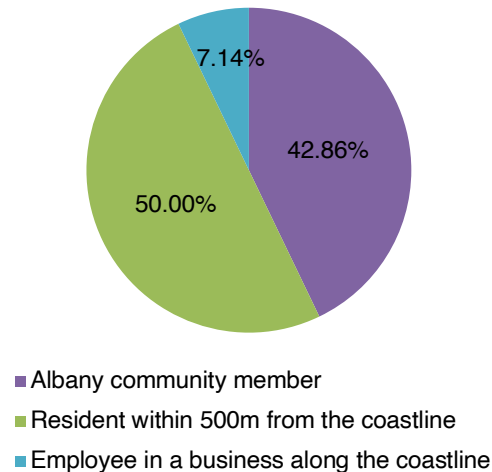
The Coastal Values Survey ran from 21 February 2022 to 11 April 2022, collecting a total 55 responses. A summary of their responses is presented below.

4.2.1 About you

A large portion of the survey respondents were aged between 65-74 years (30%), with majority of survey respondents being aged over 45. Almost all respondents were either a community member or a resident within 500m of the coastline.



Which group do you represent?



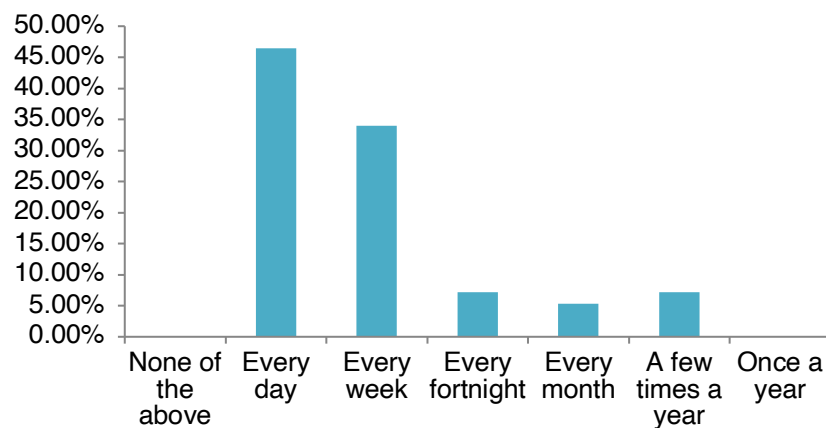
4.2.2 Visitation and activities

Combined, majority of respondents either visit the harbour daily (45%) or weekly (33%). While responses were quite evenly spread in terms of activities undertaken at the harbour, the top 5 activities were:

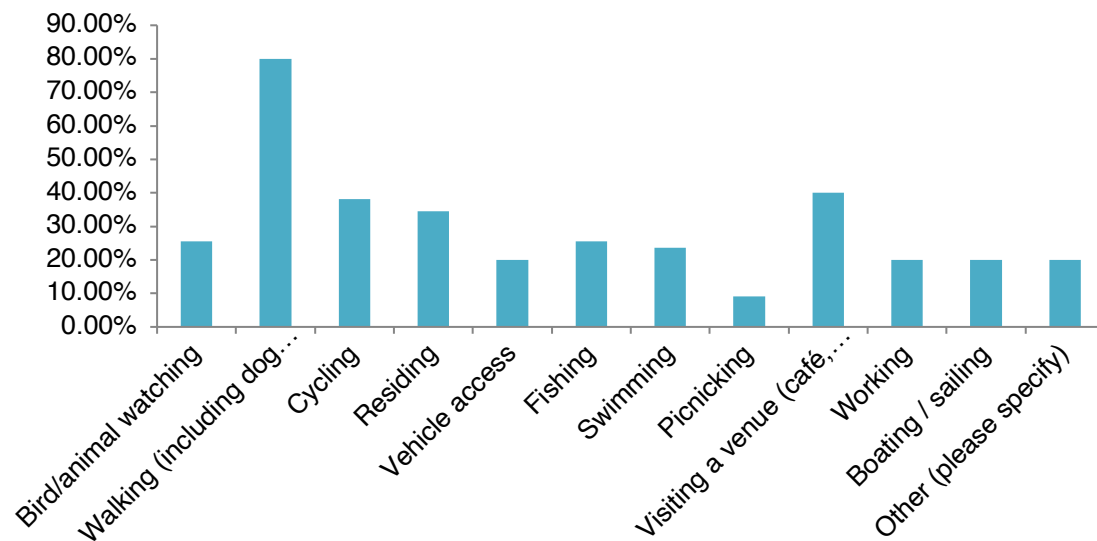
- Walking (including dog walking) – 80% respondents selected this option
- Visiting a venue – 40% of respondents selected this option
- Cycling – 38% of respondents selected this option
- Residing – 34% of respondents selected this option
- Fishing – 24% of respondents selected this option.

Other responses mentioned by respondents included horse riding, enjoying the view, kayaking/SUP and collecting rubbish.

How often do you visit any part of the PRH coast?



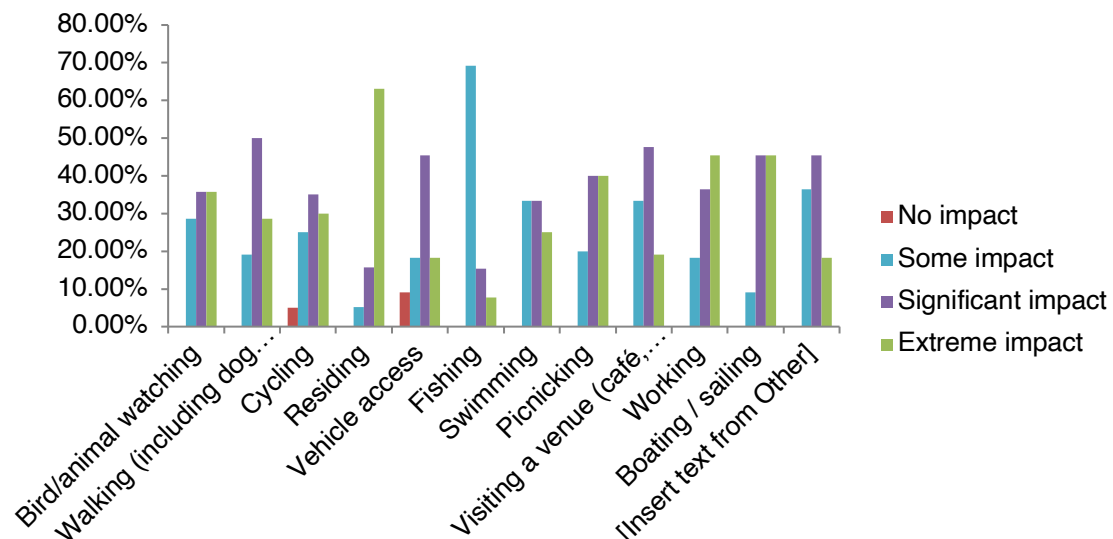
What activities do you usually undertake at the harbour's coast? Please select up to 5 activities:



4.2.3 Activities and their value

If respondents were not able to reside, visit or work at the harbour, due to the impact of coastal hazards, they noted it would have an extreme impact on their life, while a small portion noted a significant impact. For most other activities, if respondents were unable to do these at the harbour it would result in a significant impact to their life, indicating their strong value in the ability to interact with Princess Royal Harbour. Fishing had the least impact to respondents' lives.

If you were unable to do these activities at the PRH coast, how much would this impact your life?



4.2.4 Activity locations



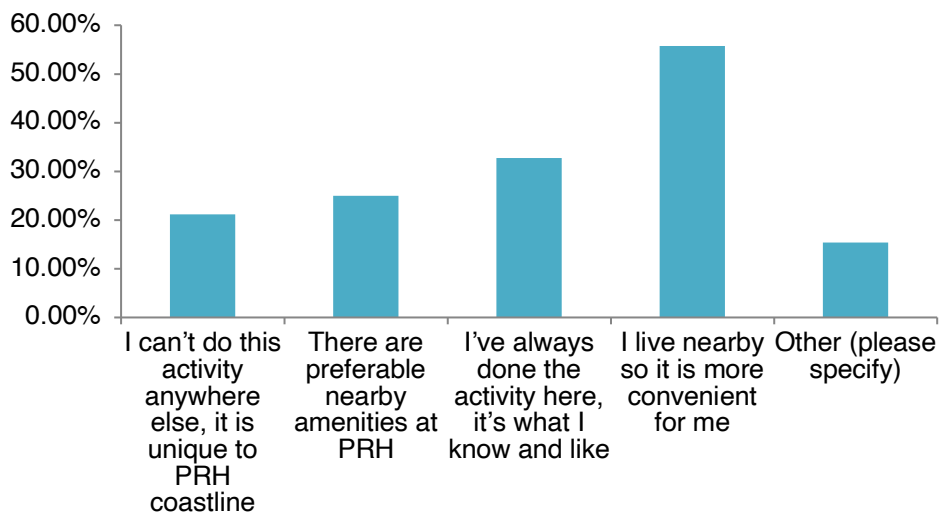
Referring to the Study Area Map above and also shown in Section 1.4, respondents were asked to select where they most-commonly undertake an activity within the PRH coastline. Results are presented in the table below.

Section	Activity (n=)*
Section A	Visiting a venue (n=15, 26%) Walking (n=13, 22%)
Section B	Walking (n=11, 29%) Cycling (n=9, 24%)
Section C	Walking (n=13, 24%) Residing (n=9, 16%)
Section D	Other (horse riding, kayaking, enjoying the view, collecting rubbish) (n=4, 33%) Swimming (n=3, 25%)
Section E	Fishing (n=4, 21%) Swimming (n=3, 16%) Boating/ sailing (n=3, 16%)

*top locations shown

Respondents typically do these activities within the PRH coastline as they live nearby so it is more convenient.

Why do you chose to undertake these activities at the PRH coastline compared to other parts of the Albany coastline?



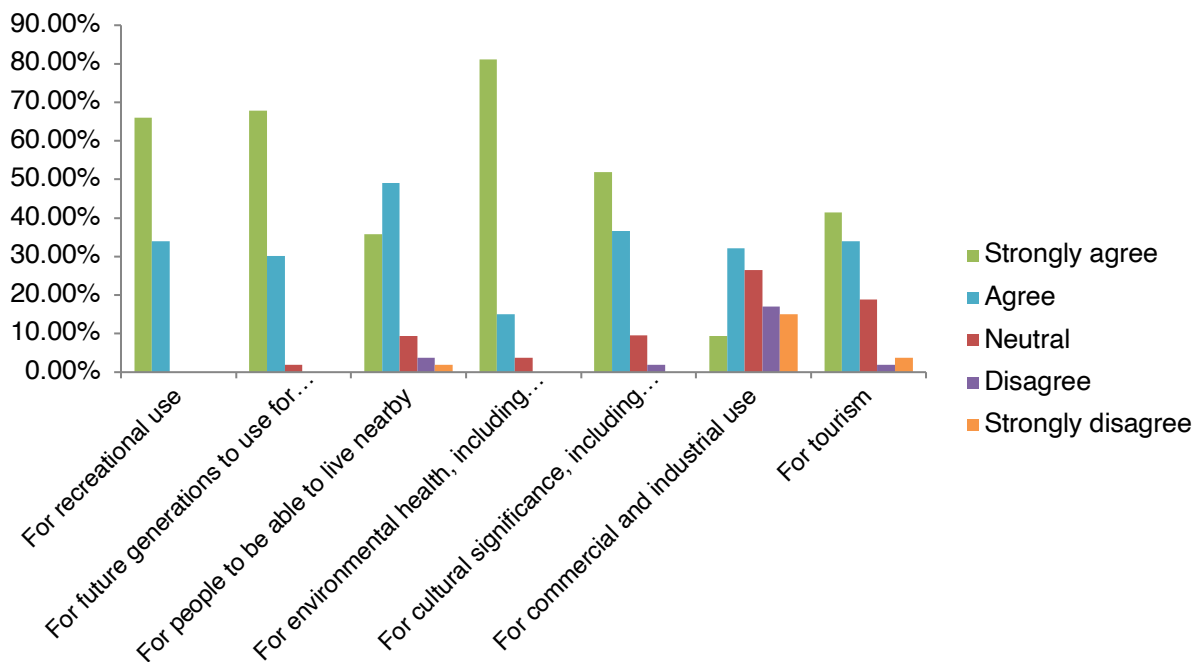
4.2.5 Values of maintaining the PRH coastline

Survey respondents mostly responded 'strongly agree' to the following statements:

- For environmental health, including flora and fauna habitat (81% chose strongly agree)
- For future generations to use for recreation (67% chose strongly agree)
- For recreational use (66% chose strongly agree)
- For cultural significance, including Aboriginal and European heritage (52% chose strongly agree)
- For tourism (42% chose strongly agree)
- For people to be able to live nearby (35% chose strongly agree)

However, for commercial and industrial use, there was a mixed response of agree (32% selected), neutral (26%), disagree (16%), strongly disagree (15%) and strongly agree (9%).

State how much you agree that it is important to manage and maintain the coastal areas adjacent to the Princess Royal Harbour in its current state for the following reasons



4.3 Community and Business Reference Group

The Community and Business Reference Group (CBRG) underwent an Expression of Interest period from 21 February until 11 March. Due to a small number of received expressions, the CBRG will be open until there are additional business representatives. The group currently has 12 representatives, 11 from community and 1 local business representative.

4.4 Information Session & Intercept Surveying

An Information Session was held on Saturday 2 April 2022 from 10am – 2pm (4 hours) on the lawn outside Haz Beanz Café. The purpose of the session was to inform community members of the project and allow them to ask any questions and provide any feedback related to the project. The session was attended by element (engagement and planning), Cardno (coastal engineering), and the City of Albany. There was a total of 45 attendees.

The Information Session included, apart from communicating general information about a CHRMAP, one data capturing exercise. The purpose being to test community aspirations for the coastline. Attendees were asked to rate the following sentences from 'very important' to 'not important'. The results are as presented below:



Figure 3 Image of attendees from the Information Session (left) and results from the exercise (right).

Statement sentence	Rating
In 20 years, the land in the coastal zone associated with the harbour <i>will be provided for foreshore management, public access, recreation and conservation.</i>	Very important, n=7
In 20 years, land in the coastal zone associated with the harbour <i>will have reduced risk associated with erosion.</i>	Very important, n=6 Somewhat important, n=1
In 20 years, land in the coastal zone associated with the harbour (land at risk of coastal erosion and inundation) <i>will be managed to avoid inappropriate land use and development.</i>	Very important, n=7
In 20 years, land in the coastal zone associated with the harbour will be managed to ensure land use and development does not accelerate coastal erosion or inundation risks or have a detrimental impact on the functions of public reserves.	Very important, n=9

In addition, an opportunistic intercept survey and flyer distribution was undertaken on Sunday 3 April from 10am – 12pm at the Albany Boatshed Markets. Over 20 flyers were distributed to promote the survey and continue to raise awareness of the project.

5. Success Criteria (Draft)

As a result of the engagement findings, we can deduce a preliminary set of criteria which will be used to guide the success of the CHRMAP report. The 'success' of the CHRMAP will be determined by the assets identified through the CHRMAP process continuing to provide their present function, services and values (or an accepted version of it as determined by community and stakeholders).

Therefore, the success criteria will be determined by the values collected in this part of the engagement process. The preliminary success criteria are outlined below and will be updated as the engagement progresses and after the community workshops in Stage 5.

- Ensure future land use and development does not accelerate coastal erosion or inundation risks or have a detrimental impact on the functions of public reserves.
- Land at risk of coastal erosion and inundation will be managed to avoid inappropriate land use and development.
- Maintain the harbour for environmental health, including flora and fauna habitat.
- Sustain the ability for the current and future generation to recreate along the harbour.
- Protect and or manage appropriately the provision existing recreational assets
- Maintain safety for all, especially those who live and work along the harbour.
- Avoid further land use and development in the coastal zone associated with the harbour.

6. Next steps

This concludes the end to the Stage 1 engagement activities. Communications and engagement will continue until the end of the project and as such, next steps are:

- This report will be included as an appendix in the Chapter 1 report of the CHRMAP.
- Success Criteria will be included in the CHRMAP report.
- Due to the low numbers of youth engaged to-date, additional engagement will be undertaken to target the youth through local schools.
- The project team will continue to pursue local business to join the CBRG.
- Additional communications, such as social media posts, email campaign and e-newsletter articles will be published to keep the community interested and informed until the next stage of the engagement.
- Community Workshops will be held in stage 5 of the project, no dates currently scheduled, however these are to be held in approximately late-2022.

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