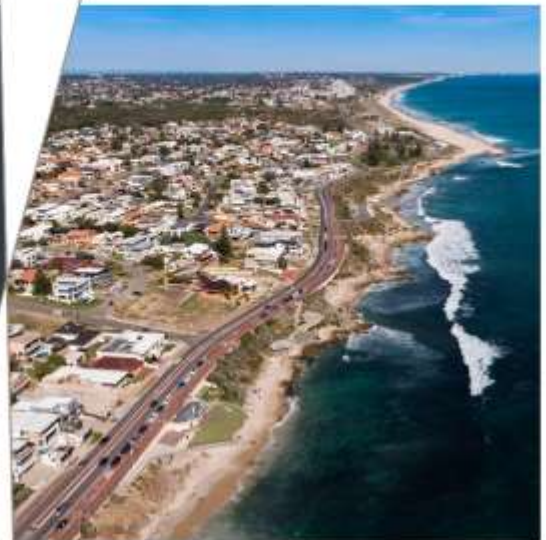


Chapter Report 1: Establish the Context

City of Stirling Coastal Hazard Risk Management and Adaptation Plan

CW1195500



Prepared for
City of Stirling

23 June 2023

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1 Purpose

1.1 Overview

The City of Stirling (the City) is located approximately 6 km north-west of Perth's Central Business District. The City contains approximately 7km of Indian Ocean coastline, including iconic beaches, such as Scarborough, Trigg and Mettams Pool. The adjacent foreshore reserves support a variety of recreation, conservation and commercial land uses, including substantial built infrastructure that is situated in close proximity to the shoreline.

The City has undertaken a Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) to provide strategic guidance for coordinated, integrated and sustainable land use planning and management along its coastline. The CHRMAP will inform the City's future decision-making with respect to areas and assets identified as being at risk from coastal hazards.

1.2 Background

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), bringing changes to the Western Australian (WA) coastline over the coming decades. To prepare for sea level rise (SLR) induced coastal hazards, such as coastal erosion and inundation, all levels of government are putting processes in place to ensure that communities understand the risks to values and assets on the coast, and to plan to adapt over time.

Changes to MSL over the past century have been observed for the coastline adjacent to the Perth Metropolitan Area. *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 are 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 recommendation is SSP5, which forecasts a SLR of 0.94m between 2020 and 2120 (**Figure 1-1**).

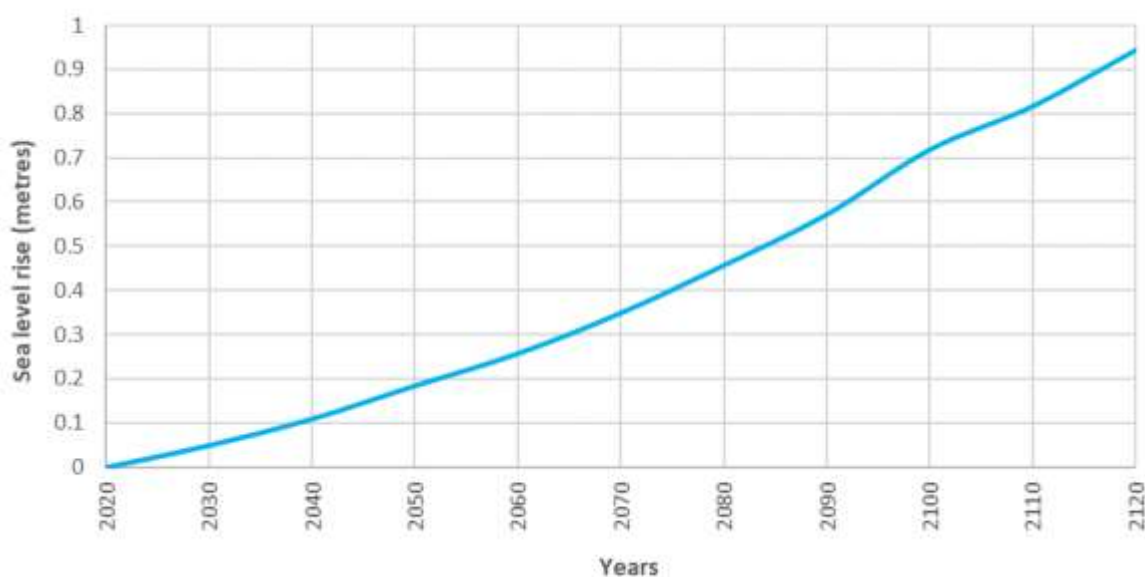


Figure 1-1 Projected sea level rise for planning purposes in Western Australia (based on DoT, 2010 & IPCC, 2021).

1.3 Overview of the CHRMAP Process

The key policy governing coastal planning in WA is the *State Planning Policy No. 2.6: State Coastal Planning Policy* (Western Australian Planning Commission [WAPC], 2013a) (SPP2.6). SPP2.6 recommends that management authorities develop a CHRMAP, using a risk mitigation approach to planning, that identifies the hazards associated with existing and future development in the coastal zone. SPP2.6 and the *State Coastal Planning Policy Guidelines* (WAPC, 2013b) contain prescriptive details, for example in relation to scales of assessment, storm event types and SLR allowances.

The WAPC (2019) has also developed the *Coastal hazard risk management and adaptation planning guidelines* (CHRMAP Guidelines) which are less prescriptive in terms of technical assessment of coastal processes but are aimed to ensure that planning is carried out using a risk-based approach. This includes paying due regard to stakeholder engagement, community consultation and education, and requires that a full range of applicable adaptation options are considered. An overview of the typical CHRMAP process is shown in **Figure 1-2**.

Coastal planning in accordance with SPP2.6 also needs to take into consideration the requirements of other planning policies, including *Statement of Planning Policy No. 2: Environment and Natural Resources Policy* (WAPC, 2003) (SPP2), *State Planning Policy No. 2.8: Bushland policy for the Perth Metropolitan Region* (WAPC, 2010) (SPP2.8), *Statement of Planning Policy No. 3: Urban Growth and Settlement* (WAPC, 2006a) (SPP3.0) and *State Planning Policy No. 3.4: Natural Hazards and Disasters* (WAPC, 2006b) (SPP3.4).

1.4 Purpose of this Report

The City's CHRMAP has been developed through a staged approach, with the various stages documented in dedicated chapter reports. The chapter reports will be summarised and used to underpin the overall CHRMAP document. The purpose of the chapter reporting is to capture key technical detail, while the overall CHRMAP presents a more accessible and community-friendly document. The chapter reports prepared as part of the City's CHRMAP include:

- > **Chapter 1 – Establish the Context (Stage 1);**
- > Chapter 2 – Risk Identification (Stage 2) (Cardno, 2023a);
- > Chapter 3 – Vulnerability Analysis and Risk Evaluation (Stages 3 and 4) (Cardno, 2023b);
- > Chapter 4 – Risk Treatment (Stage 5) (Cardno, 2023c); and
- > Chapter 5 – Implementation (Stage 6) (Cardno, 2023d).

This chapter report presents the *Establish the Context* stage, which outlines the framework within which the CHRMAP has been undertaken. It details the following key elements of the project:

- > Purpose (**Section 2**);
- > Objectives (**Section 3**);
- > Scope (**Section 4**);
- > Study Area (**Section 5**);
- > Community and Stakeholder Engagement (**Section 6**);
- > Existing Controls (**Section 7**); and
- > Success Criteria (**Section 8**).

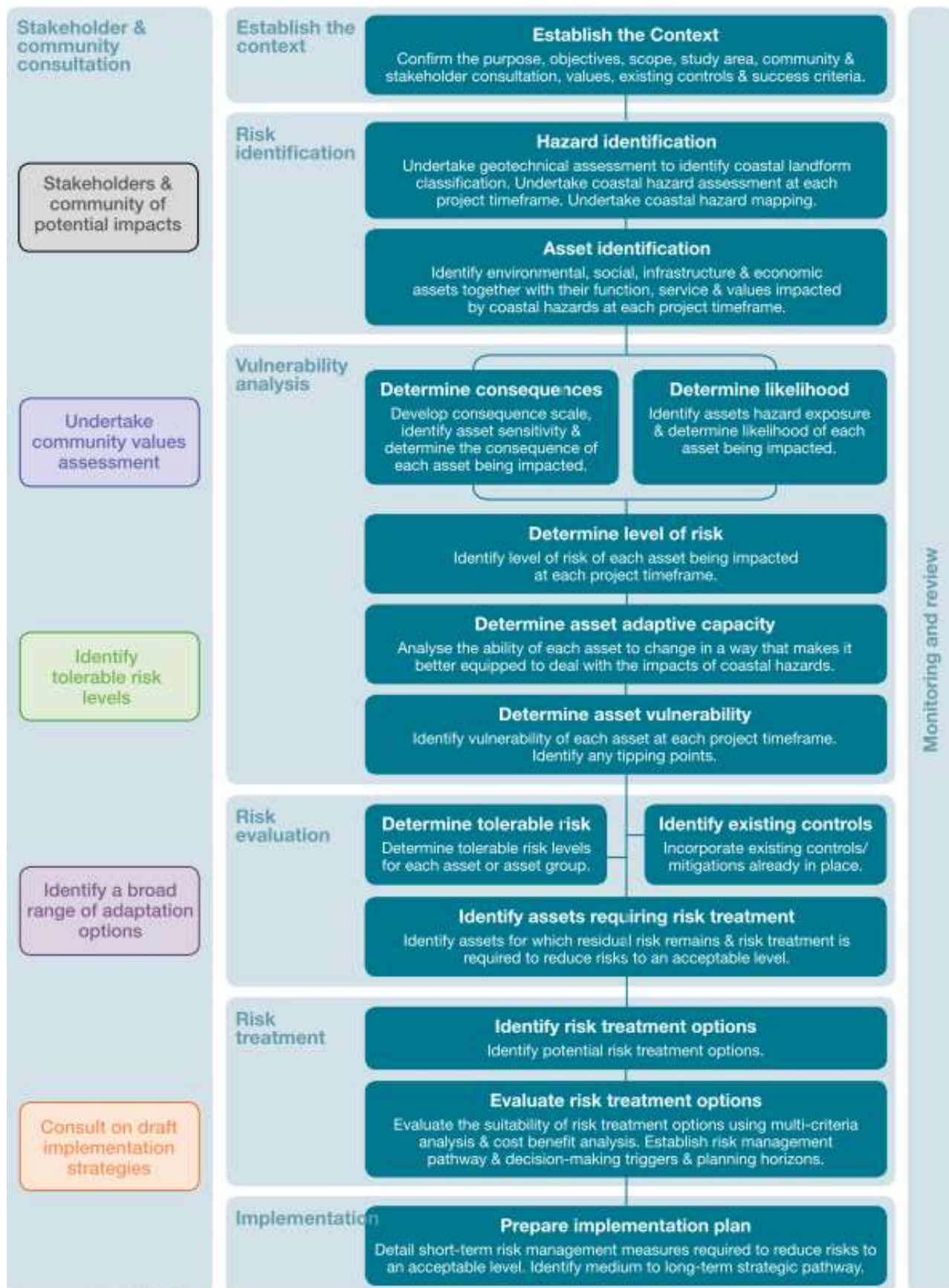


Figure 1-2 Risk management steps forming the CHRMAP process (WAPC, 2019)

2 Purpose

The City of Stirling (the City) is undertaking Coastal Hazard Risk Management and Adaptation Planning (CHRMAP) to provide strategic guidance for coordinated, integrated and sustainable land use planning and management along its coastline. The vulnerability of assets within the Western Australian coastal zone to coastal hazards such as erosion and inundation is expected to increase in the future due to sea level rise resulting from climate change. Despite the uncertainty that remains about the magnitude and extent of the impacts from coastal process processes and future changes, it is recognised that early consideration of coastal hazards and the management of appropriate planning responses can provide economic, environmental and social benefits. The CHRMAP will inform the City's decision-making with respect to areas and assets identified as being at risk of coastal erosion and inundation hazards.

The City of Stirling has a population of 219,981 (based on the 2016 census data) and a rich, diverse natural and physical landscape covering approximately 104 km², including 7 km of coastline. The City of Stirling's diverse foreshore boasts sandy beaches, rock pools, open space, parks and reserves, shopping, recreation and leisure centres, scenic drives and water front property that are well-loved by local residents and those residing in surrounding areas of Perth's north western suburbs, as well as tourists who travel from abroad to enjoy them.

Following a series of storms in 2009 that significantly impacted coastal infrastructure at Watermans Bay, the City commissioned a 'Strategic Coastal Processes Study'. This study allowed the City to better understand the coastal processes, determine which areas of the coastline were most at risk and identify what those risks were. Subsequently, the City also commissioned several Geophysical Subsurface Investigations (2016-2018) to determine the rock profile between Trigg Island and Watermans Bay, Mettams Pool and North Beach. The level of protection afforded by these rocks is yet to be established.

In 2019, Waterman Bay and Mettams Pool were included to the list of the state Coastal Erosion Hotspots prepared by the Department of Planning, Lands and Heritage and the Department of Transport (Seashore, 2019). A range of public foreshore amenities were found to be prone to erosion hazard in the near to medium term (within 0 to 25 years), while large sections of public infrastructures assets such as dual use path, sections of West Coast Drive and associated services (gas, power, water) were found to be at high risk due to coastal erosion in the medium to long term (as early as 2045).

These studies, and many others in nearby coastal areas, have highlighted the need for strategic, long-term planning for the use and management of the City's coastal areas.

The purpose of this project is to prepare a Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) for the City of Stirling coastline from Peasholm Street to Beach Road. This CHRMAP will:

- > Set the framework for the assessment, by identifying coastal hazards (erosion and to a basic degree inundation), analysing vulnerability for specific assets, identifying and prioritising management and adaptation responses, and providing an implementation plan;
- > 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 Stirling to address coastal hazard risks over time; and
- > Provide strategic guidance for coordinated, integrated and sustainable land use planning and management decision-making by the City of Stirling, including any necessary changes to the City of Stirling 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* (WAPC, 2019) and *State Planning Policy No. 2.6 – State Coastal Planning Policy* (WAPC, 2013) [SPP2.6] and associated guidelines and studies. It will build on the findings of previous studies and consider the degree of erosion and inundation hazard protection afforded by the ground conditions, which is yet to be interpreted in the context of coastal hazards mapping and encapsulated in an appropriate risk management process compliant with SPP2.6.

3 Objectives

As stipulated in the CHRMAP guidelines (WAPC, 2019), the CHRMAP should have clear objectives that align to the City's strategic plans based on the principle of sustainable land use and development for current and future generations. The CHRMAP objectives should be broad, incorporating social, economic and environmental risk assessment in the context of the objectives of SPP2.6, that are to:

1. *Ensure that development and the location of coastal facilities takes into account coastal processes, landform stability, coastal hazards, climate change and biophysical criteria;*
2. *Ensure the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, maritime industry, commercial and other activities;*
3. *Provide for public coastal foreshore reserves and access to them on the coast; and*
4. *Protect, conserve and enhance coastal zone values, particularly in areas of landscape, biodiversity and ecosystem integrity, indigenous and cultural significance.*

The specific objectives of the City's CHRMAP are to:

- > Improve understanding of coastal features, processes and hazards in the study area;
- > Identify assets (natural and man-made) situated in the coastal zone and the services and functions they provide to the City, its community and other stakeholders;
- > 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;
- > Gain an understanding of asset vulnerability;
- > Identify possible (effective) risk management measures (or 'actions') and how these can be incorporated into short and longer-term decision-making;
- > 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;
- > Provide clear pathways for the City to manage its own assets and areas in response to increasing coastal hazard risk over the next 100 years;
- > Engage stakeholders and the community in the planning and decision-making process.

4 Scope

The scope of the CHRMAP is to assess coastal hazard risk along the City's entire coastline, identifying and characterising risk and vulnerability for all assets and areas that may be impacted in the next 100 years. Adaptation and management measures will then be developed to address intolerable risk in the short-term (< 10 years). Strategic measures will be put in place to avoid such intolerable risk for timeframes beyond this. The overall aim being to reduce risk to acceptable or tolerable levels, where possible, throughout the 100-year planning timeframe.

4.1 Study Area

The study area comprises all areas within the City's jurisdiction that could be impacted by coastal hazards over the next 100 years. The City's coastline stretches approximately 7 km from Peasholm Street, Scarborough to Beach Road, Watermans Bay. The width of the study area may vary depending on the nature of the coast, extent of coastal processes and the level of controls already in place. The study area is further defined and described in **Section 5**.

4.2 Coastal Hazards

The scope of coastal hazards includes coastal erosion and coastal inundation. These have been defined and assessed in further detail in the *Risk Identification* chapter report (Cardno, 2023a).

4.3 Timeframes

It is important to define the timeframes at which risk and vulnerability will be assessed. For this study, the timeframes specifically used to identify and analyse risk will be:

- > Present day (2022);
- > 2030 (10-year timeframe: immediate-term);
- > 2045 (25-year timeframe: short-term);
- > 2070 (50-year timeframe: medium-term); and
- > 2122 (100-year timeframe: long-term).

5 Study Area

5.1 Spatial Extent

The spatial extent of the CHRMAP's study area is delimited along the coast by the City's jurisdictional boundary, which has been outlined in **Figure 5-1**. These boundaries are aligned with Beach Road to the north (boundary with City of Joondalup) and Peasholm Street to the south (boundary with Town of Cambridge). The study area comprises approximately 7km of Indian Ocean coastline including the wide sandy beaches south of Trigg (**Figure 5-2**) and mixed sandy and rocky shorelines north of Trigg Island (**Figure 5-3**). The southern extent of Marmion Marine Park is located in the study area, adjacent Trigg Island, extending 3 nautical miles (≈ 5.5 km) offshore and 22 km north up to Burns Rocks.

When considering coastal processes in the CHRMAP, the alongshore extent of the study area includes the sediment exchanges and connectivity between coastal adjacent coastal compartments. Sediment cells relevant to the study area have been defined in Stul et al. (2015). The study area falls within one primary cell - South Mole Fremantle to Pinnaroo Point (R06F); overlaps two secondary cells - Mudurup Rocks to Trigg (R06F26) and Trigg to Pinnaroo Point (R06F27); and overlaps three tertiary cells - Empire Avenue to Brighton Road (R06F26c), Brighton Road to Trigg (R06F26d) and Trigg to Sorrento (R06F27a), as shown in **Figure 5-1**. Sediment Cells for the study area are further discussed in Cardno (2023a).

The inland extent of the study area is defined by the maximum extent of coastal hazards at the end of the 100-year planning timeframe, as presented in the *Risk Identification* (Cardno, 2023a). The following coastal suburbs are located within the study area:

- > Watermans Bay;
- > North Beach;
- > Trigg; and
- > Scarborough.

5.2 Coastal Setting

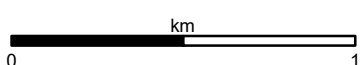
A detailed assessment of the City's coastal setting and relevant coastal processes has been made by BMT JFA Consultants in the *Strategic Coastal Processes Study* (2015). A summary of the site's description is provided as part of the Risk Identification (Stage 2).

5.3 Marmion Marine Park

Marmion Marine Park lies offshore from Perth's northern suburbs, between Trigg Island and Burns Rocks. Marmion was the State's first marine park and was declared on 13 March 1987. The park provides protection for a range of values, including marine biodiversity, cultural significance to local Aboriginal people and recreational areas. The Waterman Recreational Area extends from Malcolm Street, North Beach to Elsie Street, Watermans Bay.



1:22,000 Scale at A3



Study Area

CITY OF STIRLING CHRMAP

FIGURE 5-1



Map Produced by Cardno (WA) Pty Ltd
Date: 2022-11-09
Coordinate System: GDA 1994 MGA Zone 50
Project: CW1195500
Map: CW1195500_GS_001_StudyLocality.mxd 02
Aerial imagery supplied by Esri et al.



Figure 5-2 Scarborough Beach's sandy coastline with adjacent development.







Figure 5-3 North Beach's mixed rocky and sandy coastline with adjacent development.



5.4 Description of Beaches



The City of Stirling manages 7km of coastline, reserves and beaches, from Watermans Bay in the north to Peasholm Dog Beach in the south. An overview of the City's beaches is provided in **Table 5-1**. The adjacent foreshore reserves support a variety of recreation, conservation and commercial land uses, including substantial built infrastructure situated in close proximity to the shoreline. Built infrastructure includes Leisure Centres, Aquatic Clubs, Square, restaurants and cafes, playgrounds, showers, BBQ, facilities, footpaths, beach accesses, several carparks, irrigation bores, utility services. Beaches with substantial, adjacent built infrastructure include Scarborough, Trigg and along West Coast Drive from North Beach to Watermans Bay. Large portions of natural foreshore also remain along the City's coastline, including between Trigg and Scarborough Beaches and to the south of Brighton Beach. Much of this is formalised as Bush Forever Site's 308 – *Trigg Bushland and adjacent coastal reserve, Trigg/Scarborough* and 310 – *Floreat Beach Bushland, City Beach/Scarborough* (SPP2.8). Included within the Bush Forever Site 308 is the 13.34-hectare South Trigg A Class Reserve 46248, which contains a Threatened Ecological Community (TEC) of *Callitris preissii* (Rottneist Island Pine). However, the majority of this TEC is to the east of West Coast Drive, and unlikely to be susceptible to coastal hazards determined by this CHRMAP.



Table 5-1 Overview of the City's beaches from north to south


Name	Description
Watermans Bay Beach, Watermans Bay	<p>Watermans Bay Beach is located between Elvire Street and Beach Road on West Coast Drive, Watermans Bay. This beach is located in Marmion Marine Park and offers calm waters for snorkelling and swimming. It has 116 parking bays and 1 accessible parking bay.</p> 
North Beach, North Beach	<p>North Beach is located between Waterman's Bay and Trigg Beach on West Coast Drive, North Beach, and is adjacent Star Swap Bushland Reserve. This beach is located in Marmion Marine Park and offers calm waters for snorkelling and swimming.</p> <p>North Beach also features a fishing jetty that is located between Castle St and Malcolm Street. It has 89 parking bays and 3 accessible parking bays.</p> 

Name	Description
<p>Hamersley Pool, North Beach</p>	<p>Hamersley Pool is located on the corner of Hamersley Street and West Coast Drive, Trigg Beach. This beach is located in Marmion Marine Park. It is a reef-enclosed, tidal pool that attracts snorkelers and swimmers, and is a popular location for families. It is also a popular choice for beach weddings due to its size and breathtaking views. It has 19 parking bays and 1 accessible parking bay.</p> 
<p>Mettam's Pool, North Beach</p>	<p>Mettams Pool is located off West Coast Drive, north of Trigg Beach. This beach is located in Marmion Marine Park. It is a natural rock pool protected by a surrounding reef. The pool is popular for swimmers due to its calm water. It has 109 parking bays and 9 accessible parking bays.</p> 

Name	Description
<p>Bennion Beach, Trigg.</p>	<p>Bennion Street Beach is located on West Coast Drive between Kathleen Street and Lynn Street. This beach is located in Marmion Marine Park. It has a small dog-friendly area located on the south side. There are drink fountains, public seating and 36 parking bays.</p> 
<p>Trigg Dog Beach, Trigg</p>	<p>Trigg Dog Beach is located off Clarko Reserve at Trigg Place. This beach is located in Marmion Marine Park. Facilities include a small boat ramp, public toilets and shower facilities. It has 76 parking bays and 7 accessible parking bays.</p> 

Name	Description
Trigg Beach, Trigg	<p>Trigg Beach is a popular location for body boarders, kite surfers and surfers, and is located between Karrinyup Road and West Coast Highway, Trigg. The majority of the vegetated dunes at the back of the beach are classified as Bush Forever - <i>Site 308</i> (SPP2.8).</p> <p>Facilities include public toilets and shower facilities. It has 638 parking bays and 7 accessible parking bays.</p> 
North Scarborough	<p>North Scarborough is accessed via North Scarborough Reserve. The beach is a popular beach for surfers and kite surfers, as well as general beachgoers. It has 354 parking bays and 9 accessible parking bays.</p> 

Name	Description
<p>Scarborough Beach, Scarborough</p>	<p>Scarborough Beach is located in the Scarborough Precinct, on The Esplanade at the end of Scarborough Beach Road. This is the City's most popular beach with easy access to public transport. White sand and big waves along with lifesaving services provided year-round make this a favourite location for surfing, swimming and water sports.</p> <p>There are substantial facilities and amenities in the area; public toilets, showers, drinking fountains, a beach pool, an amphitheatre, skate park and a bouldering wall. It has 352 parking bays and 18 accessible parking bays.</p> 
<p>Brighton Beach, Scarborough</p>	<p>Brighton Beach is located at the end of Brighton Road, approximately 400m south of Scarborough Beach. The beach has lifeguards patrolling year-round which makes it popular for surfing, kite surfing and swimming. There are public toilets, indoor and outdoor showers and free parking. It has 39 parking bays.</p> 

Name	Description
Peasholm Dog Beach, Scarborough	<p>Peasholm Dog Beach is located between Floreat and Scarborough Beach. It has lots of space for dogs to run around and is a great spot for swimming or surfing. The majority of the vegetated dunes at the back of the beach are classified as Bush Forever - <i>Site 310</i> (SPP2.8).</p> <p>There are public toilets, shower facilities and a dog wash area. There are also drinking fountains and animal drink facilities. There is free parking with floodlights, including 61 parking bays.</p> 

5.5 Land Use and Development

5.5.1 Traditional Land Use

The traditional custodians of the City's lands and coastline are the Whadjuk people of the Nyoongar nation. The Nyoongar people occupied and preserved the land in the south-west corner of Western Australia for over 40,000, and possibly up to 60,000, years, prior to the area being colonised by the British. Coastal areas have always held specific significance for Nyoongar people. Hunting and gathering from marine waters derived a large portion of the food for coastal tribes. Certain coastal plants were used as food, medicine and for ceremonial purposes. Coastal dunes were also common places of burial.

5.5.2 Modern Land Use

Coastal localities of the City of Stirling Local Planning Scheme No 3 are shown in **Figure 5-4**, **Figure 5-5** and **Figure 5-6** and Scarborough Redevelopment Scheme is shown in **Figure 5-7**. This provides an indication of the existing land use and development context.

The key existing coastal land uses in the City of Stirling include:

- > Park and Recreation Reserves;
- > Residential Areas; and
- > Local Road Reserves, notably West Coast Drive.

The City is also preparing to take control of the Scarborough Redevelopment Area through a process referred to as 'normalisation'. The key existing coastal land uses in the Scarborough Redevelopment Area coastal precincts include:

- > Park and Recreation Reserves;
- > Mixed use including a wide range of active recreational, retail, commercial, community, entertainment and tourism uses; and
- > Medium to high density residential development and tourism accommodation.

The planning strategy and other planning frameworks within the study area, are further discussed in **Section 7**.



Figure 5-4 City of Stirling Local Planning Scheme No3 – Map 01 Carine Locality.

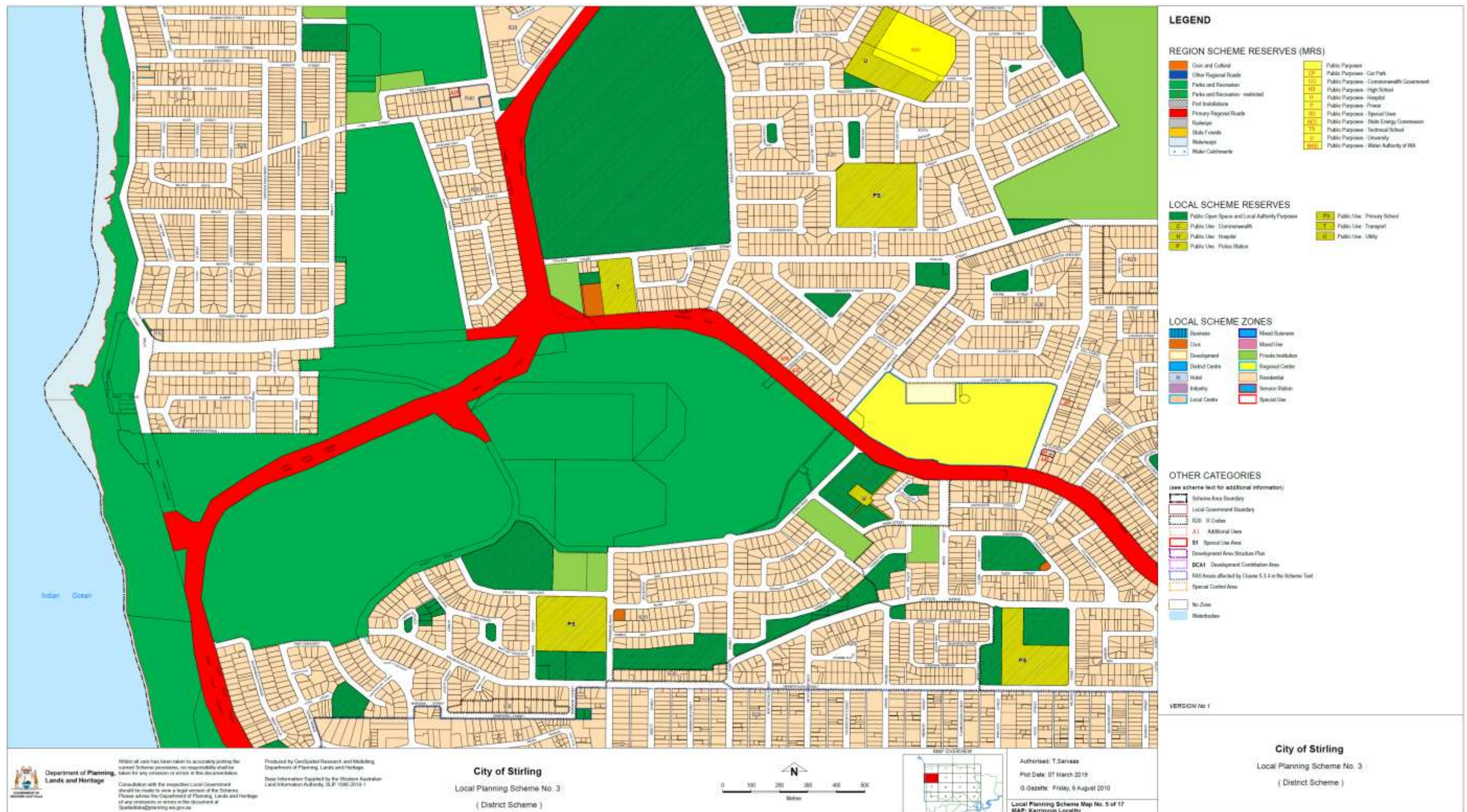


Figure 5-5 City of Stirling Local Planning Scheme No3 – Map 05 Karriynup Locality.

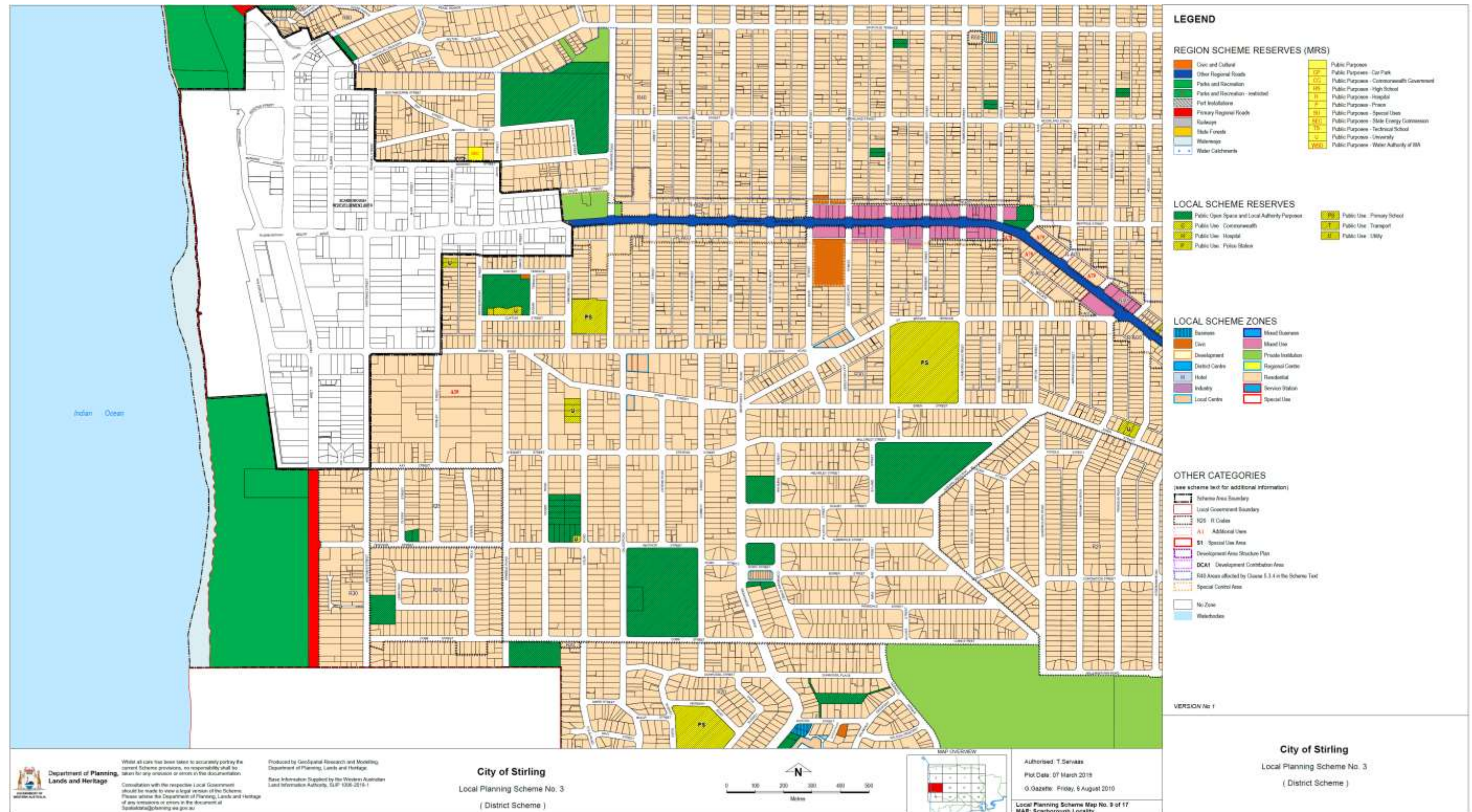


Figure 5-6 City of Stirling Local Planning Scheme No3 – Map 09 Scarborough Locality.

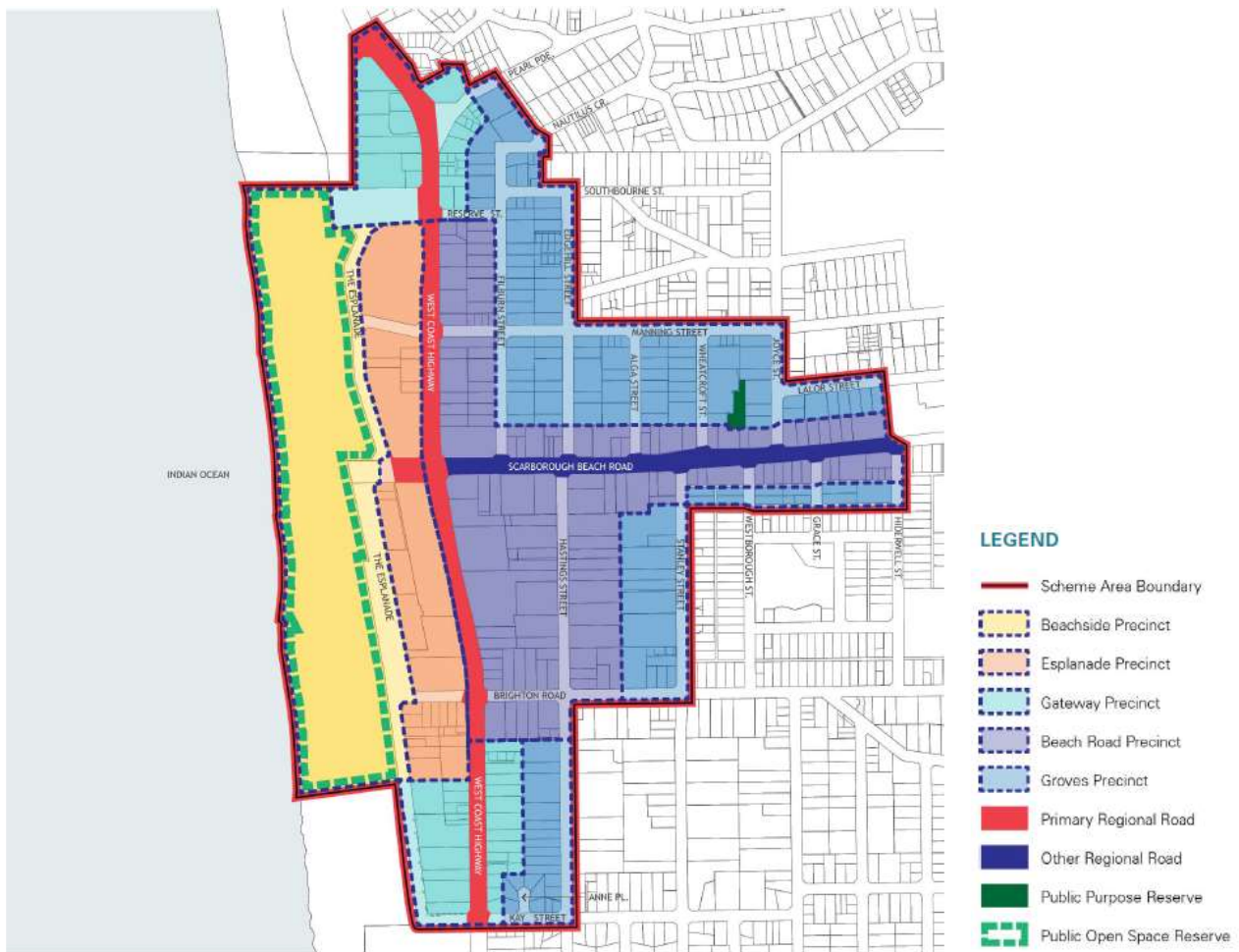


Figure 5-7 Scarborough Redevelopment Scheme after Metropolitan Redevelopment Authority, Sep. 2016.

6 Community and Stakeholder Engagement

Community and stakeholder engagement for the project is being led by the project team's specialist planning and engagement consultant, Element.

6.1 Community and Stakeholder Engagement Plan

A dedicated Community and Stakeholder Engagement Plan has been developed for the CHRMAP project, detailing the specific engagement methods, strategies and schedule. The entire plan is included as **Appendix A**, with an outline provided in the sub-sections below.

6.1.1 Previous engagement

There has been a range of previous engagement surrounding key coastal locations at immediate risk of coastal hazards, including Mettams Pool and Scarborough Redevelopment Area. This previous engagement with community and stakeholders will be considered in relation to the engagement for this CHRMAP project to ensure we avoid repetition and build on what has already been communicated with the community.

6.1.2 Level of engagement

Aligning with CHRMAP Guidelines SPP 2.6, and the International Association for Public Participation (IAP2), the engagement methodology will fall under the Inform, Consult and Involve levels of the Participation Spectrum, as indicated in **Table 6-1**.

Table 6-1 IAP2 Participation Spectrum (selected levels in the study are underlined).

Level	<u>Inform</u>	<u>Consult</u>	<u>Involve</u>	Collaborate	Empower
Goal	To provide balanced and objective information in a timely manner.	To obtain feedback on analysis, issues, alternatives and decisions.	To work with the public to make sure that concerns and aspirations are considered and understood.	To partner with the public in each aspect of the decision-making.	To place final decision-making in the hands of the public.
Promise	"We will keep you informed."	"We will listen to and acknowledge your concerns."	"We will work with you to ensure your concerns and aspirations are directly reflected in the decisions made."	"We will look to you for advice and innovation and incorporate this in decisions as much as possible."	"We will implement what you decide."

6.1.3 Objectives

It is critical to the CHRMAP process that stakeholders and the broader community are engaged throughout (as depicted above in **Figure 1-2**), to achieve a successful project outcome. Building on the relevant project objectives listed in **Section 2**, the following engagement specific objectives have been developed:

- > Generate awareness of the project and reach a range of key stakeholders and community members in the process;
- > Communicate the CHRMAP process to community and key stakeholders;
- > Encourage participation in engagement activities through a range of advertising and project awareness raising exercises;
- > Encourage respectful conversations about coastal values;

- > Collect meaningful feedback from community and stakeholders on their coastal values and preferred management and adaptation options;
- > Offer alternative methods for community and stakeholders to engage; and
- > Engage sensitively regarding prior coastal hazard engagement.

6.1.4 Stakeholder Identification and Analysis

Stakeholder Identification and Analysis involved the identification of key stakeholder categories and groups (including internal and external stakeholders), definition of the level of engagement and selection of appropriate engagement strategies, as summarised in **Table 6-2**.

An effective CHRMAP project will require strong internal engagement by the City. Examples of good internal engagement include the following:

- > Informing the rest of the City of the purpose of the CHRMAP to promote the understanding and support across the organisation;
- > Identification and sharing of existing data and information that can be used to inform the CHRMAP project; and
- > Providing an understanding of existing planning controls and risk management procedures. This helps to identify activities that already address risks from the coastal hazards and will identify the areas of the City most suited to implement risk management measures (which will ensure implementation is mainstreamed across the organisation and not carried out in isolation).

To help facilitate strong internal engagement the City's relevant departments have been considered as stakeholders in the Stakeholder Engagement Plan and included in the project steering committee.

Table 6-2 Stakeholder Identification and Analysis

Stakeholder	Groups	Level of Engagement	Method to engage
Tier 1 Stakeholders (directly impacted by the project)			
City of Stirling	<ul style="list-style-type: none"> ▪ Project team ▪ Council ▪ Executive Leadership Team ▪ Department of Transport ▪ Department of Planning, Lands and Heritage 	Involve	<ul style="list-style-type: none"> ▪ Email correspondence ▪ Briefings ▪ Drop in sessions
State Government Agencies	<ul style="list-style-type: none"> ▪ DevelopmentWA (Scarborough CHRMAP) ▪ Servicing Authorities <ul style="list-style-type: none"> – Synergy/Western Power – Alinta Energy – Atco Gas Australia – Water Corporation ▪ Main Roads WA 	Consult	<ul style="list-style-type: none"> ▪ Email correspondence ▪ Briefings ▪ Drop in sessions ▪ Stakeholder Meetings
Landowners in the impacted area	<ul style="list-style-type: none"> ▪ Immediate residents ▪ Immediate businesses ▪ Residents' associations 	Involve	<ul style="list-style-type: none"> ▪ Stakeholder letter ▪ Values survey ▪ Drop in sessions ▪ Project webpage ▪ Community workshops

Stakeholder	Groups	Level of Engagement	Method to engage
Community groups relevant to the coastal area	<ul style="list-style-type: none"> Trigg North Beach Watermans Bay Community Association Friends of Trigg Beach Scarborough Beach Association North Coast Security Action Group Trigg Surf Lifesaving Club Scarboro Surf Lifesaving Club Friends of Star Swamp and Friends of Trigg Bushland 	Involve	<ul style="list-style-type: none"> Values survey Drop in sessions Project webpage Community workshops
Frequent users / visitors to the coastal area	<ul style="list-style-type: none"> Sporting and recreational groups based on the coast Bush forever groups Coast Natural Area Group Cycling and walking groups 	Involve	<ul style="list-style-type: none"> Values survey Drop in sessions Project webpage Community workshops
Not-for-profit organisations	<ul style="list-style-type: none"> Surfing WA 	Inform - Consult	<ul style="list-style-type: none"> Values survey Drop in sessions Project webpage Community workshops
Tier 2 Stakeholders (indirectly impacted by the project)			
State Government Agencies	<ul style="list-style-type: none"> Department of Water and Environmental Regulation Department of Health Public Transport Authority Department of Education 	Consult	<ul style="list-style-type: none"> Email correspondence Drop in sessions Project webpage
Adjoining LGAs (along the coastline)	<ul style="list-style-type: none"> Town of Cambridge City of Joondalup 	Inform	<ul style="list-style-type: none"> Email correspondence Drop in sessions Project webpage
Broader community	<ul style="list-style-type: none"> City of Stirling residents and ratepayers Casual visitors and users of the City of Stirling coastline 	Consult	<ul style="list-style-type: none"> Values survey Drop in sessions Project webpage
Other community groups within the City of Stirling	<ul style="list-style-type: none"> Stirling Business Association Woodlands/Doubleview Progress Association Sunsetsnotskyscrapers Woodlands Action Group Mount Lawley Ratepayers Association Mount Lawley Society Gwelup Progress Association Roselea Residents Association 	Inform	<ul style="list-style-type: none"> Values survey Drop in sessions Project webpage

6.1.5 Engagement Approach

A range of engagement methods and activities have been selected that will facilitate the engagement process with both community members and key stakeholders. In general, the engagement approach will involve:

- > Delivery of an information session at the start of the project to allow stakeholders and the local community the opportunity to discuss and understand the CHRMAP process;

- > Provision of an online survey to gather information regarding the community and stakeholder's coastal values, as well as other key information;
- > Working closely with the City's Communications Team to raise the profile of the CHRMAP project and engagement process, in coordination with the City's other community engagement and communication activities; and
- > Delivery of workshops to present, and receive feedback on, potential adaptation options to address coastal hazard risk for the City.

It should be noted that the engagement approach and methods can be modified and evolve throughout the project if and when necessary.

6.1.6 Engagement Tools and Activities

A range of engagement tools and activities have been selected to host the engagement process for both community members and key stakeholders.

Engagement activities included:

- > Pop-up information sessions
- > Static information displays
- > Community workshops

Engagement channels included:

- > Posters
- > Project webpage, factsheets and FAQs
- > Social media posts
- > Stratified random sample mail
- > Email campaign
- > Stirling Times newsletter and e-news

A description of what each tool will involve is detailed in **Appendix A**.

6.1.7 Engagement activities schedule

An engagement schedule was prepared detailing activities for each stage of the project as summarised in **Table 6-3**. Detailed information about the activities (including detailed description, responsibility, completion date, targeted stakeholder/s, medium collateral, and outcome notes) is provided in **Appendix A**.

Table 6-3 Engagement and communications facilitation activities schedule summary.

Period (month – year)	Study Phase / CHRMAP stage	Activity
Oct 21 – Dec 21	Stage 1 – Establish the Context	Social media posts Webpage Online survey Random sample survey Posters Pop-up session #1 Outcomes summary
	Stage 2 – Risk Identification	n/a
	Stage 3 – Vulnerability Analysis	n/a
	Stage 4 – Risk Evaluation	n/a
Dec 21 – Mar 22	Stage 5 – Risk Treatment	Advertise Workshops Distribute advertisement collateral Multi Criteria Analysis Workshop #1 Multi Criteria Analysis Workshop #2

		Outcomes summary
	Stage 6 – Implementation Plan	n/a
	Stage 7 – Monitoring and Review	n/a
Mar 22 - Sep 22	Stage 8 – Final CHRMAP	Social media posts Webpage collateral Posters Pop-up session #2

6.2 Outcomes to Date - Coastal Values Survey

Some engagement activities have already been undertaken for the project; specifically, the Initial Information Session and the Coastal Values Survey. We engaged with over 300 people across 3 activities. A snapshot of the engagement outcome is provided below:

- > Trigg, Scarborough and Mettams Pool areas are the most visited beaches along the City of Stirling coastline;
- > The community is concerned about erosion along the coastline, exposure of rocks at Mettams Pool, unsustainable development too close to the ocean and preserving accessible walkways and access points to the coast;
- > The community value 'recreation' and the 'natural environment' the most about their coastline. Social Pinpoint users (online mapping) also identified their love of various surfing spots along the City's coastline;
- > Walking and driving in a small car were the most popular modes of transport people use to access the coastline; and
- > 93% of survey respondents had witnessed either major or minor changes to the coastline.

The entire Outcomes Report for these activities is included as **Appendix B** and the results have been interpreted to define success criteria in **Section 8**, below. A final outcomes report will be prepared upon completion of all engagement activities for the project.

7 Existing Controls

7.1 Legislative and Planning Controls

7.1.1 Policy Framework Overview

Western Australia's planning framework includes strategic and statutory planning functions set out in the Planning and Development Act 2005 (PD Act). The planning system is hierarchical, requiring increasing levels of detail as a proposal progresses through regional, district and local planning to subdivision and development of individual sites (**Figure 7-1**).



Figure 7-1 Western Australian planning hierarchy (DPLH, 2020).

SPP 2.6 is applicable to every stage of the planning process. It is intended that policy measures be addressed as early as possible in the planning process, with the level of information provided being progressively more detailed (WAPC, 2020). SPP 2.6 requires a risk management approach and provides the framework for undertaking risk management planning for risks arising from coastal hazards in Western Australia. The SPP 2.6 Guidelines published 30 July 2013 Section 4 provides a brief introduction to Coastal Hazard Risk Management and Adaptation Planning (CHRMAP). Further CHRMAP guidelines are provided in WAPC (2019). Risk management steps forming the CHRMAP process are illustrated in **Figure 1-2**.

7.1.2 Key Planning Framework Relevant to the Project

There is a range of existing legislative and planning controls that are applicable to land use and development within the City, with respect to coastal land use and, therefore, relevant to this CHRMAP. These are summarised in **Table 7-1** and further discussed in the sub-sections below.

Table 7-1 Key planning controls relevant to the project

Document	Purpose
Corporate Governance Framework	
<i>City of Stirling Strategic Community Plan 2018 - 2028</i>	Overarching strategy to achieve the vision for the development of the City over the next 10 years and beyond.
<i>City of Stirling Corporate Business Plan 2021 - 2025</i>	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.
<i>City of Stirling Heritage Management Strategy 2016 – 2020</i>	Provides a framework to guide the City in its endeavour to comprehensively identify, protect, manage and promote its heritage assets.

Relevant Legislation	
<i>Planning and Development (Local Planning Schemes) Regulations 2015</i>	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.
<i>Metropolitan Redevelopment Authority Regulations 2011</i>	Set out matters prescribed by the MRA Act, including provisions relating to various planning mechanisms applicable within Scarborough Redevelopment Area.
<i>Conservation and Land Management Act 1984</i>	Details how the Department of Parks and Wildlife manages the State's conservation areas.
<i>Heritage Regulations 2019</i>	Outline a consistent structure, format and approach to the recording, assessment and management of places with cultural significance.
State Planning Framework	
<i>State Planning Strategy 2050 (WAPC, 2014a)</i>	Provides strategic context and basis for the integration and coordination of land-use planning and development.
<i>Perth and Peel @ 3.5 Million (WAPC, 2018)</i>	Provides overarching framework to deliver four sub-regional strategies to guide future growth and development across Perth and Peel
<i>Metropolitan Region Scheme (WAPC, 2014b)</i>	The Metropolitan Region Scheme (MRS) is the principal region scheme which applies to the study area and zones and reserves land
<i>State Planning Policy No. 2.6: State Coastal Planning Policy (WAPC, 2013a)</i>	<ul style="list-style-type: none"> Primary statutory document that governs development in WA's coastal areas. Recommends the preparation of CHRMAP's to properly inform management and adaptation.
<i>State Coastal Planning Policy Guidelines (WAPC, 2020)</i>	Supplements the State Coastal Planning Policy with further specific detail on its application.
<i>WA Coastal Zone Strategy (WAPC, 2017)</i>	High-level, overarching strategy for the use of WA's coastal zone.
<i>Coastal Hazard Risk Management and Adaptation Planning Guidelines (WAPC, 2019)</i>	Guideline outlining the process and expected outcomes for a CHRMAP.
<i>Planned or Managed Retreat Guidelines (WAPC, 2019)</i>	Provides guidance on how to implement a policy of planned or managed retreat
<i>Statement of Planning Policy No. 2: Environment and Natural Resources Policy (WAPC, 2003)</i>	Aims to integrate environment and natural resource management with broader land use planning and decision-making.
<i>State Planning Policy No. 2.8 – Bushland policy for the Perth Metropolitan Region (2010)</i>	Provides a policy and implementation framework that will ensure bushland protection and management issues in the Perth Metropolitan Region are appropriately addressed and integrated with broader land use planning and decision-making.
<i>Statement of Planning Policy No. 3: Urban Growth and Settlement (WAPC, 2006a)</i>	Promotes a sustainable and well planned pattern of settlement across the State, with sufficient and suitable land to provide for a wide variety of housing, employment, recreation facilities and open space.
<i>State Planning Policy 3.4: Natural Hazards and Disasters (WAPC, 2006b)</i>	Ensures that land use planning appropriately considers the risk of natural hazards and disasters
Local Planning Framework	
<i>City of Stirling Local Planning Strategy (CoS, 2019)</i>	Establishes the vision and long-term planning directions for the City over the next decade and beyond.
<i>City of Stirling Local Planning Scheme No. 3 (CoS, 2021)</i>	The principal statutory planning document which applies land use and development controls within the City at a local level.

Development WA Planning Framework	
Scarborough Master Plan (MRA, 2015a)	Overarching Master Plan for the Scarborough Redevelopment Area
Scarborough Redevelopment Strategy (MRA, 2015b)	Principal strategy to achieve the vision of the Scarborough Master Plan.
Scarborough Redevelopment Scheme (MRA, 2016a)	The principal statutory planning document which applies land use and development controls within the Scarborough Redevelopment Area.
Scarborough Planning Policies and Design Guidelines (MAR, 2016b)	Outlines procedures, land uses, development requirements and design guidelines for a variety of matters relevant to the Scarborough Redevelopment Area.

7.2 Corporate Governance Framework

7.2.1 City of Stirling Strategic Community Plan 2018-2028

The City of Stirling Strategic Community Plan 2018-2028 (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:

“The City of Stirling will be a place where people chose to live, work, visit and invest. We will have safe and thriving neighbourhoods with a range of housing, employment and recreational opportunities. We will engage without diverse community to help shape our future into the City of Stirling – City of Choice.”

The SCP response 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 thriving communities, vibrant economy, liveable neighbourhoods, sustainability and governance and leadership, with the following strategies of particular relevance to this CHRMAP:

- > Encourage and promote active participation and volunteering;
- > Facilitate and partner for a range of recreation and leisure opportunities for everyone in the City;
- > Provide and maintain safe, accessible open spaces for community liveability;
- > Provide and maintain safe, accessible roads, parking, cycleways and pathways;
- > Mitigate the effects of climate change; and
- > Involve, engage and include our community in the decision-making process.

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

7.2.2 City of Stirling Corporate Business Plan 2021 – 2025

The City of Stirling 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 has been directly influenced by the City’s Long-Term Financial, Asset Management and Workforce Plans. The CBP 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. Thriving communities;
2. Vibrant economy;
3. Liveable neighbourhoods;
4. Sustainability; and
5. Governance and 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. Those relevant to this CHRMAP are set out below.

Thriving Communities

Outcome 1: Inclusive and harmonious City

- > Objective:
 - Strengthen communities through sense of place.
- > Strategies:
 - Facilitate social participation through engagement activation of local places.
 - Encourage and promote active participation and volunteering.

Community engagement and participation is the cornerstone of an effective CHRMAP process, helping the City to better understand how people use and value the coast, and how the coastline should be best monitored and managed.

Outcome 2: Active and healthy City

- > Objective:
 - Promote active and healthy lifestyle choices.
- > Strategies:
 - Facilitate and partner for a range of recreation and leisure opportunities for everyone in the City.

The City's coastline contains a variety of recreational and leisure facilities that may be at risk of coastal hazards. The CHRMAP process aims to identify these assets and recommend how the City can ensure these assets continue to meet the future recreation and leisure needs of the community.

Outcome 4: Safer City

- > Objective:
 - Work with the community to create a safer City.
- > Strategies:
 - Support the community and develop partnerships to enhance community safety.

The City's emergency management response and procedures is an important consideration to respond to coastal hazards.

Vibrant Community

Outcome 1: Destination City

- > Objective:
 - Attract visitors to our City
- > Strategies:
 - Promote the City's iconic attractions and events.

The City's coastline is a key attraction for residents and visitors alike. The CHRMAP process identifies the need to protect these coastal attractions, including the natural environment and built assets.

Liveable Neighbourhoods

Outcome 1: Places to live, work and enjoy

- > Objective:
 - Plan to create unique and liveable neighbourhoods and places that meet community need.
- > Strategies:
 - *Prioritise growth in local activity centres and corridors.*

- *Plan for places that reflect their own unique character and heritage, close to services and amenities.*
- *Facilitate housing choices for our diverse community.*
- *Provide and maintain safe, accessible open spaces for community liveability.*

The planning framework guides land use and development within the City. As housing demand increases, the decision-making process needs to adapt to address the impact of coastal hazards, as identified throughout the CHRMAP process.

Outcome 3: Built infrastructure that meets community needs

- > Objective:
 - Ensure our assets meet future community needs.
- > Strategies:
 - Provide quality, well-maintained facilities, roads and open spaces for the benefit of the community.

The City's coastline contains assets that may be at risk of coastal hazards. The CHRMAP process aims to identify these assets and recommend how the City can ensure these assets continue to meet the future needs of the community.

Sustainability:

Outcome 1: Sustainable natural resources

- > Objective:
 - Lead by example and work with our community to sustain our natural resources.
- > Strategies:
 - Mitigate the effects of climate change.

The preparation of this CHRMAP was identified under the CBP as a project that will allow for better management of the natural environment and built assets along the City's coastline.

Governance and Leadership

Outcome 3: Customer-focused organisation

- > Objective:
 - Strengthen customer service.
- > Strategies:
 - Involve, engage and include our community in the decision-making process.

Community engagement and participation is the cornerstone of an effective CHRMAP process helping the City to better understand how people use and value the coast, and how the coastline should be best monitored and managed.

7.2.3 City of Stirling Local Emergency Management Arrangements

The City has prepared Local Emergency Management Arrangements which identifies the effects of natural hazards present within the City. The document incorporates a Risk Register and Treatment Schedule following the completion of a Community Emergency Management Risk Assessment. These previous assessments can be used to correlate the likelihood and consequence to identify a risk rating similar to what is required as part of the CHRMAP process.

7.2.4 Heritage Management Strategy 2016 – 2020

The Heritage Management Strategy provides a framework to guide the City in its endeavour to comprehensively identify, protect, manage and promote its heritage assets. The Heritage Management Strategy is important to this CHRMAP given there are a number of heritage assets located along the City's coastline that could be prone to coastal hazards.

7.3 Relevant Legislation

7.3.1 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 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.

The regulations contain 'deemed provisions' being Schedule 2 of the Regulations and these provisions automatically apply 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.

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.

Structure Plans and 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.

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.

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 storm surge and or coastal physical processes (erosion, sea level rise allowance).

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, activity centre/structure 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 flooding and / or coastal processes. However, it is considered that 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 Special Control Area as opposed to general provisions within the scheme.

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.

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 certain situations where certain development may be established within an area affected by storm surge or 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 Special Control Area could be established over land affected by coastal processes or storm surge, 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.

7.3.2 Metropolitan Redevelopment Authority Regulations 2011

The Metropolitan Redevelopment Authority Regulations 2011 set out matters prescribed by the MRA Act, including provisions relating to various planning mechanisms and certain activities that do not require development approval within the Scarborough Redevelopment Area.

7.3.3 Conservation and Land Management Act 1984

The Conservation and Land Management Act 1984 makes provisions for the use, protection and management of certain public lands and waters and the flora and fauna.

The Marmion Marine Park was established in 1987 and lies within WA waters between Trigg Island the Burns Rocks. The Marine Park is vested in the Marine Parks and Reserves Authority (MPRA) under the provisions of the Conservation and Land Management Act 1984. Management of the Marine Park is the responsibility of the Department of Parks and Wildlife (DPaW) on behalf of the MPRA.

This CHRMAP project will require a unified approach with the MPRA and DPaW given the southern portion of Marmion Marine Park falls within the City of Stirling coastline.

7.3.4 Heritage Regulations 2019

The Heritage Regulations outline a consistent structure, format and approach to the recording, assessment and management of places with cultural significance. This is relevant to this CHRMAP given the City's coastline contains a heritage asset of state significance.

Beach House, Trigg Island (Place Number 02150) is a statutory heritage listed place located within close proximity to the Trigg Beach coastline. This CHRMAP will consider the state heritage asset when developing appropriate coastal adaptation and management options.

7.4 State Planning Framework

7.4.1 Perth and Peel @ 3.5 Million and Sub-regional Planning Framework

Perth and Peel @ 3.5 Million was released by the State government in 2018 and provides the overarching framework to deliver four sub-regional strategies to guide future growth and development across the Perth and Peel metropolitan area through to the year 2050.

The City of Stirling is located within the Central sub-regional area. The document plans for the provision of an additional 213,130 dwellings within this sub-region by 2050.

7.4.2 Metropolitan Region Scheme

The Metropolitan Region Scheme (MRS) is the principal region scheme which applies to the study area and zones and reserves land. The extent of the coastal foreshore is reserved 'Parks and Recreation' under the MRS with sections of this foreshore also included within recognized Bush Forever Sites 308 and 310.

Urban zoned land sits to the east of West Coast Drive and the west of West Coast Highway includes residential, commercial and local parks and recreation.

7.4.3 WA Coastal Zone Strategy

The WA Coastal Zone Strategy provides a whole-of-government integrated framework for collective action to manage and adapt to threats and pressures along the coast. The Strategy complements the State Planning Policy 2.6 State Coastal Planning and outlines the State Government's position on the suite of coastal protection measures to mitigate the impact of coastal erosion and inundation.

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

7.4.4 State Planning Policy 2.6: State Coastal Planning

State Planning Policy 2.6: State Coastal Planning Policy (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 policy on the determination of an appropriate foreshore reserve, which acts as a coastal buffer to accommodate coastal processes as a result of coastal erosion and risk or storm surge inundation in future planning periods. Schedule One from SPP 2.6 provides direct guidance on the calculation of coastal processes and the 4 planning allowances: S1, S2, S3, and S4 used to delineate the coastal erosion and inundation hazard zones.

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 basis starting with avoid 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.

7.4.5 State Coastal Planning Policy No. 2.6: 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 the above defined process.

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

7.4.6 Coastal Hazard Risk Management and Adaptation Planning Guidelines

The Coastal Hazard Risk Management and Adaptation Planning Guidelines provide guidance for decision-makers to develop and implement effective coastal hazard risk management and adaptation plans. The CHRMAP 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 control. The policy is based on principles of social, environmental and economic sustainability and adheres to objectives set out in State Planning Policy No. 2.6: State Coastal Planning Policy (discussed above). 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 is the first, second and third (respectively) planning mechanism for the policy.

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.

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 Special Control Area (SCA). An 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.

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 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 (land not reserved under local planning scheme), in order to move this land from the private to public realm, 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.

7.4.7 State Planning Policy 3.4: Natural Hazards and Disasters

State Planning Policy 3.4: Natural Hazards and Disasters (SPP 3.4) was 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 overland flood event 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.

7.5 City of Stirling Local Planning Framework

7.5.1 City of Stirling 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 address coastal erosion and protect the City's vulnerable assets along the coastline:

- > Implement the findings of the Climate Change Adaption Plan and incorporate them into the Local Planning Scheme. (medium term: 5 - 10 years); and
- > Implement the City's Coastal Foreshore Management Planning and State Coastal Planning Policy (ongoing).

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, as identified in the Strategy.

7.5.2 City of Stirling Local Planning Scheme No. 3

The City's Local Planning Scheme No. 3 (LPS3) is the principal statutory planning document which applies land use and development controls within the City at a local level.

The principal aims of the scheme seeks 'to protect and enhance the environmental values and natural resources' and 'promote sustainable land use and development'. LPS 3 also aims 'to assist in the effective implementation of regional plans and policies', including State Planning Policy 2.6: State Coastal Planning Policy.

The following sections of the LPS3 provide the ability to introduce development requirements to address a specific area or range of issues (i.e. coastal adaptation) and may be a suitable mechanism to introduce adaptation responses identified within this CHRMAP:

- > Special Use Zones: Part 4.7 and Schedule 4;
- > General Development Requirements: Part 5 and Schedule 12;
- > Special Control Areas: Part 6;
- > Development (Structure Plan) Areas: Part 6A and Schedule 10; and
- > Development of Land: Part 8.

The City has created a heritage list within LPS3, identifying places that are of cultural significance and worthy of conservation under Part 7 of LPS3. The City's heritage list is relevant to this CHRMAP given the City's coastline contains heritage assets of local significance. This CHRMAP will consider the local heritage assets when developing appropriate coastal adaptation and management options.

7.5.3 City of Stirling Local Planning Policies

The City has adopted various local planning policies relating to a number of matters, including procedures, land uses, development requirements and design guidelines. The City has not adopted coastal specific local planning policies that are applicable to this CHRMAP.

7.6 Development WA Planning Framework

7.6.1 Scarborough Redevelopment Area

The Scarborough Redevelopment Area was gazetted in July 2013, providing the basis for the preparation of the planning framework, including the Master Plan, Redevelopment Strategy, Redevelopment Scheme, Design Guidelines and Development Policies. The planning and development control of the Scarborough Redevelopment Area is currently undergoing normalisation to transfer control back to the City of Stirling.

This CHRMAP considers both the City of Stirling and Development WA planning framework given the normalisation process is ongoing.

7.6.2 Scarborough Master Plan

The Scarborough Master Plan is a collaborative approach between Development WA and the City of Stirling with the primary intent to transform Scarborough into one of Australia's best beachfront destinations. The objectives of the Master Plan are to:

- > Reposition Scarborough as a safe, attractive and contemporary beach destination for Western Australians and visitors;
- > Create a consolidated and accessible destination which connects people to the beachfront through residential, commercial, retail and recreational opportunities and sound transport solutions;
- > Articulate planning principles, design, development incentives and catalyst projects to promote investment from the private sector; and
- > Identify governance and management structures, supported by functional design and infrastructure, to maintain activation outcomes into the longer term.

The Master Plan acknowledges the risk to infrastructure from coastal processes with due regard to State Planning Policy 2.6 – State Coastal Policy. The Policy seeks to avoid risks by locating infrastructure so it is very rarely likely to be affected by coastal flooding or erosion. Where new beach infrastructure is proposed, the design should be managed through a coastal hazard risk management and adaptation plan (CHRMAP) that includes identification of features at risk, and monitoring, management and funding frameworks.

7.6.3 Scarborough Redevelopment Strategy

The Scarborough Redevelopment Strategy aims to create a dynamic, authentic and sustainable place at Scarborough while building on its unique identity as an iconic beachfront destination. The Redevelopment Strategy includes the following objectives relevant to this CHRMAP:

Enhance environmental integrity

- > *Protect Local Ecology;*
- > *Recognising, protection and enhancing Scarborough's coastal location and ensuring efficient resource use;*
- > *Ensure beachfront development's resilience to coastal processes, sea level change and storm surges;*

The Redevelopment Strategy also states that *redevelopment proposals must ensure that the potential for storm surges and the impact of coastal processes are considered in the redevelopment proposals for the foreshore beachfront. Resilience to climate change must also be considered in the design process.*

The preparation of this CHRMAP will assist to enhance and protect the environmental integrity of the Scarborough Redevelopment Area, as identified in the Redevelopment Strategy.

7.6.4 Scarborough Redevelopment Scheme

The Scarborough Redevelopment Scheme provides the planning framework to guide the sustainable redevelopment of land within the Scarborough Redevelopment Area. The Redevelopment Scheme sets out provisions for the development and use of land, and enables the preparation of statutory planning tools.

A key objective of the Redevelopment Scheme is to enhance the environmental integrity of the area by *ensuring development responds to the natural coastal environment of Scarborough beach and assists in the protection of the natural environment*. The preparation of this CHRMAP will assist to enhance and protect the environmental integrity of the Scarborough Redevelopment Area, as identified in the Redevelopment Scheme.

7.6.5 Scarborough Development Policies and Design Guidelines

Development WA has adopted various local planning policies and design guidelines relating to a number of matters, including procedures, land uses, development and design requirements. Development WA has not adopted coastal specific development policies or design requirements that are applicable to this CHRMAP.

7.7 Foreshore reserves (open spaces, park and recreation)

Foreshore reserves are defined in SPP 2.6 as the area of land on the coast set aside in public ownership to allow for likely impacts of coastal hazards and provide protection of public access, recreation and safety, biodiversity and ecosystem integrity, landscape, visual landscape, indigenous and cultural heritage. As such, they qualify as natural physical control and planning control as they accommodate a range of functions and values. In particular, open spaces, park and recreation areas can provide natural physical control by providing a spatial buffer where the impact of coastal processes can be accommodated.

Foreshore reserves are present all along the City of Stirling coastline, typically extending tens of meters from the water line to the nearest coastal road. These reserves include the rocky foreshore and sandy beach/dunes systems outlined before, and park and recreational areas, as shown in **Figure 7-2**.

The 3.5 km section of beach between Peasholm Dog Beach and Trigg Beach is backed by a 200 m wide dune reserve, with occasional car parks and the foredune rising to 10-15 m. The Scarborough Beach foreshore amenities reside in the middle of this zone, where the foredune width and height is much reduced.



Figure 7-2 Park and recreation areas at the back of coastal dunes, including Trigg Clarko Reserve (top), Scarborough Reserve (middle), Brighton Reserve (bottom).



Figure 7-3 Scarborough Beach foreshore showing substantial development.

7.8 Available Planning Controls

In light of the framework set-out above, there are a number of potential planning controls that will be considered in the CHRMAP process and recommended for implementation where appropriate. These statutory measures are introduced in **Table 7-2**, along with their respective advantages and disadvantages.

Table 7-2 Available planning controls

Statutory Measure	Advantages	Disadvantages
Structure Plan / Activity Centre Plan	<ul style="list-style-type: none"> Can address location specific issues i.e. identification of coastal physical setbacks and areas affected by storm surge 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	<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. 	<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.

	<ul style="list-style-type: none"> – 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. 	
Special Control Area (SCA)	<ul style="list-style-type: none"> – SCAs may establish specific provisions to address a specific issue such as storm surge and or coastal processes. – 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 LPS3 and the Redevelopment Scheme	<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 Special Control Area 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 Special Control Area as opposed to the supplemental provisions of a scheme.

7.9 Physical Controls and Coastal Management

A number of physical controls have been identified in the study area, including 'hard' engineering controls and 'soft' coastal management measures. These controls are discussed in furtherer detail as part of the CHRMAP's *Coastal Hazard Identification* (Cardno, 2023a).

8 Success Criteria

An online survey was held to capture coastal values, visitation and asset values from the City's community, stakeholders and visitors. The online survey ran from 1 November 2021 to 24 December 2021 (54 days). A total of 270 respondents completed the coastal values survey, 85% of respondents were residents of the City coastal suburbs living less than 5km from the coastline and 15% were from a variety of Greater Perth suburbs. The Engagement Outcomes Report is included in **Appendix B**. Based on the results of the survey, the following success criteria have been developed to guide the CHRMAP process:

- > SC1: Preserve the function and opportunity for recreation activities along the coastline (such as walking/running, swimming and surfing).
- > SC2: Preserve the existing hospitality venues along the coastline and access to them.
- > SC3: Ensure the natural environment is protected and sustained in its current condition or an improved condition (concerning the dunes and flora and fauna).
- > SC4: Develop solutions to coastal processes that are sustainable (financially, socially and built form) and locally responsive.
- > SC5: Revisit regularly with community and key stakeholders their values in relation to development adjacent the coastline.
- > SC6: Maintain services that maximise community benefit for all.
- > SC7: Ensure the coastline is safe and accessible to all.
- > SC8: Achieve a balance between access needs and environmental sensitivities.

9 Next Steps

The next step for the City's CHRMAP is the undertaking of a detailed *Risk Identification* (Stage 2 – see previous **Figure 1-2**), which is documented in the second chapter report (Cardno, 2023a). The key outcomes of this stage include:

- > Hazard identification for both erosion and inundation hazards at present day and future planning timeframes 10, 25, 50 and 100 years into the future;
- > Detailed hazard mapping to delineate present and future hazard extents; and
- > Identification, characterisation and valuation of assets within the present and future hazard extents, to inform risk assessment.

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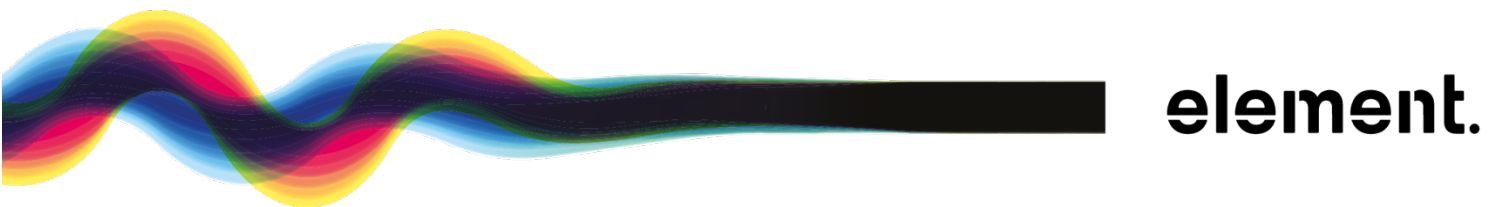
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APPENDIX

A

COMMUNITY AND STAKEHOLDER ENGAGEMENT PLAN



City of Stirling CHRMAP

Community and Stakeholder Engagement Plan

November 2021

WORK IN PROGRESS

Document ID: Documents 2021 / 21-338 City of Stirling CHRMAP / Project Work / Engagement						
Issue	Date	Status	Prepared by		Approved by	
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3	30/11/2021	FINAL	Hayley Campbell	HC	Cath Blake Powell	CBP

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1 Introduction

1.1 Report purpose

Cardno has been appointed by the City of Stirling to prepare a Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) for its coastline. **element** will be assisting Cardno (along with UWA) by leading the stakeholder and community engagement components of the CHRMAP. As such, this report will detail the community and stakeholder engagement approach for the CHRMAP project, including all engagement activities and communication strategies.

1.2 Project overview

The City of Stirling has a population of 219,981 (based on the 2016 census data) and a rich, diverse natural and physical landscape covering approximately 104km², including 6.5km of coastline. The City of Stirling's diverse foreshore boasts sandy beaches, rock pools, open space, parks and reserves, shopping, recreation and leisure centres, scenic drives and water front property that are well-loved by local residents and those residing in surrounding areas of Perth's western suburbs, as well as tourists who travel from outside the City and abroad to enjoy them.

Following a series of storms in 2009 that significantly impacted coastal infrastructure at Watermans Bay, the City commissioned a 'Strategic Coastal Processes Study' (BMT JFA, 2016). This study allowed the City to better understand the coastal processes, determine which areas of the coastline were most at risk and identify what those risks were, over a 100-year planning timeframe.

In 2019, Watermans Bay and Mettams Pool were identified as two of the 55 coastal erosion hotspots in the Assessment of Coastal Erosion Hotspots in Western Australia (prepared by the Department of Planning, Lands and Heritage and the Department of Transport). A range of public foreshore amenities were found to be prone to erosion hazard in the near to medium term (within 0 to 25 years), while large sections of public infrastructure assets such as dual use path, section of West Coast Drive and associated services (gas, power, water) were found to be at high risk due to coastal erosion in the medium to long term (as early as 2045).

The City commissioned several Geophysical Subsurface Investigations (GBGMAPS, 2016-2018) to determine the rock profile between Trigg Island and Watermans Bay, Mettams Pool (between Lynn Street and Hammersley Street) and North Beach (between Malcolm Street and James Street). The degree of erosion and inundation hazard protection afforded by the ground condition findings remains to be interpreted in the context of coastal hazards mapping refinements and encapsulated in an appropriate risk management process compliant with the State Planning Policy 2.6 - Coastal Planning (SPP2.6).

As such, the City has identified the need to engage specialist land use planning, community consultation and engagement, coastal engineering and economics consultants to compile, review and update existing relevant studies to produce a CHRMAP for the study area in accordance with the CHRMAP Guidelines and SPP2.6, which is adopted by the City of Stirling and used to guide future decision making for vulnerable assets in its coastal zone.

1.3 Previous engagement

There has been a range of previous engagement surrounding key coastal locations at immediate risk of coastal hazards. This previous engagement with community and stakeholders will be considered in relation to the engagement for this CHRMAP project to ensure we avoid repetition and build on what has already been communicated with the community. The following previous engagement concerning coastal hazards that we will consider is:

Mettams Pool

- Following a series of storms in 2009 that significantly impacted coastal infrastructure at Watermans Bay, the City commissioned a Strategic Coastal Processes Study. This study allowed the City to better understand the coastal processes, determine which areas of our coastline were most at risk and identify the nature of those risks.
- One of the areas identified as most at risk from erosion was Mettams Pool and parts of West Coast Drive - which supports a popular coastal cycling and walking route and direct access to properties.
- The impact of more severe storms in 2020 and 2021, together with rising sea levels, has placed further pressures on the City's coastline, especially Mettams Pool. The City is committed to maintaining access to safe bathing at Mettams Pool and is undertaking a number of short-term measures to protect existing infrastructure and amenity.
- The implementation of a long-term solution from the Community Consultation undertaken in 2019 has now been placed on hold as this will need to be implemented following statutory review of the City's coastline (through this CHRMAP project).

Scarborough CHRMAP (MRA, now DevelopmentWA)

- DevelopmentWA have previously completed a CHRMAP specifically for the Scarborough coastline as part of their works for the Scarborough Redevelopment Area. This CHRMAP will be considered in the overall CHRMAP for the whole of City of Stirling coastline.

1.4 Level of engagement

Aligning with CHRMAP Guidelines SPP 2.6, and the International Association for Public Participation (IAP2), the engagement methodology will fall under the inform, consult and involve levels of the Participation Spectrum, as indicated in the diagram below.

Level	Inform	Consult	Involve	Collaborate	Empower
Goal	To provide balanced and objective information in a timely manner.	To obtain feedback on analysis, issues, alternatives and decisions.	To work with the public to make sure that concerns and aspirations are considered and understood.	To partner with the public in each aspect of the decision-making.	To place final decision-making in the hands of the public.
Promise	"We will keep you informed."	"We will listen to and acknowledge your concerns."	"We will work with you to ensure your concerns and aspirations are directly reflected in the decisions made."	"We will look to you for advice and innovation and incorporate this in decisions as much as possible."	"We will implement what you decide."

Depending on the level of impact and interest of the stakeholder group, some may be only informed throughout the engagement process and some may be involved in the engagement process. This is further explored in **Section 3 Stakeholder Identification and Analysis**.

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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;
- 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 within in the coastal zone;
- Gain an understanding of asset vulnerability;
- Identify the value of the assets that are vulnerable to adverse impacts from coastal hazards;
- Identify the value that community and stakeholders place on the various beach assets throughout the City;
- 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; and
- Engage stakeholders and the community in the planning, decision-making and overall CHRMAP process.

2.2 Engagement objectives

Complementing the project objectives, the engagement objectives are to:

- Generate awareness of the project and reach a range of key stakeholders and community members in the process.
- Communicate the CHRMAP process to community and key stakeholders.
- Encourage participation in engagement activities through a range of advertising and project awareness raising exercises.
- Encourage respectful conversations about coastal values.
- Collect meaningful feedback from community and stakeholders on their coastal values and preferred management and adaptation options.
- Offer alternative methods for community and stakeholders to engage.
- Engage sensitively regarding prior coastal hazard engagement.

2.2 Key messaging

Supporting the engagement approach, a series of key messages will form an integral component of this project. These key messages are reviewed through the project's duration and as new information comes to light.

As a baseline, the following preliminary key messages should be incorporated into appropriate communications materials and through dialogue with stakeholders.

General CHRMAP project key messages

- The City of Stirling is working with consultants Cardno, element and UWA to produce a Coastal Hazard Risk Management Adaptation Plan (CHRMAP).
- A CHRMAP is a strategic planning document that outlines the best management pathway for coastal assets at risk of coastal hazards such as coastal erosion and inundation (flooding).
- CHRMAPs plan for the medium-to long-term, meaning in 20 to 50 years from now.
- The City has already looked at coastal issues that need to be dealt with in the short-term, including Mettams Pool ramp maintenance, beach nourishment. The City has heard from local community and is managing these issues outside of the CHRMAP project. [insert other relevant immediate works here].
- While these works focus on the immediate actions needed to maintain the coast, the CHRMAP will focus on looking beyond the 'now' and towards the future.
- We are asking the community to cast their minds to the future. How would they like the next generation to inherit the Stirling coastline?
- The vulnerability of assets within the Western Australian coastal zone to coastal hazards such as erosion and inundation is expected to increase in the future.
- The hazard lines or extents produced as part of the coastal hazard maps provide an estimate of areas that may be at risk from coastal erosion or inundation over the next 100 years. Hazard lines are not a prediction of future shoreline positions.
- The CHRMAP will cover the entire coastline of the City of Stirling.
- The CHRMAP process is not unique to the City of Stirling. CHRMAPs are currently being prepared in the Shire of Murray, City of Busselton and Town of Cambridge and have recently been prepared in the City of Greater Geraldton and the City of Wanneroo to name a few Local Government Authorities in this space. Statewide, 33 of 49 coastal Local Governments Authorities have either completed a CHRMAP or are currently undertaking a CHRMAP.
- In 2019, Watermans Bay and Mettams Pool were identified as two of the 55 coastal erosion hotspots in the Assessment of Coastal Erosion Hotspots in Western Australia (prepared by the Department of Planning, Lands and Heritage and the Department of Transport).
- The State Planning Policy 2.6 provides guidance for decision-making within the coastal zone including development and land use change; establishment of foreshore reserves; and to protect, conserve and enhance coastal values. The policy requires the CHRMAP process as an effective approach to managing coastal zones that are vulnerable to present and future coastal hazards.

- CHRMAPs provide the touchstone for planning instruments such as Local Structure Plans and Foreshore Management Plans by presenting the context around existing and future vulnerability and the framework for managing that vulnerability.
- The project team acknowledges that there have been various previous coastal management projects within the City of Stirling, including recent conversation and works at Mettams Pool. All information and community engagement findings will be considered in the CHRMAP project, including from previous engagement.
- Covid has heavily impacted readily available funding, meaning there is less funding available to deal with short-term coastal hazard mitigation solutions. Medium to long-term planning is critical for this project.

Engagement process

- A key component of the CHRMAP is identifying the community's coastal values as well as the valued natural and built assets along the coast to inform the CHRMAP.
- There will be multiple points of engagement for the community and stakeholders to be involved in the process of creating a CHRMAP, particularly around identifying coastal assets, understanding coastal values and prioritising assets for management against coastal risks.
- By getting involved in the development of the CHRMAP, you will be able to contribute to the conservation of the Stirling coastline and the assets you love within it.
- The CHRMAP project is organised into eight stages (*to be communicated via diagram*):
 1. Establish the Context – includes the purpose, objectives, scope, study area, community and stakeholder engagement, values, existing planning controls and success criteria.
 2. Risk identification – includes the planning timeframe, hazard and asset identification and hazard mapping.
 3. Vulnerability analysis – includes consequences, likelihood, level of risk, adaptive capacity and asset vulnerability.
 4. Risk evaluation – includes existing controls and priorities for risk treatment, governed by community values.
 5. Risk treatment – identify and evaluate risk treatment options, multi-criteria analysis, cost benefit analysis, long-term adaptation pathway, decision-making triggers and planning horizon
 6. Implementation plan – plan for short-term management measures, medium and long-term strategic management measures, land use planning instruments and funding proposal
 7. Monitor and review – outline any monitoring and review that may be needed to ensure management measures identified in the implementation plan stay current.
 8. Final CHRMAP – production of the final CHRMAP report to be adopted by Council.
- Follow the project webpage to keep up to date with the project process and engagement opportunities [\[link to project webpage\]](#).

Stage 1: Establish the context
<ul style="list-style-type: none"> The first point of engagement is largely knowledge sharing to ensure all stakeholder and community members are familiar with the CHRMAP project and what it involves. Community values will be collected through a community values survey and conversations had at the pop-up information session.
Stage 2: Risk identification
Stage 3: Vulnerability analysis
Stage 4: Risk evaluation
Stage 5: Risk treatment
<ul style="list-style-type: none"> Community and stakeholder involvement in Stage 5 is to identify and define the values of coastal assets and assess the acceptability of risk treatment options. We will hold two community workshops to identify coastal assets and explore risk treatment options. There will be one workshop for the 'Northern Zone' of the coastline and one workshop for the 'Southern Zone' of the coastline. We know there are many highly valued assets within the City of Stirling coastline. So that we can understand which assets (or asset groups) are most valued, prioritisation will be a key activity during this stage.
Stage 6: Implementation plan
Stage 7: Monitoring and review
Stage 8: Final CHRMAP
<ul style="list-style-type: none"> The community and stakeholders are encouraged to have their say on the final draft CHRMAP report. A final pop-up information session will be held to collect final feedback from community and stakeholders.

2.3 Negotiables and non-negotiables

Assisting the key messaging of the project, the project negotiables and non-negotiables will inform which aspects of the project are able to be discussed with community and key stakeholders, and which aspects are not.

Negotiables	Non-Negotiables
<ul style="list-style-type: none"> Asset identification, coastal values and significant places identified by the community Consequence-scale based on community and stakeholder input Levels of risk deemed acceptable, tolerable and intolerable by the community Risk treatment - Adaptation options Risk management pathways (timeframe for adaptation and mitigation), within a realistic budget. 	<ul style="list-style-type: none"> State Planning Policy 2.6 State Coastal Planning Policy (SPP2.6) (WAPC 2013) Allowance for sea level rise in future planning periods (DoT 2010) Likelihood-scale based on predefined storm event (Schedule One of SPP 2.6) Coastal Hazard Risk Management and Adaptation Planning Guidelines (WAPC 2019)

2.4 Engagement considerations

There are a range of issues and opportunities that require consideration by the project team in order to develop a response strategy through the engagement process. The following table summarises the key issues and opportunities that are likely to arise from this project, their impact on the project and the relevant response strategy we will employ through the engagement methods, key messaging and communications.

Key issues / opportunities	Potential impact	Response strategy
Unfamiliarity with the CHRMAP process.	There is confusion about what a CHRMAP does and what it can achieve and therefore lack of interest in the engagement process.	<ul style="list-style-type: none"> Develop FAQs available on City's website. Include knowledge sharing in the key messages of early communications. Ensure knowledge sharing of CHRMAP process occurs at engagement activities. Be proactive to tap into and focus communications with coastal visitors and user groups
Lack of community and stakeholder interest with the CHRMAP engagement process.	There is not enough community and stakeholder data gathered to inform the CHRMAP.	<ul style="list-style-type: none"> Communicate the CHRMAP process early on. Communicate the benefits of contribution to the engagement process. City CHRMAP web page provides links to previous relevant studies
Some members of the community feel they are underrepresented.	As a result, they feel that the CHRMAP outcomes don't reflect the whole community and is skewed to certain stakeholders.	<ul style="list-style-type: none"> Create equal opportunities for stakeholder representation at engagement activities. Use stratified random sampling to ensure equal representation of stakeholders.
Loss of project momentum.	Community and stakeholders lose interest in the CHRMAP process and lack motivation to continue the engagement activities.	<ul style="list-style-type: none"> Create a timeline that endures an appropriate duration between engagement activities. Communicate project updates through various communication channels.
The community and stakeholders aren't able to access engagement activities.	There is lack of responses to engagement to inform the CHRMAP.	<ul style="list-style-type: none"> Create multiple modes of engagement, both online and face-to-face. Ensure there are both hard copy and digital modes of communication. Ensure engagement activities happen at accessible locations and times of the day and week (e.g. weekends or late afternoon and early evening during the week).
Disparate views within the community.	Division in the community may delay the final CHRMAP.	<ul style="list-style-type: none"> We will identify stakeholders and their area of interest in the project during stakeholder

Key issues / opportunities	Potential impact	Response strategy
		<p>analysis, noting if there are any clashing values or views.</p> <ul style="list-style-type: none"> We will use facilitated stakeholder workshops to work through disparate views and find the middle ground for all stakeholders.
Development in the impacted area – more interest from residents and property owners that will be impacted by the hazards/risks.	This group is concerned about the potential impacts	<ul style="list-style-type: none"> Direct mail Treat communications differently to acknowledge their concerns
Too many options given by the community for asset management and adaptation	Lack of consensus from community and stakeholders on asset priority and adaptation options.	<ul style="list-style-type: none"> Key message the importance of prioritisation.
Previous Mettams Pool coastal erosion engagement	<p>Community are misled to think that their previous effort and engagement have been dismissed.</p> <p>Community are frustrated that the engagement is being repeated.</p>	<ul style="list-style-type: none"> Communicate that previous community engagement will be considered in this CHRMAP study. Ensure engagement does not repeat what has already taken place around Mettams Pool.
Equity perspective contrast between benefits to wealthy coastal zone resident vs. others	<p>'What is in it for me' may divide the community</p> <p>Parochial interests may dominate discussion</p>	<ul style="list-style-type: none"> Emphasise shared coastal values collected in survey Equitable distribution of collateral via stratified random sample.

3 Stakeholder Identification and Analysis

Understanding project stakeholders is a critical consideration of any engagement and communications program. By understanding who these groups or individuals are, we may better understand and analyse their degree of influence and interest, and therefore the involvement they are likely to request and require. Some stakeholders may have more impact and interest in the project than others.

The following is a non-exhaustive list of key stakeholders, grouped into broad categories. Please refer to the Stakeholder List spreadsheet for a more detailed analysis.

Table 1 Stakeholder Identification and Analysis

Stakeholder	Groups	Level of Engagement	Method to engage
Tier 1 Stakeholders (directly impacted by the project)			
City of Stirling	<ul style="list-style-type: none"> Project team Council Executive Leadership Team 	Involve	<ul style="list-style-type: none"> Email correspondence Briefings Drop in sessions
State Government Agencies	<ul style="list-style-type: none"> Department of Transport Department of Planning, Lands and Heritage DevelopmentWA (Scarborough CHRMAP) Servicing Authorities <ul style="list-style-type: none"> Synergy/Western Power Alinta Energy Atco Gas Australia Water Corporation Main Roads WA 	Consult	<ul style="list-style-type: none"> Email correspondence Briefings Drop in sessions Stakeholder Meetings Steering committee (DoT and DPLH)
Landowners in the impacted area	<ul style="list-style-type: none"> Immediate residents Immediate businesses Residents' associations 	Involve	<ul style="list-style-type: none"> Stakeholder letter Values survey Drop in sessions Project webpage Community workshops
Community groups relevant to the coastal area	<ul style="list-style-type: none"> Trigg North Beach Watermans Bay Community Association Friends of Trigg Beach 	Involve	<ul style="list-style-type: none"> Static information displays Values survey

	<ul style="list-style-type: none"> Scarborough Beach Association North Coast Security Action Group Trigg Surf Lifesaving Club Scarboro Surf Lifesaving Club Friends of Star Swamp and Friends of Trigg Bushland Stirling Natural Environment Coastcare INC (SNEC) 		<ul style="list-style-type: none"> Drop in sessions Project webpage Community workshops
Frequent users / visitors to the coastal area	<ul style="list-style-type: none"> Sporting and recreational groups based on the coast Bush forever groups Coast Natural Area Group Cycling and walking groups 	Involve	<ul style="list-style-type: none"> Static information displays Values survey Drop in sessions Project webpage Community workshops
Not-for-profit organisations	<ul style="list-style-type: none"> Surfing WA 	Inform - Consult	<ul style="list-style-type: none"> Values survey Drop in sessions Project webpage Community workshops
Tier 2 Stakeholders (indirectly impacted by the project)			
State Government Agencies	<ul style="list-style-type: none"> Department of Water and Environmental Regulation Department of Health Public Transport Authority Department of Education 	Consult	<ul style="list-style-type: none"> Email correspondence Drop in sessions Project webpage
Adjoining LGAs (along the coastline)	<ul style="list-style-type: none"> Town of Cambridge City of Joondalup 	Inform	<ul style="list-style-type: none"> Email correspondence Drop in sessions Project webpage
Broader community	<ul style="list-style-type: none"> City of Stirling residents and ratepayers Casual visitors and users of the City of Stirling coastline 	Consult	<ul style="list-style-type: none"> Values survey Drop in sessions Project webpage
Other community groups within the City of Stirling	<ul style="list-style-type: none"> Stirling Business Association Woodlands/Doubleview Progress Association Sunsetsnotskyscrapers Woodlands Action Group 	Inform	<ul style="list-style-type: none"> Values survey Drop in sessions Project webpage

- | | | |
|--|--|--|
| <ul style="list-style-type: none">• Mount Lawley Ratepayers Association• Mount Lawley Society• Gwelup Progress Association• Roselea Residents Association• Local media | | |
|--|--|--|

WORK IN PROGRESS

4 Engagement Methodology

4.1 Engagement activities

We have selected a range of engagement tools that will host the engagement process for both community members and key stakeholders.

A description of what each tool will involve is detailed below. Please note that these activities are able to change as necessary as the project evolves over time and new information is brought to light.

Pop-up information sessions

We will hold one information pop-up event at accessible times of the day/evening in locations near the City's coastline, such as the Scarborough Pool foyer.

The purpose of these information forums will be to inform stakeholders and the community of the CHRMAP process in a digestible and constructive manner. The first session will outline:

- Why the City of Stirling needs a CHRMAP;
- What the process is;
- When the community and stakeholder engagement periods are;
- How their feedback will be used;
- What the outcomes will lead to.

We will work with the City's existing communication channels to ensure the information sessions are broadly advertised to the wider community and selected stakeholder groups.

The second round of information sessions (stage 8) will be the final draft CHRMAP and collecting final feedback from the community.

Static information displays (x4)

Following the pop-up information session, we will prepare a series of static information displays, re-using the information displayed at the pop-up information session. This will allow the community to passively view the information and become familiar with the project, as well as having the opportunity to complete the values survey.

Locations such as libraries, community hubs, shopping centres and other highly trafficked areas will be considered. These will be delivered alongside digital information accessed via the City's CHRMAP project webpage available via the City's 'Shaping Our City' engagement portal.

Figure 1 Example of Static Information Display for the City of Stirling Public Art Masterplan



Online survey

An online and hard copy survey will be distributed to collect and inform the coastal values of community and key stakeholders including topics such as visitation frequency, observations of coastal degradation, notable assets, and coastal values. UWA's economics specialists will also provide input to the survey to ensure it collects relevant data to allow an economic evaluation of key assets, particularly natural assets.

The survey will run before and after the pop-up information event and will be advertised via all channels of the Project Awareness Campaign as well as distributed via a stratified random sample with an emphasis on the coastal area. We will work with the City to acquire the relevant ratepayer database to be used for the stratified random sample technique. We recommend a sample size of 1500-2000¹ (estimated 10% of the City's residents), aiming to achieve a response rate of 25% (500 responses).

In addition to the stratified random sample distribution, we will also letter drop the immediate residents of West Coast Highway.

Community workshops

We will hold two community workshops during stage 5 of the project that will incorporate the following agenda:

1. Identify the coastal assets and community values and establish why these are important.

¹ Please note, we were unable to attain the City's ratepayer database and instead used an email database of people who have signed up to receive updates on engagement.

2. Identify the consequence of erosion or inundation on that asset.
3. Identify what assets the community and stakeholders would prioritise to protect.
4. Identify potential adaptation and risk treatment options that could address the risks.

The workshops will be structured into 'North Zones' and 'South Zones'.

4.2 Communication channels

The following communication channels have been selected to help promote the CHRMAP process and encourage the community and key stakeholders to participate in the consultation process.

- **Posters** to be designed and strategically placed in high-trafficked areas within the City of Stirling such as libraries, shops, post offices, schools and locations along the coastline. These will be graphically designed and could also be used as an A5 flyer.
- **Project webpage, factsheets and FAQs** to provide information about the CHRMAP project, which is hosted on the City's website.
- **Social media posts** advertising and providing updates on the CHRMAP process and engagement events.
- **Stratified random sample mail** of letters to be sent out to randomly selected residents to participate in the values survey. A stratum of the population will be used to guide the random sample selection.
- **Email campaign** to targeted stakeholders and interested stakeholders for project advertisement and updates.
- **Stirling Times newsletter and e-news** to advertise the project and any upcoming engagement activities.

A note on disbursements

While element will prepare the collateral content, the City will be responsible for coordinating logistics, printing and distribution of collateral.

5 Outcomes reporting

The findings from the engagement will be summarised and included in the 'establish the context' chapter report in Stage 1.

A full engagement outcomes report will be undertaken and included in the final report as an appendix.

WORK IN PROGRESS

6 Engagement activities schedule

No.	Activity	Detailed Description	Responsibility	To be completed by	Targeted Stakeholder/s	Medium Collateral	Outcome notes
1. Engagement planning and preparation							
*City of Stirling responsible for all printing and distribution of collateral							
1.1	Engagement Plan	<ul style="list-style-type: none"> Prepare engagement plan including project scope, objectives, key messages, negotiables and non-negotiables, methods and schedule. 	element	5 October	N/A		To seek support from the City and Council
1.2	FAQs	<ul style="list-style-type: none"> Prepare FAQs to be hosted on City website 	element	5 October	General community		
1.3	Factsheets	<ul style="list-style-type: none"> Prepare factsheets to be used at pop-up session and posted to City's website. 	element	5 October	General community	<ul style="list-style-type: none"> What is a CHRMAP CHRMAP process Erosion and inundation Options for adaptation and mitigation 	
1.4	Email campaign	<ul style="list-style-type: none"> Establish email campaign address to be used to collect and disperse updates on the project. The campaign email address is to be used on the City's webpage and any relevant collateral (flyers, online survey, media release). 	City	5 October			
1.5	Online survey	<ul style="list-style-type: none"> Draft online survey questions focus of survey – CHRMAP knowledge / coastal values 	Element, UWA, Cardno, City	September – October	Stirling community – stratified random sample		Online survey drafted, City to give final approval.
1.6	Social media posts	<ul style="list-style-type: none"> Element to draft social media posts for the City to post on their socials. Purpose: to advertise CHRMAP engagement activities such as pop-in sessions and online survey, raise awareness and share CHRMAP knowledge of the project. 	element and the City	4-6 weeks prior to pop up session	General community	<ul style="list-style-type: none"> Media release 	Advertising for online survey and pop up session 1.
1.7	Pop-up session collateral	<ul style="list-style-type: none"> Prepare all collateral for the pop-in sessions Book venue create run sheet and equipment list. 	element and the City	4-6 weeks prior to pop up session	All stakeholders	<ul style="list-style-type: none"> Information posters Hand outs Run sheet Equipment list 	
1.8	Steering Committee Meeting	<ul style="list-style-type: none"> Meet with Steering Committee to run-through Engagement Plan before commencing engagement activities in stage 2. 	Steering committee and element	19 October 2021	Steering Committee	Engagement Plan	Attain approval on Engagement Plan to commence activities
2. Engagement and communications facilitation							
Stage 1 – Establish the Context							
2.1	Social media posts	<ul style="list-style-type: none"> First round of social media posts targeted at raising awareness for the project and advertising the first pop up session. Second round to keep survey momentum going. 	element to draft, City to post.	w/c 1 November	Stirling social media following		Awareness raising for project and advertisement of survey and pop up engagement session.
2.2	Webpage	<ul style="list-style-type: none"> Prepare webpage collateral including FAQs, project key messages, timeline and dates for engagement. To be hosted on the City's website. 	element with input from Cardno City to construct / update	w/c 1 November	All	<ul style="list-style-type: none"> 1 page of copy to inform of project and CHRMAP definition. 	
2.3	Online survey	<ul style="list-style-type: none"> Launch online survey around the same time as the first pop in session to capture coastal values, important assets and priorities. 	City of Stirling	1 November to 1 December 2021	General community	<ul style="list-style-type: none"> Online survey – digital and some hard copies. 	Online survey is live.
2.4	Random sample survey	<ul style="list-style-type: none"> Distribute random sample survey (letter including link and QR code to selected City of Stirling residents). 	City of Stirling with input from element and UWA	w/c 1 November	Property owners in immediate impacted area to the coast, or as advised by UWA	<ul style="list-style-type: none"> Letter with QR code and link to survey 	
2.5	Posters	<ul style="list-style-type: none"> Prepare posters and place in strategic places along the coastline to promote awareness and participation in the project (laminated and fix to fences, signage etc). Location such as in dunal tracks along City beaches (such as dog beach access) and at key assets along the coast. A mix of A3 posters that could also be printed at A5 and used as a flyer. 	element with input from Cardno City to print and distribute	12 November to 12 December 2021	Visitors to the Stirling coastline	<ul style="list-style-type: none"> A mix of A3 posters that could also be printed at A5 and used as a flyer. 	Advertisement for survey and pop up engagement session.

No.	Activity	Detailed Description	Responsibility	To be completed by	Targeted Stakeholder/s	Medium Collateral	Outcome notes
2.6	Pop-up session #1	<ul style="list-style-type: none"> Will include QR code to survey. First pop up session to present the CHRMAP project to the public and share information around the CHRMAP process. Topics include <ul style="list-style-type: none"> About the project What is a CHRMAP CHRMAP process Coastal erosion and inundation explained Understand values and cherished assets of Stirling coastline (social, economic, infrastructure and environmental) Venue: Scarborough Beach Pool Foyer 	element	1 November to 1 December 2021 Sat 20 November	All stakeholders and community welcome	<ul style="list-style-type: none"> Posters Hand outs Signage Briefing sheet 	Knowledge sharing about the CHRMAP project
2.7	Outcomes summary	<ul style="list-style-type: none"> element to prepare summary of the pop in session 1 and the online survey results which will be included into the final Engagement Outcomes Report. 	element	22 Nov 2021 – 12 Jan 2022	N/A		Interim report for Chapter 1 (appendix item)
Stage 2 – Risk Identification							
Stage 3 – Vulnerability Analysis							
Stage 4 – Risk Evaluation							
Stage 5 – Risk Treatment							
5.1	Prepare Workshop advertisement collateral	<p>element to prepare advertisement collateral for the workshops including:</p> <ul style="list-style-type: none"> Stakeholder letter Stakeholder email + email campaign Newsletter/e-news blurb Webpage update Social media posts <p>City to book venue and catering logistics.</p>	Element and City	13 December 2021 – 18 January 2022			
5.2	Distribute advertisement collateral	City to distribute the advertisement collateral	City	19 January 2022			<p>Workshop advertisement:</p> <ul style="list-style-type: none"> Stakeholder letter Stakeholder email + email campaign Newsletter/e-news blurb Webpage update Social media posts
5.3	Multi Criteria Analysis Workshop #1	<p>element to facilitate the first Workshop with stakeholders for a duration of 3 hours. The first workshop will cover:</p> <ol style="list-style-type: none"> Identify the coastal assets and community values and establish why these are important. Identify the consequence of erosion or inundation on that asset. Identify what assets the community and stakeholders would prioritise and create a database of answers. Identify potential adaptation and risk treatment options that could address the risks. <p>Venue: TBC – suggest Charles Riley Reserve North Beach or Scarborough Multi-Purpose Room</p>	element with attendance from Frank, Frederic	23 Feb – 03 March 2022 Suggest: Wednesday 23 Feb 2021, 6pm – 8:30pm	Nearby property owners, residents and immediate businesses and community groups that interact with the coastline.	<ul style="list-style-type: none"> Presentation Workshop materials Workshop run sheet 	
5.4	Multi Criteria Analysis Workshop #2	<p>element to facilitate the second Workshop with stakeholders for a duration of 3 hours. This will be a repeat of the first workshop at an alternative date and time.</p> <p>Venue: TBC – suggest Charles Riley Reserve North Beach or Scarborough Multi-Purpose Room</p>	element with attendance from Frank, Frederic	Suggest Saturday 26 Feb 2022, 9.30am – 12pm	Nearby residents and immediate businesses and community groups that interact with the coastline.	<ul style="list-style-type: none"> Presentation Workshop materials Workshop run sheet 	
5.5	Outcomes summary	element to prepare a summary of the outcomes from the two workshops which will be included in the final Engagement Outcomes Report.	element	18 February – 10 March 2022			Summary of workshop findings
Stage 6 – Implementation Plan							
Stage 7 – Monitoring and Review							

No.	Activity	Detailed Description	Responsibility	To be completed by	Targeted Stakeholder/s	Medium Collateral	Outcome notes
Stage 8 – Final CHRMAP							
	Social media posts	<ul style="list-style-type: none"> First round of social media posts targeted at raising awareness for the project and advertising the first pop in session. Second round to keep survey momentum going. 	element to draft, City to post.	May – September 2022	General community	•	Social media posts on City's website and relevant social media pages (Facebook, Instagram, Twitter and Linked In).
	Email / mailchimp campaign	<ul style="list-style-type: none"> Email stakeholders and email campaign, survey respondents who opted for updates on the draft CHRMAP report. 	element to draft, City to post.	May – September 2022	Stakeholder list Survey respondents Email campaign on 1500 recipients.	•	
	Webpage collateral	<ul style="list-style-type: none"> Prepare webpage collateral including FAQs, project key messages, timeline and dates for engagement. To be hosted on the City's website. 	element with input from Cardno	May – September 2022	General community	• Update to webpage copy	
	Posters	<ul style="list-style-type: none"> Prepare posters and place in strategic places along the coastline to promote awareness and participation in the project. Location such as in dunal tracks along Floreat and City Beaches and at key assets at Floreat and City Beach (e.g. Floreat Surf Lifesaving Club, City Beach Surf Lifesaving Club, The Kiosk Floreat, etc). 	element with input from Cardno	May – September 2022	Visitors to the coast / coastal locations, local community	<ul style="list-style-type: none"> Simple A4 laminated posted 	
	Pop-up session #2	A second pop up session facilitated by element will be held to present the draft CHRMAP and collect final feedback from the community.	element	May – September 2022	All stakeholders welcome	<ul style="list-style-type: none"> Posters Hand outs Signage Briefing sheet 	
3. Outcomes reporting							
3.1	Draft outcomes report	<ul style="list-style-type: none"> Prepare a draft outcomes report on the engagement activities and findings. To be reviewed by the City. 	element	September 2022	Project team		
3.2	Final outcomes report	<ul style="list-style-type: none"> Finalise the outcomes report based on any feedback from the City. 	element	September 2022	Project team		Final report for CHRMAP report (appendix item)

APPENDIX

B

INTERIM ENGAGEMENT OUTCOMES
REPORT

An aerial photograph of a beach with turquoise water and many people. The water is a vibrant turquoise color, and the sand is a light beige. Numerous people are scattered across the beach and in the shallow water. The background shows a line of trees and vegetation.

21-388 City of Stirling CHRMAP

Engagement Outcomes Report

January 2022

element.
the art and science of place

Document ID: 21-338 Documents / 03 Project Work / 03 Engagement / 05 Outcomes						
Issue	Date	Status	Prepared by		Approved by	
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Executive Summary

In 2021, the City engaged specialist land use planning, community engagement, coastal engineering and economics consultants to compile, review and update existing relevant studies to produce a Coastal Hazard Risk Management and Adaptation Plan (CHRMAP). The CHRMAP will be prepared in accordance with the CHRMAP Guidelines and State Planning Policy 2.6, adopted by the City of Stirling and used to guide future decision making for vulnerable assets in its coastal zone.

An important part of this study is speaking with the community and key stakeholders to identify their values and aspirations for the coastline. The engagement for this project will be primarily spread across two key stages in the project lifecycle: Stage 1: Establish the Context and Stage 5: Risk Treatment.

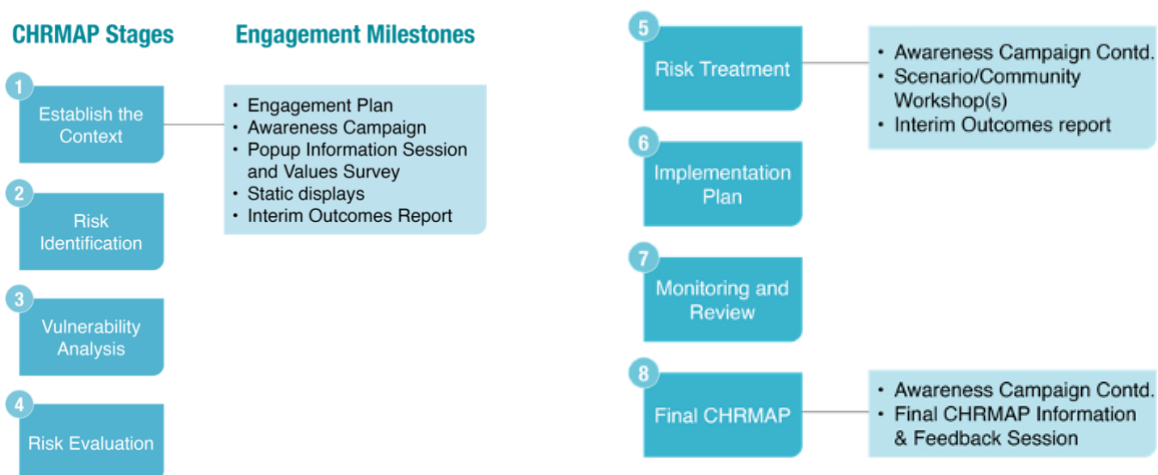


Figure 1 Project lifecycle with engagement activities

In Stage 1 of the project, we engaged with over 300 people across 3 activities and advertised the project through a project awareness campaign. The purpose of engagement in Stage 1 was to understand coastal values, aspirations, visitation and usage of the coastline. Below is a summary of the key findings.

- Trigg, Scarborough and Mettams Pool areas are the most visited beaches along the City of Stirling coastline.
- The community are concerned about erosion along the coastline, exposure of rocks at Mettams Pool, unsustainable development too close to the ocean and preserving accessible walkways and access points to the coast.
- The community value 'recreation' and the 'natural environment' the most about their coastline. Social Pinpoint users (online mapping) also identified their love of various surfing spots along the City's coastline.
- Walking and driving in a small car were the most popular modes of transport people use to access the coastline.
- 93% of survey respondents had witnessed either major or minor changes to the coastline.

This report will be updated after the Community Workshops in Stage 5, which will be held in late-February 2022.

Introduction

1.1 Project Overview

The City of Stirling has a population of 219,981 (based on the 2016 census data) and a rich, diverse natural and physical landscape covering approximately 104km², including 6.5km of coastline. The City of Stirling's diverse foreshore boasts sandy beaches, rock pools, open space, parks and reserves, shopping, recreation and leisure centres, scenic drives and waterfront property that are well-loved by local residents and those residing in surrounding areas of Perth's western suburbs, as well as visitors and tourists who travel from outside the City and abroad to enjoy them.

Following a series of storms in 2009 that significantly impacted coastal infrastructure at Watermans Bay, the City commissioned a 'Strategic Coastal Processes Study' (BMT JFA, 2016). This study allowed the City to better understand the coastal processes, determine which areas of the coastline were most at risk and identify what those risks were, over a 100-year planning timeframe.

In 2019, Watermans Bay and Mettams Pool were identified as two of the 55 coastal erosion hotspots in the Assessment of Coastal Erosion Hotspots in Western Australia (prepared by the Department of Planning, Lands and Heritage and the Department of Transport). A range of public foreshore amenities were found to be prone to erosion hazard in the near to medium term (within 0 to 25 years), while large sections of public infrastructure assets such as dual use path, section of West Coast Drive and associated services (gas, power, water) were found to be at high risk due to coastal erosion in the medium to long term (as early as 2045).

The City commissioned several Geophysical Subsurface Investigations (GBGMAPS, 2016-2018) to determine the rock profile between Trigg Island and Watermans Bay, Mettams Pool (between Lynn Street and Hammersley Street) and North Beach (between Malcolm Street and James Street). The degree of erosion and inundation hazard protection afforded by the ground condition findings remains to be interpreted in the context of coastal hazards mapping refinements and encapsulated in an appropriate risk management process compliant with the State Planning Policy 2.6 - Coastal Planning (SPP2.6).

As such, the City identified the need to engage specialist land use planning, community consultation and engagement, coastal engineering and economics consultants to compile, review and update existing relevant studies to produce a CHRMAP for the study area in accordance with the CHRMAP Guidelines and SPP2.6, which is adopted by the City of Stirling and used to guide future decision making for vulnerable assets in its coastal zone.

This report is a summary of the community engagement undertaken during Stage 1 of the CHRMAP process. This report will be updated as the engagement progresses throughout the CHRMAP project.

1.2 Project Objectives

The objectives of the CHRMAP are to:

- Improve understanding of coastal features, processes and hazards in the study area;
- 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 within in the coastal zone;
- Gain an understanding of asset vulnerability;

- Identify the value of the assets that are vulnerable to adverse impacts from coastal hazards;
- Identify the value that community and stakeholders place on the various beach assets throughout the City;
- 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; and
- Engage stakeholders and the community in the planning, decision-making and overall CHRMAP process.

2. Engagement Methodology

2.1 Purpose and Objectives of Engagement

The purpose of the engagement during Stage 1 of the CHRMAP process was to raise project awareness and collect community coastal values including social, economic and environmental values, including which coastal assets the community hold important.

As such, the objectives of the engagement were to:

- Generate awareness of the project and reach a range of key stakeholders and community members in the process.
- Communicate the CHRMAP process to community and key stakeholders.
- Encourage participation in engagement activities through a range of advertising and project awareness raising exercises.
- Encourage respectful conversations about coastal values.
- Collect meaningful feedback from community and stakeholders on their coastal values and preferred management and adaptation options.
- Offer alternative methods for community and stakeholders to engage.
- Engage sensitively regarding prior coastal hazard engagement.

2.2 Methods of Engagement

The diagram below identifies the timeline of the methods of engagement used to communicate with the community about the CHRMAP project. Please note we have only completed activities up to Stage 1.

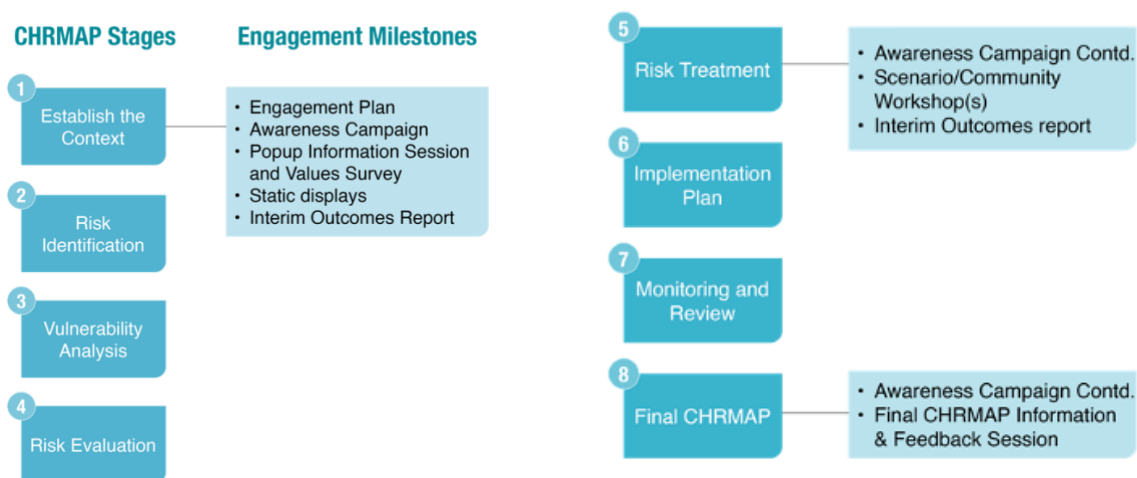


Figure 2. Timeline of engagement methods

As agreed with the City of Stirling, **element** used three key methods of engagement to reach the local community and a suite of communications materials.

Table 1. Overview of engagement methods

Method	Purpose of this Method	Communication Channels	Level of Engagement (IAP2)
Online survey 270 responses	To collect coastal values, understand how the community use the coast, including collection of visitation and frequency data. The survey also collected information for economic analysis by UWA. The survey was incentivised with 5x \$100 gift vouchers to be won.	Webpage Social Media Advert Email Campaign (1,750 emails sent) Letter drop (2,023 letters) Posters (50 distributed) Static Information Displays (x4)	Consult
Social Pinpoint mapping tool 34 data entries	The purpose of the mapping tool was to understand where the coastal assets the community valued were and where they had witnessed any coastal erosion events.	Webpage	Consult
Static Information Displays 4x locations	To raise project awareness in key coastal locations and direct people to the webpage and online survey.	Static Information Display	Inform
Pop-up Information Session 22 attendees	To provide a face-to-face point of engagement early in the project to help explain the purpose of the CHRMAP and raise awareness for the project. The project team were there to help answer questions the community may have about the project.	Webpage Email Campaign (1,750 emails sent) Letter distribution (2,023 letters) Posters Information Display	Inform, Consult.

2.3 Communication Channels

Project information, updates and invitations were distributed to the community in the following ways.

Letter drop

A letter drop of 2,023 letters was sent to all coastal residents along the City of Stirling coastline to introduce the project and invite them to participate in upcoming engagement activities such as the online survey and info session. They were also invited to view the webpage for more information. The letter drop was distributed on 3 November 2021. There were approximately 100 letters returned to sender. The letter drop varied between a range of 60m and 330m from the coastline.

Email campaign

Following the letter drop on 5 November 2021, an email campaign was sent out through Mail Chimp to the City's database of interested residents of approximately 1,750 recipients. The email included a brief introduction to the project and invited recipients to view the webpage, take the survey and attend the info session.

Webpage

A project webpage was created on the City's 'Shaping Our Future' engagement platform which included project FAQs, a project timeline and a link to the online survey and the mapping tool via Social Pinpoint. After the information session, the display posters and fact sheet were added to the webpage.

Social media advert

On 1 November 2021 a social media advert was shared on Facebook, attracting 176 interactions. The advert announced the project, the online survey and the directed people to the webpage.

Posters

50 posters were placed in coastal locations around the City to advertise the project, the info session and the survey.

2.4 Survey Questions

The survey ran from 12 November 2021 until 24 December 2021 and collected a total of 270 responses. It was composed of 19 questions, broken up into 5 categories, as stated in the table below. The survey question design served two data collection purposes:

1. to collect the coastal values from the community and;
2. to collect data for UWA's analysis of the value of beach visitation.

Table 2 Coastal Values Survey Questions Overview

No.	Question
About you – respondent demographic information	
1	First name
2	Last name
3	Your best contact details (suburb, postcode, email)
4	Are you a resident, employee or visitor of the City of Stirling?
5	How close do you live near the City's coastline?
Values and activities	
6	What do you value about the City of Stirling coastline? Please rank from 1 - 6, with 1 being the highest value and 6 being the lowest value.
7	What are the three most common activities that you undertake along the coastline? Please select three.
8	Where do you normally undertake these activities? Please refer to the map areas below and select which activity you perform at that location.
9	Roughly, when did you first visit the City of Stirling coast?
Coastal observations	
10	Have you seen/experienced natural changes to the City of Stirling coastline since you first visited it?
11	What do you believe are the main coastal issues in the City of Stirling?
Visitation	
12	When viewing the map above, which areas of the coast do you normally visit?

13	Within the last 12 months, how often have you visited the different zones in the hotter months (October to April)? If you did not visit a zone at all, please skip the question.
14	Within the last 12 months, how often have you visited the different zones in the colder months (May to September)? If you did not visit a zone at all, please skip the question.
15	How many people usually come with you? (adults, children)
16	What is the most common mode of transport you use to get to the following zones?
Other comments	
17	Do you have any other comments, questions or concerns regarding this survey or coastal adaptation planning?
18	Would you like to be kept informed about this project?
19	Would you like to be kept informed about other projects in your area?

Please refer to the appendices for the study area zone map which some questions in the survey referred to.

3. Key Findings

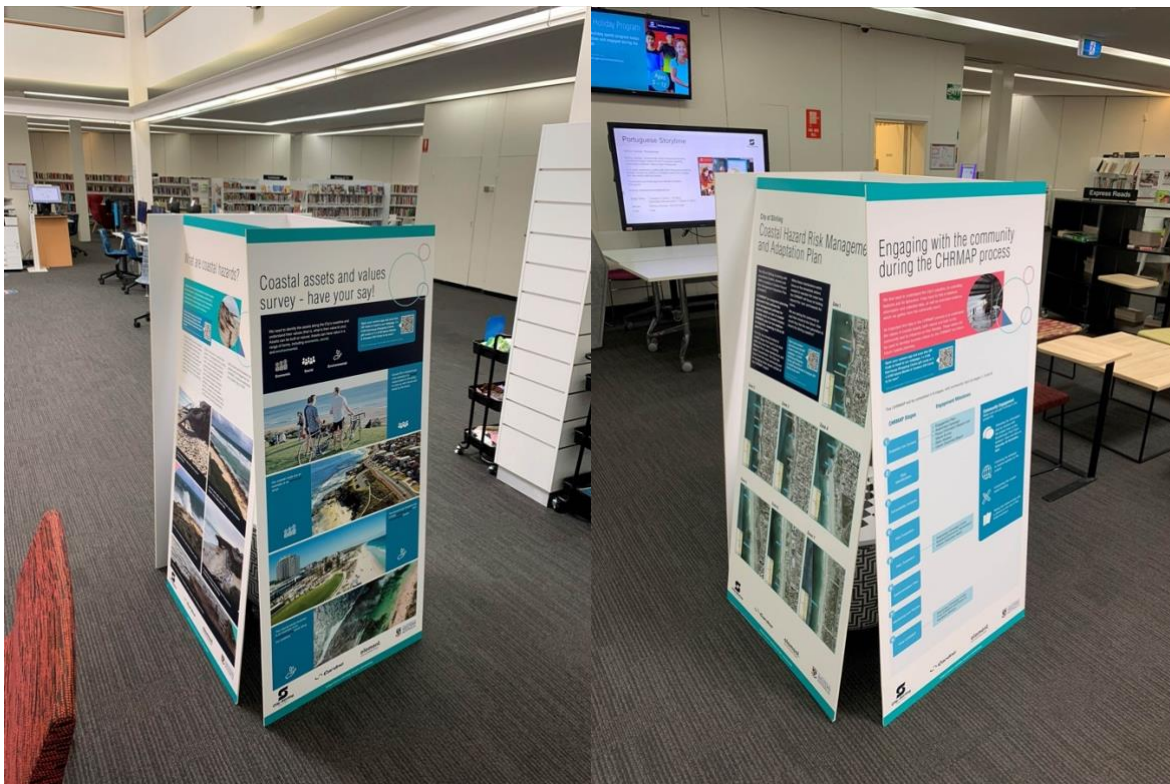
3.1 Static Information Displays

The static information displays were on show for one month from 12 November 2021 to 24 December 2021 in four different locations:

- Scarborough Pool Foyer
- Scarborough Library
- Karrinyup Library
- Trigg Surf Lifesaving Club.

While the displays didn't collect any information, they raised project awareness within the community and pointed people to the online survey, the main tool of feedback collection.

A copy of the information display information can be viewed in the appendices.



3.2 Pop-up Information Session

A pop-up information session was held on Saturday 20 November 2021 from 10am to 2pm outside the Scarborough Pool. This was the first in-person engagement touchpoint of the project and attracted 22 people who came to view the information and chat to the project team to gather more information about the project.

The information session included the static information display, a fact sheet and was attended by the following project team members:

- Cardno coastal engineering specialist
- element, planning and engagement specialists
- City of Stirling planning and engineering officers
- UWA environmental economic specialist (for part of the session).

A summary of the feedback and questions asked are below.

- Concern for development that is built close to the ocean.
- A local from Contacio Road noticed sand levels changing over time.
- What will change at the Scarborough Foreshore as a result of this CHRMAP?
- Groynes at City Breach have affected our coastline.
- Coastal erosion observed at Hamersley Pool. Hillarys Marina has prevented sand flow back to Hamersley.
- Keep the beach as a community asset – limit development and privatisation.



Figure 3 Community members viewing the information display

3.3 Coastal Values Survey

The main tool for collecting community feedback was through a coastal values survey and mapping tool which ran from 1 November 2021 to 24 December 2021 (54 days). A total of 270 respondents completed the coastal values survey.

A note for the interpretation of qualitative responses: on 12 November 2021, the City's social media promoted the Mettams Pool disability ramp removal, which attracted many survey responses to the CHRMAP survey. As such, some of the qualitative responses are skewed to the Mettams Pool area.

3.3.1 About the respondents (questions 3-5)

Majority of respondents were from the City of Stirling (n=233) and were residents who lived within 5km of the coastline. The largest respondent groups were from Karrinyup (n=58), Scarborough (n=41) and North Beach (n=23). All other respondents were from a variety of Greater Perth suburbs.

3.3.2 Values and activities (questions 6-8)

'Walking or running', 'swimming', and 'visiting a venue' are the top 3 activities respondents engage in along the City's coastline.

In terms of the preferable locations that these activities were undertaken along the coast, Trigg, Scarborough and Mettams Pool were the most popular areas. See the table below.

Activity / Preference	Walking or running	Swimming	Visiting a venue
First choice location	Zone 4 (Trigg) 62%	Zone 3 (Mettams) 37%	Zone 4 (Trigg) 52%
Second choice location	Zone 3 (Mettams) 58%	Zone 6 (Scarborough) 35%	Zone 6 (Scarborough) 50%
Third choice location	Zone 2 (North Beach) 49%	Zone 4 (Trigg) 32%	Zone 3 (Mettams) 37%

'Recreation' (52%) and 'natural environment' (37%) were the top items respondents valued, chosen with first and second preference. 'Influence on property values' was the least valued, with 53% of respondents placing this as their last choice.

3.3.3 Coastal observations (questions 9-10)

90% of respondents had first visited the City's coastline over 10 years ago. Since then, majority have witnessed natural changes to the coastline.

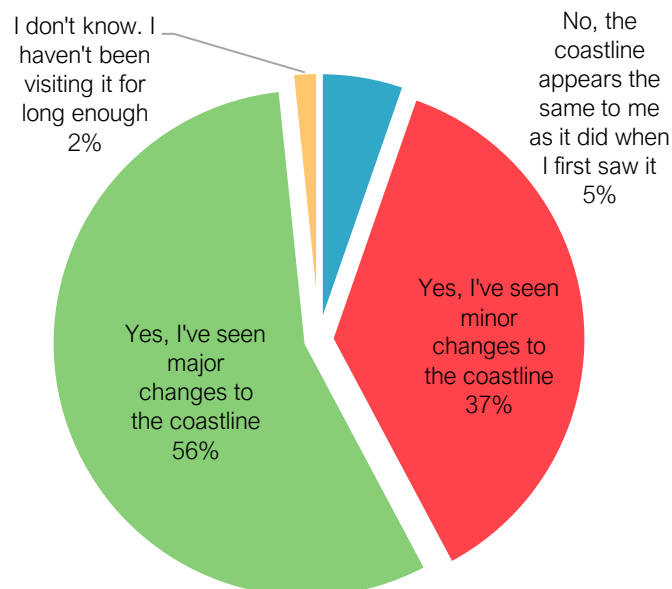


Figure 4 Question 10: Have you seen/experienced natural changes to the City of Stirling coastline since you first visited it?

3.3.4 What do you believe are the main coastal issues in the City of Stirling? (Question 11)

Response rate: 222/270.

Comments we received for this question can be broadly grouped into the following themes, in order of number of mentions:

- **Environmental / natural issues:** erosion, flora and fauna vulnerability, dune depletion, rising sea levels, rock exposure
- **Built environment issues:** development along the coastline, lack of facilities and venues, lack of maintenance
- **Access and movement issues:** lack of parking, increased traffic, disability / safe access to the beach.

Table 3 Qualitative comments themes and number of mentions

Theme	Number of mentions
Natural environment	
Erosion	n=132
Flora and fauna vulnerability	n=23
Dune depletion	n=22
Rising sea levels	n=10
Rock exposure	n=8
Access and movement	
Parking	n=32
Increased traffic	n=28
Disability access / safe access	n=13
Built environment	
Development along the coastline	n=60
Lack of maintenance to facilities	n=8
Lack of facilities and venues	n=8

3.3.5 Visitation and transportation (questions 12-16)

Zones 4, 6 and 3 (Trigg, Scarborough and Mettams Pool) were the most visited beaches of the survey respondents.

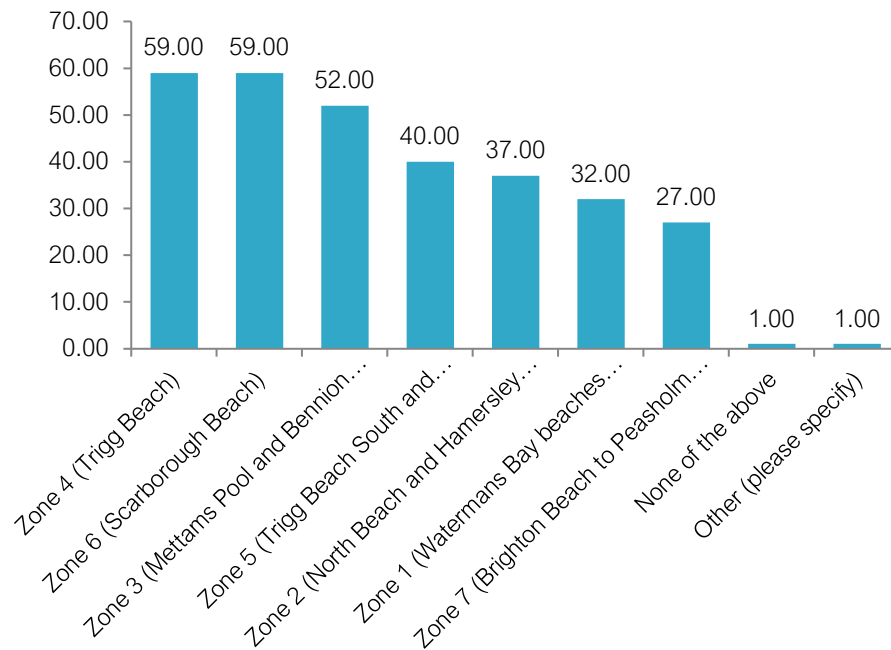


Figure 5 Question 12 When viewing the map above, which areas of the coast do you normally visit?

Walking and driving a car were the two most popular transport modes when visiting the coastal zones.

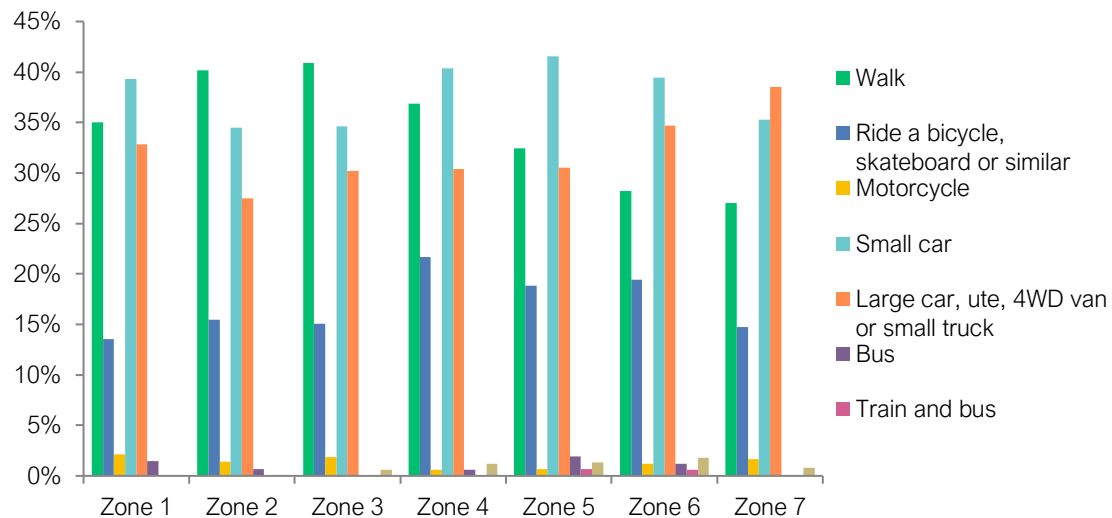


Figure 6 Question 16: What is the most common mode of transport you use to get to the following zones?

3.4 Social Pinpoint Mapping Tool

In addition to the survey, we collected some spatial information on cherished assets and observations of coastal erosion via a mapping tool that was available on the webpage from 1 November to 24 December 2021. A total of 34 data entries were made on the Social Pinpoint mapping tool (not all entries are visible in the image below).

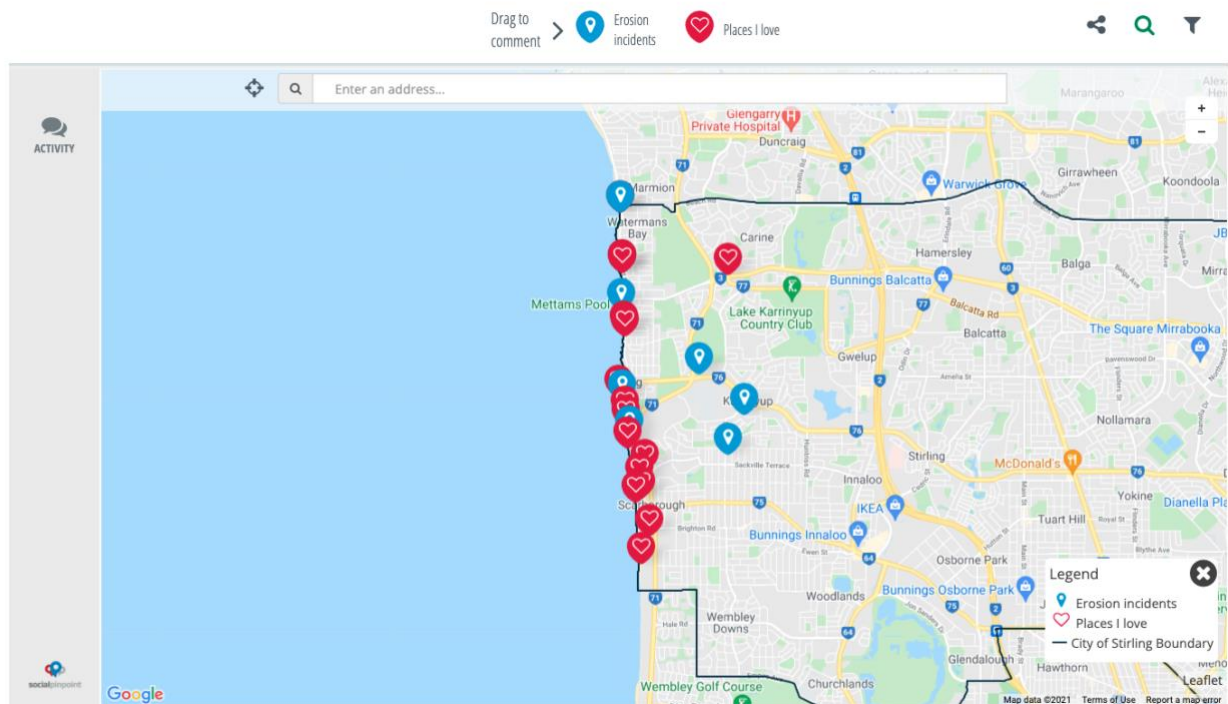


Figure 7 Screenshot of the Social Pinpoint Mapping Tool (21 December 2021)

The comments from social pinpoint are summarized in the table below.

Erosion Incidents	Places I Love
<ul style="list-style-type: none"> • Rocks at Mettams Pool • Development too close to the coastline / ocean • Erosion of beach access ways / ramps • Erosion is a naturally occurring process 	<ul style="list-style-type: none"> • Beaches that are great for surfing and kitesurfing • Walkways between Scarborough and Trigg • Feeling of 'home'

4. Success Criteria

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.

- Preserve the function and opportunity for recreation activities along the coastline (such as walking/running, swimming and surfing).
- Preserve the existing hospitality venues along the coastline and access to them.
- Ensure the natural environment is protected and sustained in its current condition or an improved condition (concerning the dunes and flora and fauna).
- Develop solutions to coastal processes that are sustainable (financially, socially and built form) and locally responsive
- Revisit regularly with community and key stakeholders their values in relation to development adjacent the coastline
- Maintain services that maximise community benefit for all
- Ensure the coastline is safe and accessible to all.
- Achieve a balance between access needs and environmental sensitivities

5. Next Steps

Following the engagement for Stage 1 of the CHRMAP, UWA environmental economic specialists will utilise the data collected in the online survey to inform their analysis of the value of beach visitation.

While the coastal engineers progress with Stages 2, 3, and 4, we will meet back with the community at Stage 5 at the Community Workshops. The purpose of the workshops is to identify important assets along the coast and identify the most preferred adaptation options to mitigate the impact of coastal hazards. The workshops will be held in late-February 2022.

Appendix A. Study Area Zone Map



Figure 8 Appendix A. Map of study area with survey zones

Appendix B. Static Display Content



Figure 9 Copy of static information display posters

element.

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