Appendix B

Engagement Outcomes Summary

B.1 Engagement Outcomes Summary

Shire of Murray CHRMAP

Engagement Outcomes Summary

July 2021

Document ID: 20-154 / Project Work / Engagement / Outcomes

Issue	Date	Status	Prepared by		Approved by	
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Contents

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1. Introduction

1.1 Project background and context

The Shire of Murray appointed the project team of Baird Australia, element, Rhelm and Seashore Engineering to collaboratively produce a Coastal Hazard Risk Management Adaptation Plan (CHRMAP) consistent with Western Australian Planning Commission (WAPC) 2019 guidelines.

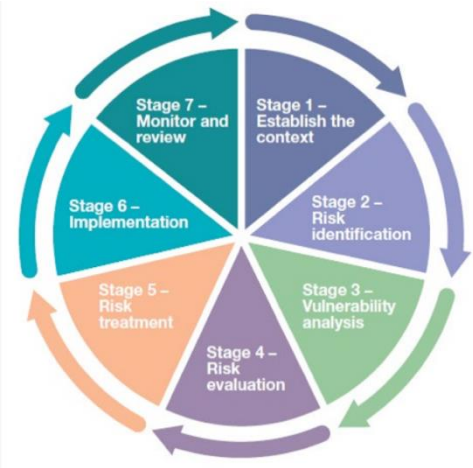
A Stakeholder and Community Engagement Strategy (SCEP) was prepared to guide the engagement process and ensure that the community and stakeholders were effectively and actively involved in the CHRMAP preparation process.

The CHRMAP project delivery utilises background studies that the Shire of Murray previously completed and will build on this work to develop a risk assessment framework consistent with WAPC 2019 guidelines. This process will identify the key areas and timeline for coastal hazard risk and guide the identification of adaptation options that will address the short and long-term management within the hazard areas.

Adaptation options for the shoreline will consider a full range of planning instruments and be developed in a manner cognisant of the views of the stakeholders and community as outlined in the findings of this report. Identification of preferred options will be guided by a rigorous economic assessment of alternatives, with the final recommendations reviewed by the Steering Committee and presented to the Council for final endorsement.

The CHRMAP process is being completed in 7 stages, where the community will review the draft prepared at the end of each stage. In this way, community and stakeholder involvement will guide the preparation process. See the below diagram for a breakdown of the 7 stages.

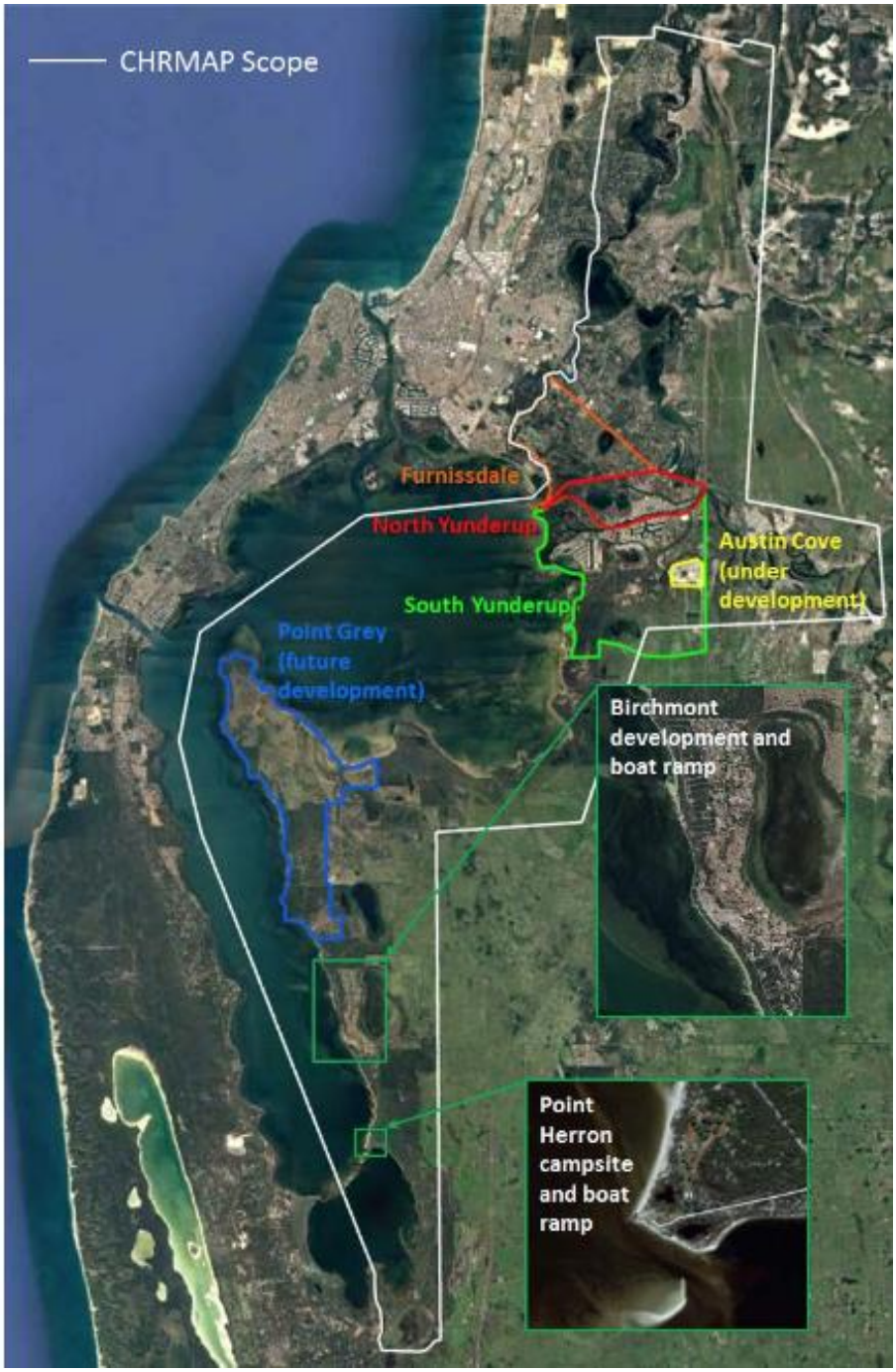
Figure 1 Diagram of the CHRMAP stages



1.2 Scope

The CHRMAP for the Shire of Murray is being carried out for the region encompassing the low-lying estuarine reaches of the Peel Harvey, and the tidally influenced reaches of the Murray and Serpentine Rivers, inclusive of natural assets along the length of the estuarine and relevant riverine foreshores, however with a focus on built assets as indicated below.

Figure 2 CHRMAP study area



2. Objectives

2.1 Project Objectives

The specific objectives of the project were to:

- Improve understanding of the Peel–Harvey estuarine coastal and Murray and Serpentine riverine features, processes, and erosion and inundation hazards in the study area.
- Gain an understanding of asset vulnerability in the Peel–Harvey estuarine coastal and Murray and Serpentine riverine zones that includes the areas of water and land that are predominately influenced by coastal processes.
- Identify significant asset vulnerability trigger points and respective timeframes to mark the need for implementation of immediate or medium-term risk management action.
- Identify assets (natural and man-made) and the services and functions they provide situated in the Peel – Harvey estuarine coastal and Murray and Serpentine riverine zones.
- Identify the value at risk of the assets that are vulnerable to adverse impacts from erosion and inundation hazards.
- Determine the likelihood and consequence of the adverse impacts of erosion and inundation hazards on the assets and assign a level of risk.
- Identify risk management measures and actions and how these shall be incorporated into short- and longer-term decision-making.
- Engage stakeholders and the community in the planning and decision-making process.

2.2 Engagement Objectives

Following the project objectives, the engagement objectives were to:

- Promote local knowledge sharing through citizen science – the practice of public participation and collaboration in scientific research and data collection to increase scientific knowledge.
- Create a shared sense of ownership for the estuarine environment.
- Clearly communicate project information and scope to community and stakeholders to acquire feedback.
- Inform, consult and involve the community in identifying suitable adaptation options.
- Collect and collate the community and stakeholders' coastal values and aspirations for the long term.
- Understand the level of tolerance of specific risks within the community for specific assets, or groups of assets.

3. Methodology

3.1 Engagement tools

A number of engagement tools have been used throughout the CHRMAP project process, these are identified below. Each of these were designed to inform key CHRMAP project stages

Information event

Early in the project, two drop-in sessions were held to introduce the CHRMAP project and provide information about the project including:

- What is a CHRMAP?
- Why does a CHRMAP need to be prepared?
- Project aims and delivery process?
- Key issues and Coastal Hazard Mapping.
- FAQ (e.g. queries on insurance premiums, planning considerations).
- Key proposed delivery dates and project milestones.

These were attended by the project team and Shire staff and held at the Pinjarra Court House and the local Pinjarra Shopping Centre with approximately 50 local attendees over both events.

Online engagement tool

Through the Shire's YourSay portal, a CHRMAP project webpage was created, hosting information about the CHRMAP process and project, an up-to-date timeline of project milestones, and an online mapping tool via Social Pinpoint.

The online mapping tool has been live, collecting 'citizen science', or spatial and values information from the following prompt: "Within the study area (yellow boundary), let us know about:

- An area and how you use it
- A place and how you value it
- An environmental observation"

Community Reference Group

Given the high level of interest from the community to date and the diverse range of stakeholders identified, we established a Community Reference Group (CRG) for the duration of the engagement activities and delivery of the draft CHRMAP. By engaging the local knowledge and insights of a CRG, the

project demonstrates a greater level of transparency, collaboration and willingness to take on board concerns, values and ideas of the community, via selected representatives.

The CRG met at key milestones in the project to provide feedback of the engagement approach prior to implementation as well as an additional point of review of each chapter report. CRGs help to generate community buy-in and good will and help in the dissemination of key information through their networks.

The CRG is still ongoing for the remainder of the CHRMAP project.

Coastal values survey

A short coastal values survey was held via the YourSay webpage for 5 weeks between 16 April and 18 June 2021.

A summary of the survey questions are as follows:

About you

- What age bracket do you fall under?
- Please select the location you live from one of the following
    - Birchmont
    - West Coolup
    - Murray Delta Islands
    - South Yunderup
    - North Yunderup
    - Furnisdale
    - Ravenswood
    - Other location in Shire of Murray not listed above
    - City of Mandurah
    - Shire of Waroona
    - Outside of project area (e.g. Perth, please specify)
- How familiar are you with the CHRMAP project currently being undertaken by the Shire of Murray?
- Do you think there should be additional information available on the project YourSay page?

Visitation and coastal values

- How do you interact with the estuary?
- Where do you most frequently participate in the following activities?
- How often do you participate in the activities?
- Why do you choose these locations as opposed to other areas?
- Why do you choose these locations as opposed to other areas?

Values

- What do you value in your coastline and estuarine area?

Thank you

- Please register your details to stay up to date

Scenario workshops

Two scenario workshops were held in May at the Yunderup Sports and Recreation Club, the first workshop on Tuesday 25 May 2021 and the second workshop on Saturday 29 May. The workshops were

advertised to the local community and had the purpose of delving deeper into assets, values and adaptation and mitigation strategies.

Across the workshop and total of 23 people attended.

The workshop agenda was as follows:

Introductions and Welcome
Project introduction
Project Background
Task One: Coastal Assets Identification
Consequence Scale Overview
Task Two: Consequence Scale
Task Three: Asset Priorities
Preliminary Adaptation Options Presentation
Task Four: Adaptation Strategy
Wrap up and Next Steps

3.2 Communications channels

A range of communications channels have been utilised to reach the local Shire of Murray community and specific stakeholder groups. These include:

- Shire of Murray YourSay webpage – a home for all project information and communications
- FAQs – providing information about the project, hosted on the YourSay webpage
- Social media advertisements – promoting the survey and workshop registrations
- Letterbox drops – to specific community areas promoting the survey and workshop registrations
- Signage at the South Yunderup Sport and Recreation Club (location of the workshops)
- Word of mouth communications via CRG members

4. Key findings

4.1 Online map tool

There were 28 contributors to the online map tool who made a total of 114 contributions in the form of comments about a place they love, how they use and environmental observations.

The contributions noted a range of environmental features and recreational uses within the study area, providing some context to the values and assets of the area.

The comments have been summarised by spatial area in the following table.

Location with study area	Summary of comments
Peel inlet	• Sight of sea grass "Forrest". Care should be taken when anchoring and scoop netting • Great spot for King George whiting until limestone outcrops were destroyed to accommodate the channel constructed for the canals in the early 70's
Harvey Estuary	• (Used for) wading for crabs and whiting fishing
Serpentine River	• (Used for) Bream fishing • Serpentine River end of Woodland Parade access to foreshore and river for kayaking and fishing • (Used for) Kayaking down Serpentine River • Used to see long necked turtles here but have not done so for several years
Murray River	• Severe bank erosion should have been rectified as part of the freeway bridge engineering (Pinjarra Road, Ravenswood Western). • Bright green Bank reeds seen in front of caravan park were common right up to the estuary – very effective against tide and boat erosion, unfortunately cant handle the influx of salt water • Osprey nest- can be observed from the intersection opposite (1996 Angus Place, Ravenswood Western). • Dolphins, particularly mothers with calf, stop and feed in this shallow wide stretch of river daily (due to the

	bathymetry, and deeper hole at the bend) when heading up and down the Murray River. Many species of fish inhabit this area year-round. Blue swimmer crabs can be found in high abundances here in the warmer months of the year. Adult black bream feed on the flats and shallows opposite Murray Bend and Ravenswood Road. Prawns are observed at night. In May each year, flocks of little black cormorants (n- 1000 strong) accompanied by pelicans and white herons can be seen feeding on schools of baitfish (possibly spawning Atherinids). Ospreys and whistling kites live and feed here. In Blue swimmer crab season, they can be seen approximately 5km below Pinjarra, in addition to juvenile tailor, juvenile tarwhine and garfish. Very high abundances of small yellowtail grunter inhabit the stretch of river between Ravenswood and Pinjarra, in addition to Sea mullet (adult and juveniles) and masses of Atherinids (baitfish) (7 Ravenswood Road, Ravenswood). • Important feeding area for black bream (conditioning for spawning) in winter. Dolphins observed using deeper drop -off on opposite bank for ambushing bream and mullet (6206, Ravenswood)
Harvey River	
Murray Islands	• Used as a weekend getaway from the city • Urgent need to stabilise banks at end of Yunderup Island Some erosion here due to tide and boat wash. Nice wildflowers. • Islands and other local bush walk around the whole of Yunderup Islands. • Lots of dog walkers use this area (101 Rivergum Esplanade, South Yunderup)
Point Grey	• The Dawesville Cut and the deep dredging of the Mandurah Channel has made a significant difference to the estuary and rivers environment. Has had some beneficial effects on water quality, but in general for the east side of the estuary the environmental impact has been mostly negative. Water levels through major tidal variations mean flooding can occur at any time of the year and at the other extreme the water can be so low as to make accessing jetties and boat sheds near on impossible. This tidal variation will see half of the Delta islands disappear if sea level rise predictions are right. This is a national disgrace as one of the most important

	delta island river systems in Australia is disappearing before our very eyes.
Birchmont boat ramp	• Crabbing and estuary access (Birch Drive, Birchmont) • Bird Watching (166 Birch Drive)
Herron point boat ramp	• Herron Pt has been local crabbing and net fishing place for many years.
Yunderup canals	• High tides and boat wash removing natural reeds from shoreline • Issues: poor water quality and mosquitos • Algal blooms are bad this year (2021) • North Yunderup boat ramp would be more useable with floating jetty • Along the riverfront is a beautiful place to enjoy. It needs erosion management and care of the water. (212 Culeenup Road, North Yunderup) • There has been a noticeable increase in speeding vessels in the Murray River. The resulting bank erosion, potential threat to swimmers and wildlife, and damage to moored vessels is increasing rapidly. There is an immediate need for increased signage, monitoring, a easy to use public reporting process, education and enforcement. (198 Culeenup Road, North Yunderup)

4.2 Coastal values survey

A coastal values survey ran for 5 weeks from Friday 14 May until Friday 18 June and collected a total of **186 responses** (182 online and 4 hard copy).

Who did we reach?

Respondents were mostly aged between 30-65 years with 41% being aged between 30-49 years. Half of the survey respondents were either form the City of Mandurah or from Shire locations outside of the Study area, indicating that the area is regarded by not only immediate residents. Other respondents included those from nearby locations including Warnbro, Rockingham and West Pinjarra.

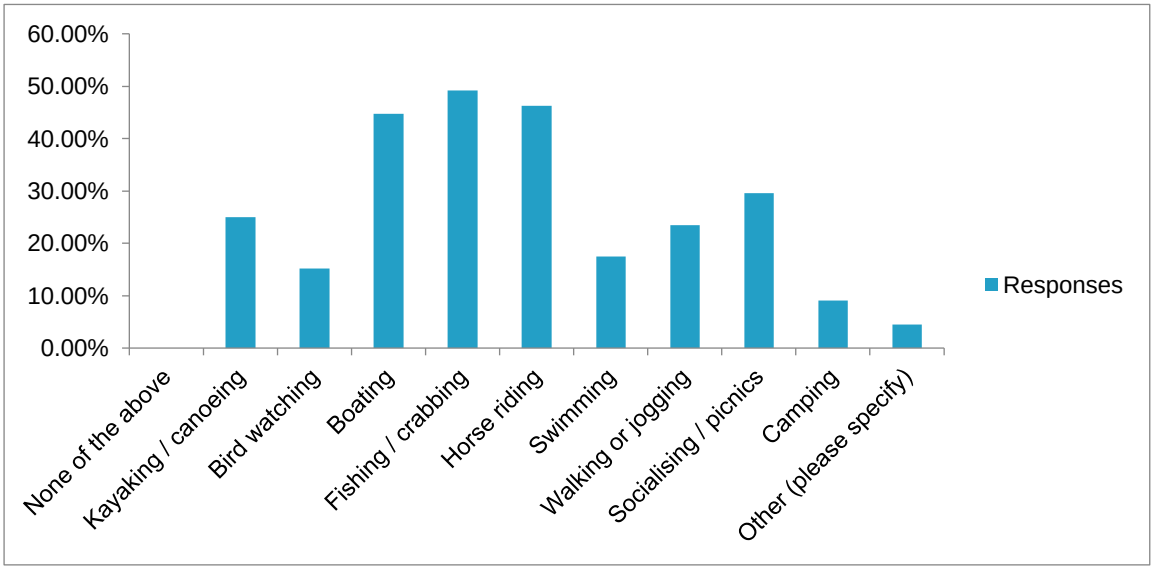
CHRMAP awareness

Most respondents (90%) were either unaware (53%) or only somewhat aware (37%) of the CHRMAP process. 91% of respondents believe there should be additional information available on the Shire's YourSay page, indicating a keenness to learn about the CHRMAP process from the community.

Interaction with the estuary

Survey respondents noted that fishing/crabbing, horse-riding and boating were the top 3 reasons they interacted with the estuary, as shown in figure 3 below.

Figure 3 How do you interact with the estuary? Select your 3 most common interaction options.



The most common places for each activity are as follows.

Activity	Location
Boating	Peel inlet (n=20), Murray River (n=11)
Fishing/crabbing	Peel inlet (n=23), Birchmont Boat Ramp (n=9), Herron Point Boat Ramp (n=10)
Horse riding	Herron Point Boat Ramp (n=26)
Swimming	Murray River (n=11) Herron Point Boat Ramp (n=9)
Walking and jogging	All locations mentioned
Camping	Herron Point Boat Ramp (n=11), Point Grey (n=5)
Socialising / picnics	Herron Point Boat Ramp (n=7)

Respondents mostly participate in all activities once or twice per month. Camping, swimming, and canoeing/kayaking were participated in less frequently.

Values

Respondents chose the above locations for the following reasons:

- Natural beauty of the area
    - "Beautiful place to swim and use the boat, also river fishing"
    - "Nice environment"
    - "It's beautiful"
    - "Peaceful"
- Proximity to their home
    - "Close to home"
    - "On my doorstep"
    - "Close to home, familiarity with the waterway"
- Great conditions and amenities available for the activity (example: nearby trails, horse float parking facilities, boat ramp access).
    - "Playground, toilet BBQ, history"
    - "Close to home, good car park and camping grounds"
    - "Good parking and nice water to ride horses"

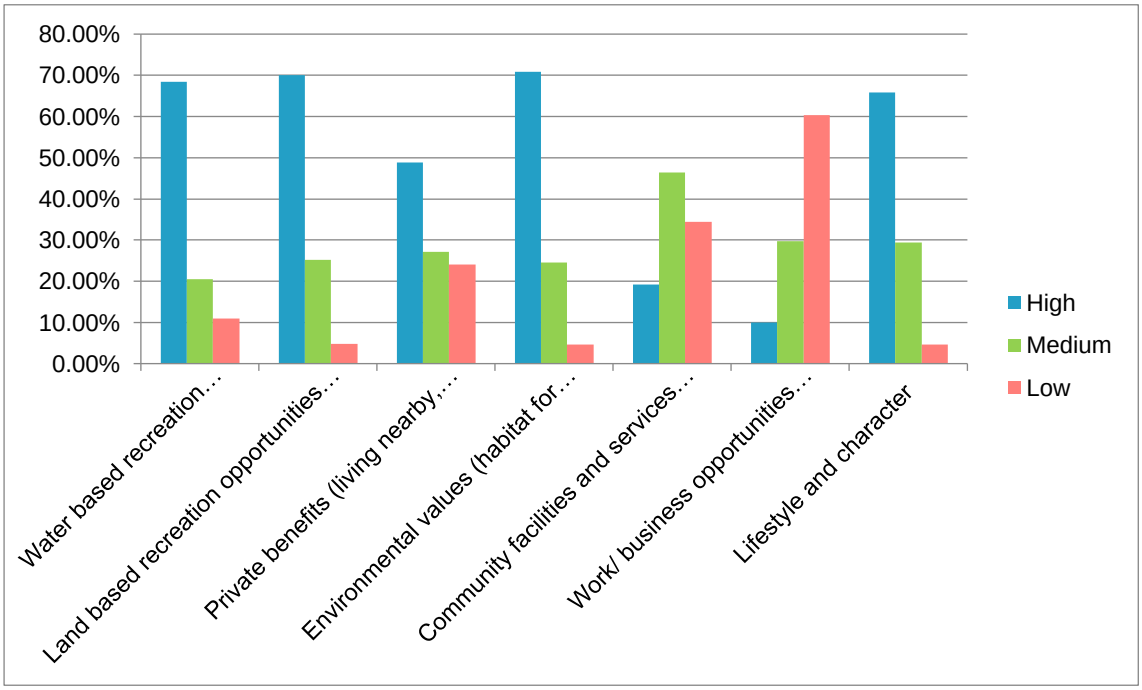
The **highest** respondent values were:

- Environmental values (habitat for wildlife, protection from storms, water/nutrient filtration) (71%)
- Land based recreation opportunities (dog walking, picnicking, fishing, exercising etc near the coastline) (70%)
- Water based recreation opportunities (boating, kayaking etc) (88.5%)

The **lowest** respondent values were:

- Work/ business opportunities (related to coastline and estuarine area) (9%)
- Community facilities and services (events, festivals) (19%)

Figure 4 What do you value in your coastline and estuarine area? Rate each category from high to low.



4.3 Scenario workshops

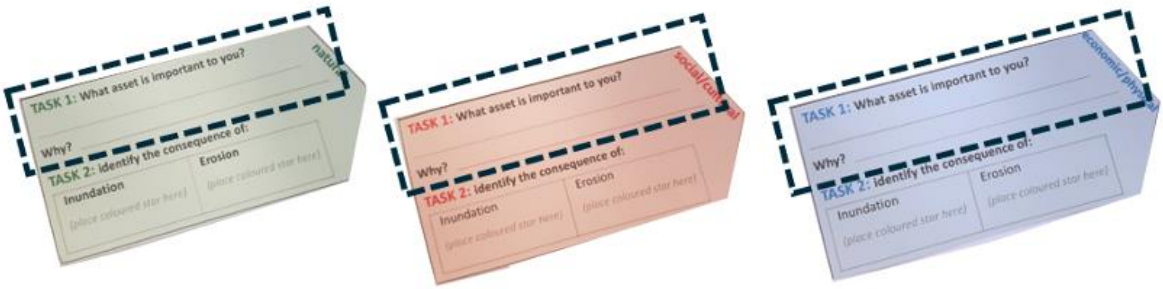
Both workshops were structured to provide information and collaborate with attendees to identify assets, priorities and adaptation options.

Task 1 – Coastal Asset Identification

Following a presentation from Baird on the project background, key findings of the Coastal Hazard Report and an overview the study area, participants were then asked to identify three different classifications of coastal assets (social, environmental and economic) within the study area boundary using the tags pictured below.

They were asked to name the asset and state why it was important.

Figure 5 Coastal Asset Tags



Task 2 – Consequence Scale

The next task asked participants to then rate each of their assets they had identified in two ways:

1. Level of inundation

2. Level of erosion

These rating were informed by the following consequence scale provided in the presentation prefacing the activity.

Consequence	Physical / Economic Impact	Environmental Impact	Social / Cultural Impact
Insignificant	Permanent loss or damage **<$20k**	**Negligible to no loss** of flora and fauna – strong recovery	Minimal short-term inconvenience **<$5% of community affected**
Minor	Permanent loss or damage **$20k - $200k**	**Short term loss** of flora and fauna – strong recovery	Small to medium disruption of function **<10% of community affected**
Moderate	Permanent loss or damage **$200k - $2 million**	**Medium term loss** of flora and fauna – recovery likely	Minor long term or major short-term loss of function **<25% of community affected**
Major	Permanent loss or damage **$2 million - $5 million**	**Long-term loss** of flora and fauna – limited chance of recovery	Medium term or permanent loss of function **<50% of community affected**
Catastrophic	Permanent loss or damage **>$5 million**	**Permanent loss** of flora and fauna – will not recover	Long-term or permanent loss of function **>75% of community affected**

Figure 6 Consequence rating sticker sheet

Task 3 – Asset Prioritisation

Once the consequences of erosion and inundation were determined, participants were asked to re-examine the coastal assets identified on the sticky notes attached to the map on their table.

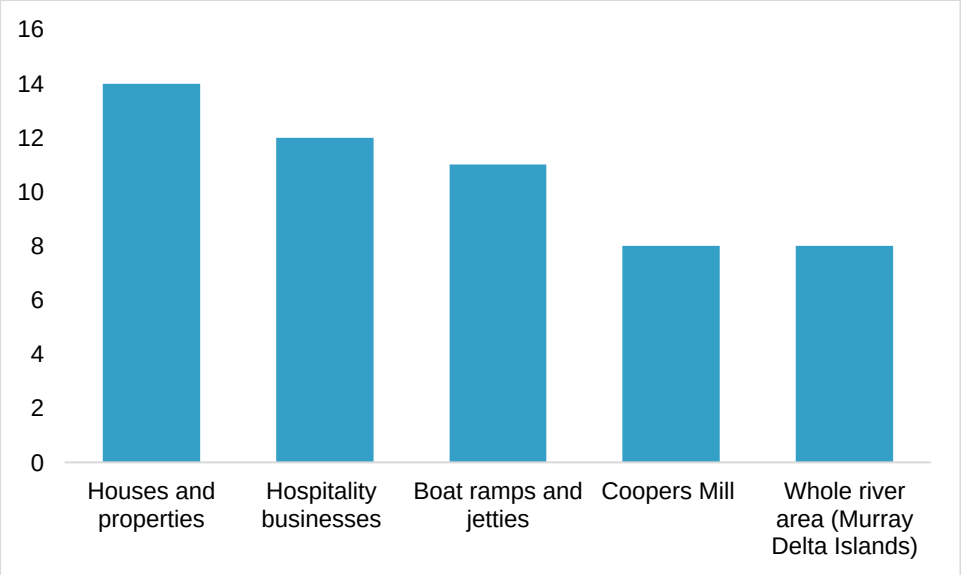
Working individually, each participant was given five dots and asked to stick one dot beside each of the five assets they valued most. However, if they believed one or more assets to be more important than another, they were able to place more than one dot beside these assets until all five dots were used.

Figure 7 Example of asset prioritisation on asset tags

Results of Tasks 1, 2 and 3

Common themes amongst assets

Overall, 92 valid assets were captured over both workshops. The following graph highlights the range of assets that were named numerous times, including:



The results of the assets have been consolidated into tables based on coastal locations within the study area. The assets identified were relatively evenly spread between social (n=31), environmental (n=32) and economic (n=29).

The results show that generally, the impact of erosion is perceived to have a more severe consequence than the impact of inundation on the coastal location in the study area, particularly in the Murray Delta Islands.

While the asset group 'Houses and Properties' had the most mentions, they also had by far the highest priority ranking with 35 dots.

It is important to note that the workshop attendees were predominantly residents of the Murray Delta Islands.

Figure 8 Results of Tasks 1, 2 and 3 based on coastal location

Murray Delta Island Assets	Classification	No. of sticky notes	No. of dots (priority)	Average inundation score	Average erosion score
Whole river area	Social	5	2	5	2
Why it is important: recreation, fishing, flora and fauna, shallow waters	Environmental	3	4	5	2
Houses and properties	Economic	10	23	3	2
Why it is important: livelihood, shelter, personal financial investment, holiday house	Social	4	12	2	2
Fauna *Why it is important: protect endangered species, peace, retreat, recreation, complete ecosystem*	Environmental	8	9	3	2
Hospitality business (e.g., restaurants, cafes, pubs, school, shops)	Economic	9	3	3	3
Why it is important: provides jobs, serves community, recreation for holidays	Environmental	2	0	1	2
	Social	1	0	3	1
Boating channels / waterways	Environmental	2	3	4	1
Why it is important: for boating access, recreation, swimming, crabbing	Social	3	1	5	2
	Economic	1	1		
Coopers Mill	Social	5	8	3	2
Why it is important: historical value, tourist attraction, culture,	Economic	1	0	4	2
Fishing and crabbing	Social	1	1	3	3
Why it is important: children's development, fun, recreation,	Environmental	1	0	5	1

Boat ramps and jetties	Economic	8	7	4	2
Why it is important: island access, community use for boating/fishing, adds value to properties	Social	3	2	5	3
Riverbanks / wetlands / beaches	Environmental	4	5	4	2
Why it is important: swimming, fishing, dolphin watching, bird watching,	Social	1	1	5	2
Trees and vegetation	Environmental	3	4	2	1
Why it is important: nature reserve, important to environment and fauna, prevents erosion					
Infrastructure, bridges and roads	Economic	2		4	3
Why it is important: Access	Social	1	2	1	1
Coodanup foreshore	Environmental	2		4	4
Why it is important: dog walking, bird watching					
Cricket oval	Social	3	1	5	5
Why it is important: social asset, historical and community value.					

Peel Inlet Assets	Classification	No. of sticky notes	No. of dots (priority)	Average inundation score	Average erosion score
Estuary	Environmental	2	0	4	4
Why it is important: recreation, swimming, crabbing, boating, fishing					

Point Grey Assets	Classification	No. of sticky notes	No. of dots (priority)	Average inundation score	Average erosion score
Shallow waters *Why it is important: crabbing*	Social	1	0	5	4

Harvey Estuary Assets	Classification	No. of sticky notes	No. of dots (priority)	Average inundation score	Average erosion score
Whole area	Environmental	2	1	4	3
Why it is important: lifestyle, social/family recreation, heritage	Social	1	1	4	2

Birchmont Assets	Classification	No. of sticky notes	No. of dots (priority)	Average inundation score	Average erosion score
Whole Eastern Shoreline *Why it is important: no reasons given.*	Environmental	1	0	5	4

Herron Point Assets	Classification	No. of sticky notes	No. of dots (priority)	Average inundation score	Average erosion score

Shallow waters *Why it is important: crabbing*	Social	1	0	5	4
Campgrounds *Why it is important: tourism*	Social	1	0	4	2

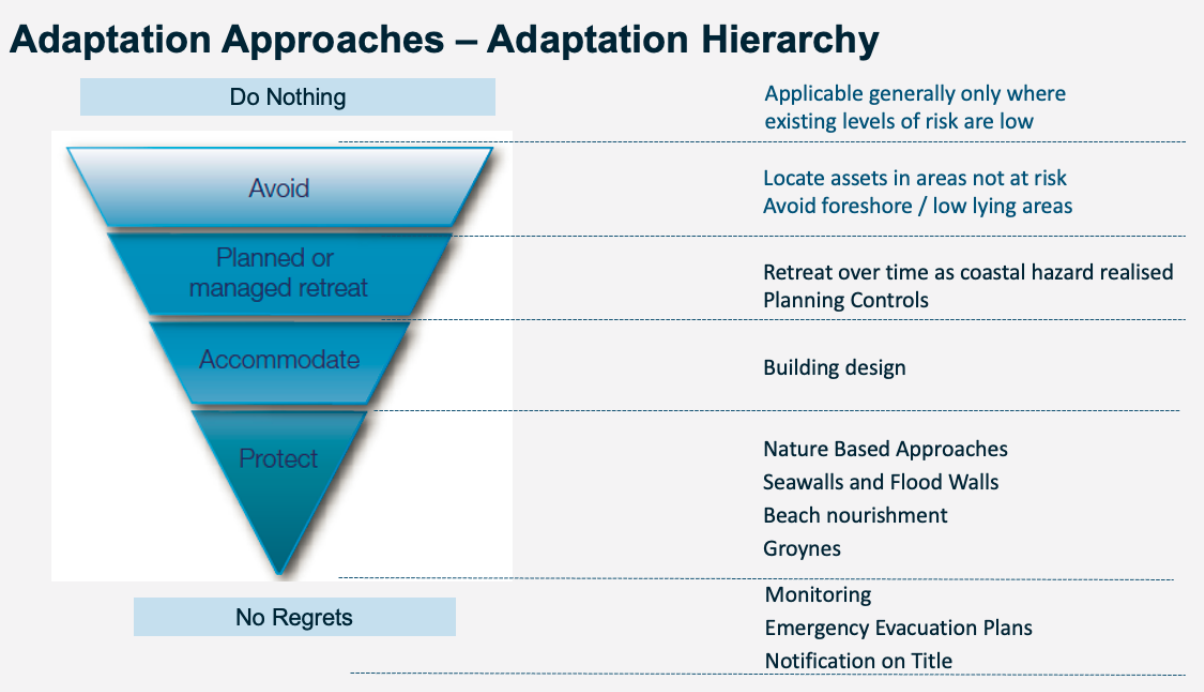
Task 4 Priority Areas Adaptation Ideas

The final workshop task involved developing adaptation strategies and preferred options for prioritised assets. Adaptation approaches and examples were presented to assist with this task, although it was made clear participants could also suggest other adaptation strategies.

The first step was for participants at the table to identify the priority asset (the one with the most dots) and then come to a consensus on which of the four adaptation strategies they wanted to implement to mitigate the risk of erosion and inundation.

They then had to identify an adaptation option or idea they preferred be implemented. They could either choose one of the options presented or develop their own.

Figure 9 Adaptation options presented at the workshop



Task 4 results

Coastal Location: The Whole Estuary	
What is your preferred adaptation strategy?	Protect
What are your table's adaptation option ideas?	• Seawalls and flood walls

Coastal Location: Coopers Mill	
What is your preferred adaptation strategy?	Protect
What are your table's adaptation option ideas?	• Bank stabilisation • Sea walls • Flood walls • Drainage • Rock Wall

	• Backfill in to build dry wall around it

Coastal Location: Estuary, Riverside Island	
What is your preferred adaptation strategy?	Protect
What are your table's adaptation option ideas?	• Provide signs to redirect boats along naval base corner • Provide rock protection • The corner focal points of the islands • Pieces of rocks

Coastal Location: Island Houses	
What is your preferred adaptation strategy?	Protect, Accommodate, Avoid
What are your table's adaptation option ideas?	• Erosion protection based on guidelines • Protect banks, revegetation, bioengineering revetment • Accommodate for new development and renovation • Planning controls • Riverbank vegetation • Rock walls • Restrict water traffic • Technology to dissipate water energy from waves • Control sea entering estuary • Nature based approaches • Sea walls and flood walls • Not to allow managed retreat for residents • Change planning rules to allow more flexible plans and to protect river banks rock walling and provide to build jetties opposite each property • Allow modification by changing planning scheme including building and sanitations • Evaluate current situation and adopt changes as sea level rises over time • Incorporate changes to height of properties and removal of septics as likelihood of occupancy increases • Adopt a measured approach • Planning controls and building design • Some cases avoid based on circumstance • Fill/block drainage and fill • Stilt build

	• Setbacks • Technology solutions (e.g., sewage)

Coastal Location: Jetty / Boat ramps	
What is your preferred adaptation strategy?	Protect, Accommodation, Planned retreat
What are your table's adaptation option ideas?	• Building design – floating erosion protection walls / banks) • Reposition and rebuild as above • Sea walls and flood walls

Coastal Location: Point Grey / Herron	
What is your preferred adaptation strategy?	Managed retreat
What are your table's adaptation option ideas?	• Monitoring • Revegetation

Coastal Location: Businesses	
What is your preferred adaptation strategy?	Protect
What are your table's adaptation option ideas?	• Planning control • Building design • Sea wall / rock wall • Limit speed limits for boat patrons • Salt tolerant plants along water edge (Sedge Grass) • Salt tolerant trees planted along bank • Mangroves

Coastal Location: Foreshore erosion	
What is your preferred adaptation strategy?	Protect
What are your table's adaptation option ideas?	• Where there is boat traffic – use of rocks • Other areas – natural protections

Coastal Location: Waterways (dredging)	
What is your preferred adaptation strategy?	No regrets
What are your table's adaptation option ideas?	• Monitoring (sulphur) environmental • Adapting dredging strategy

Coastal Location: Murray River estuary and banks	
What is your preferred adaptation strategy?	Protect

What are your table's adaptation option ideas?	• Protect the environment and housing and assets • Retain banks through managed environmental and physical retaining walls, including a Tide Wall in the Cut

Coastal Location: All Murray River Delta	
What is your preferred adaptation strategy?	Protect, Accommodate
What are your table's adaptation option ideas?	• Protect riverbanks through sea walls, river bank protection • Work with landowner to assist, protect and supply materials to stabilise banks to reduce erosion, protect vegetation • Bank preservation and vegetation re-planting • Preservation of Murray Delta environment • Keep Dawesville closed until it's needed to be flushed because of a "bloom" • Preserve the riverbanks now! • We need to protect the banks so that there is minimal extra degradation – act on things we can control • Lock system on Dawesville cut first, and then river mouth if necessary – this solves many long term and short term issues such as salinity as well as sea levels rising in the future • Revetment/erosion control – coir logs, non-woven geofabric / textile bags / logs and replanting. Use of softer, natural solutions in keeping with environment • Dike system / sea walls / flood walls • Research vegetation and best planning strategies

Coastal Location: Coolenup Island	
What is your preferred adaptation strategy?	Protect, Accommodate
What are your table's adaptation option ideas?	• Adaptation model presented shows retreat as a preferred option to accommodate. There is no way that moving people out of their homes would be a higher priority that applying mitigation. • Use natural materials where available to create bank protection as an immediate measure ie. fallen trees turned to align with the bank and staked in place then.

	• Control water at the Dawesville Cut • Make more permanent revetment wall? • Protect the riverbanks from boat wake-initiated erosion • Accommodate with planning • Riverbanks need planning and protection from salt water • Work with Council do not approve of managed retreat

The workshop concluded with a 'thank you' to all participants for their active engagement during both session and encouraged them to take the online survey if they hadn't already, as well as sharing the online survey with family, friends and neighbours.

5. Next steps

This findings from this report will inform the draft CHRMAP report and be included as an appendix.

B.2 Coastal Values Survey

Shire of Murray Coastal Values Survey

- Designed to be a quick quantitative survey supplemented by workshop activity.
- To gain a better idea of the local community's coastal values within the CHRMAP study area.
- To provide a communications opportunity to grow interest in the project, and
- Capture people's registration details to grow the project data base

Welcome

As you may be aware, the Shire of Murray is currently in the process of creating a Coastal Hazard Risk Management Adaptation Plan (CHRMAP) for the coastal and estuarine regions within its boundaries. Similar CHRMAPs are currently being undertaken, or have been completed, for many coastal areas around Western Australia.

An important part of the CHRMAP process is understanding the context of the study area, including the values that the community hold for the coastal and estuarine areas.

We invite you to take part in this quick survey to understand YOUR coastal values within the Shire of Murray. This should take you approximately 5 minutes to complete.

If you would like more information on the project, head to our Your Say page at https://yoursay.murray.wa.gov.au/murray-chrmap and please register your details to stay updated about upcoming events and project updates.

Respondent Details

Age Bracket

- 5 to 14
- 15 to 29
- 30 to 49
- 50 to 64
- 65 or older

Please select the location you live from one of the following:

- Birchmont
- West Coolup
- Murray Delta Islands
- South Yunderup
- North Yunderup
- Furnissdale
- Ravenswood
- Other location in Shire of Murray not listed above
- City of Mandurah
- Shire of Waroona
- Outside of project area (eg Perth)

Awareness

How familiar are you with the CHRMAP project currently being undertaken by the Shire of Murray ? Select one option.

- Highly aware
- Somewhat aware
- Unaware

Do you think there should be additional information available on the project YourSay page? Select one option.

- Yes
- No

Visitation and Coastal Values

How do you interact with the estuary? Select your 3 most common interaction options.

- Kayaking / canoeing
- Bird watching
- Boating
- Fishing / crabbing
- Horse Riding
- Swimming
- Walking or jogging
- Socialising/ Picnics
- Camping
- Other (please specify)

3 DROP DOWN sub questions for each option above.

A Map will be included to designate the location of the Activity based on number system (eg 1=Murray Islands, 2=Serpentine River, 3=Herron Point, 4=Birchmont etc)

1. Where do you most frequently do the activity – indicate number from map

2. How often do you participate in the activity?
- (more than once per week, once per week, once to twice per month, less frequently)

3. Why do you choose to use the above locations as opposed to other areas? (can tick more than one)
- Proximity and ease of access
- Environmental values
- Good public facilities/ picnic areas/ boat ramps etc
- Quality of experience
- Social aspects and community
- Other (please specify)

Values

What do you value in your coastline and estuarine area? Rate each category (High, medium, Low)

- Water based recreation opportunities (boating, kayaking etc);
- Land based recreation opportunities (dog walking, picnicking, fishing, exercising etc near the coastline)

- Private benefits (living nearby, property values)
- Environmental values (habitat for wildlife, protection from storms, water/nutrient filtration)
- Community facilities and services (events, festivals)
- Work/ business opportunities (related to coastline and estuarine area)
- Lifestyle and character
- Other (please specify)

Project updates

Please register your details to stay up to date with the project here:

Email address: _____

Baird.