City of Busselton

Geographe Bay

Council Agenda

27 July 2022

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city@busselton.wa.gov.au

CITY OF BUSSELTON

MEETING NOTICE AND AGENDA – 27 JULY 2022

TO: **THE MAYOR AND COUNCILLORS**

NOTICE is given that a meeting of the Council will be held in the Council Chambers, Administration Building, Southern Drive, Busselton on Wednesday, 27 July 2022, commencing at 5.30PM.

Your attendance is respectfully requested.

DISCLAIMER

Statements or decisions made at Council meetings or briefings should not be relied on (or acted upon) by an applicant or any other person or entity until subsequent written notification has been given by or received from the City of Busselton. Without derogating from the generality of the above, approval of planning applications and building permits and acceptance of tenders and quotations will only become effective once written notice to that effect has been given to relevant parties. The City of Busselton expressly disclaims any liability for any loss arising from any person or body relying on any statement or decision made during a Council meeting or briefing.

MIKE ARCHER

CHIEF EXECUTIVE OFFICER

15 July 2022

CITY OF BUSSELTON

AGENDA FOR THE COUNCIL MEETING TO BE HELD ON 27 JULY 2022

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1. DECLARATION OF OPENING, ACKNOWLEDGEMENT OF COUNTRY AND ANNOUNCEMENT OF VISITORS

2. ATTENDANCE

Apologies

Approved Leave of Absence

Nil

3. PRAYER

4. APPLICATION FOR LEAVE OF ABSENCE

5. DISCLOSURE OF INTERESTS

6. ANNOUNCEMENTS WITHOUT DISCUSSION

Announcements by the Presiding Member

7. QUESTION TIME FOR PUBLIC

Response to Previous Questions Taken on Notice

Public Question Time For Public

8. CONFIRMATION AND RECEIPT OF MINUTES

Previous Council Meetings

8.1 Minutes of the Council Meeting held 22 June 2022

RECOMMENDATION

That the Minutes of the Council Meeting held 22 June 2022 be confirmed as a true and correct record.

Committee Meetings

8.2 Minutes of the Airport Advisory Committee Meeting held 15 June 2022

RECOMMENDATION

That the Unconfirmed Minutes of the Airport Advisory Committee Meeting held 15 June 2022 be noted as received.

8.3 Minutes of the Policy and Legislation Committee Meeting held 22 June 2022

RECOMMENDATION

That the Unconfirmed Minutes of the Policy and Legislation Committee Meeting held 22 June 2022 be noted as received.

9. RECEIVING OF PETITIONS, PRESENTATIONS AND DEPUTATIONS

Petitions

Presentations

Deputations

10. QUESTIONS BY MEMBERS OF WHICH DUE NOTICE HAS BEEN GIVEN (WITHOUT DISCUSSION)

11. ITEMS BROUGHT FORWARD FOR THE CONVENIENCE OF THOSE IN THE PUBLIC GALLERY

12. REPORTS OF COMMITTEE

12.1 Airport Advisory Committee - 15/6/2022 - BUSSELTON MARGARET RIVER AIRPORT - OPERATIONS UPDATE

STRATEGIC THEME	OPPORTUNITY - A vibrant City with diverse opportunities and a prosperous economy
STRATEGIC PRIORITY	3.4 Develop aviation opportunities at the Busselton Margaret River Airport.
SUBJECT INDEX	BUSSELTON MARGARET RIVER AIRPORT
BUSINESS UNIT	Commercial Services
REPORTING OFFICER	Manager Economic and Business Development Services - Jennifer May
AUTHORISING OFFICER	Director, Community and Commercial Services - Naomi Searle
NATURE OF DECISION	Noting: The item is simply for information purposes and noting
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Nil

This item was considered by the Airport Advisory Committee at its meeting on 15/6/2022, the recommendations from which have been included in this report.

COMMITTEE RECOMMENDATION

That the Council receives and notes the Airport Operations Report.

OFFICER RECOMMENDATION

That the Council receives and notes the Airport Operations Report.

EXECUTIVE SUMMARY

This report provides an overview of the operations and activities of the Busselton Margaret River Airport (BMRA) for the reporting period 1 January 2022 through 31 May2022. This includes an update on passenger numbers, regular public transport services (RPT), closed charter and general airport operations.

BACKGROUND

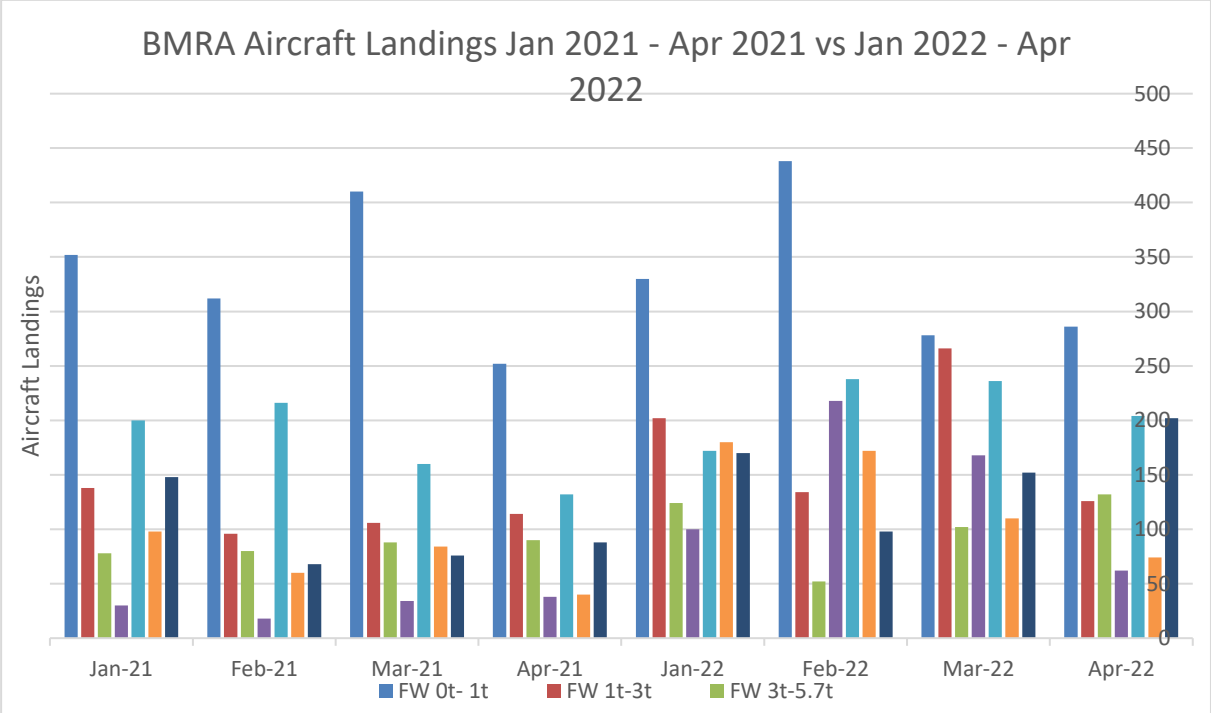
The BMRA has seen positive growth in aircraft landings and passenger numbers with the commencement of Jetstar RPT services, additional closed charter flights operating during the reporting period, along with the Department of Fire and Emergency Services (DFES) Large Air Tanker and helitac operations, and military aircraft activity.

Aircraft Movements

The total number of Fly in Fly out (FIFO) closed charter services operating from the BMRA has increased, with 28 flights (56 movements) per week as at the end of May which has increased from 24 flights at the end of March. Currently there are four airlines operating closed charter services from the BMRA utilising the F70, F100, A320 and Dash 8 aircraft and servicing North West destinations such as Boolgeeda, Barimunya, West Angeles, Newman, Roy Hill and Karratha. Still to be confirmed are two new flights on a Thursday and Friday which could potentially start in the third quarter of this year.

Jetstar RPT services direct from Melbourne to Busselton commenced on Wednesday 6 April with 3 flights a week on Mondays, Wednesday and Saturdays. For the reporting period there have been 24 Jetstar flights.

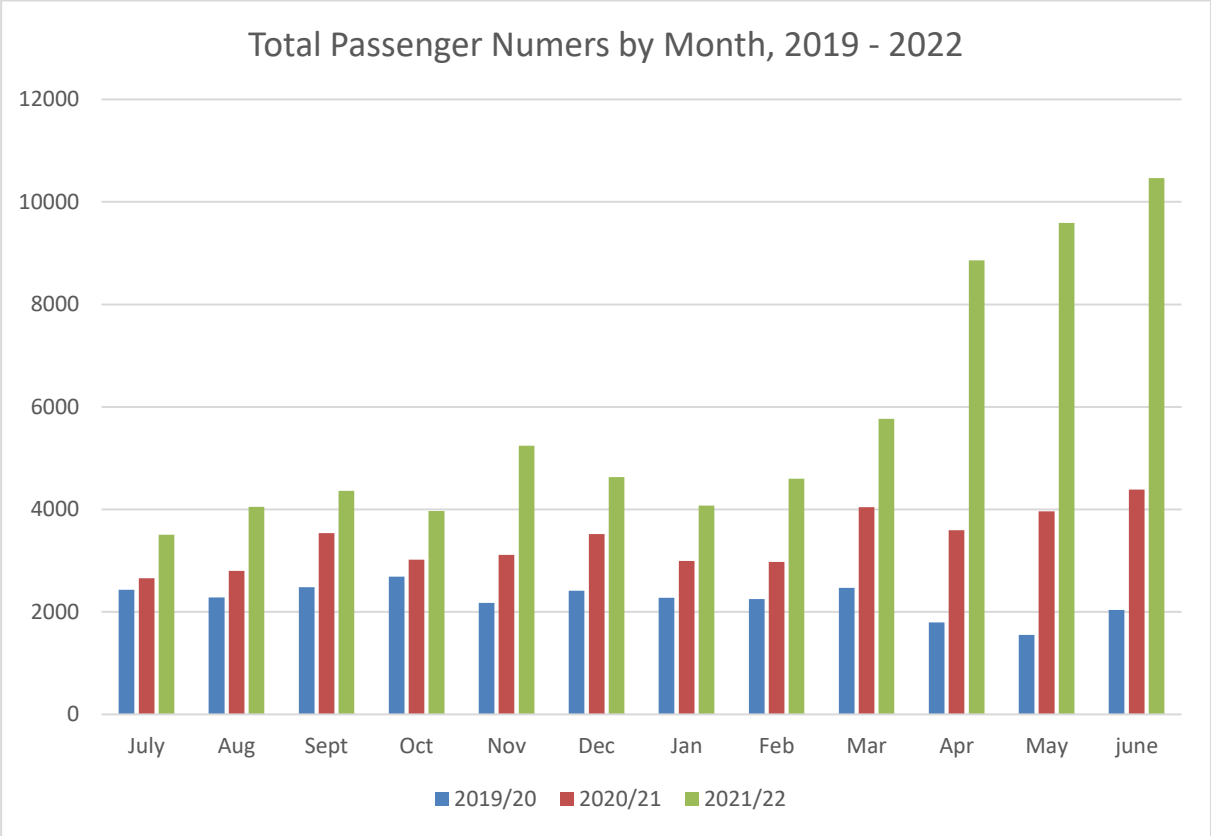
The total number of aircraft landings has increased over all aircraft categories during the period 1 January 2022 through to 31 April 2022 with some monthly variations mainly due to light and general aviation traffic. The total aircraft landings during the period from January 2022 – April 2022 was 5,026 compared to 3,606 for the same period in 2021.



Passenger Numbers

Passenger numbers have increased by 50% (32,896) for the reporting period compared to same period for 2020/21 (21,956), representing an increase of over 200% from 2019/20 (10,346). The total number of passengers passing through the BMRA for 2021/2022 to the end of May was 58,657.

The increase in passenger numbers can be attributed to the growth in FIFO passenger numbers across all closed charter airlines servicing Rio Tinto, BHP and FMG, and the commencement of Jetstar services with a total of 8,168 RPT passengers arriving and departing from the BMRA since 6 April.



Carpark

Currently 1,540 FIFO passengers have been provided swipe cards to access the BMRA car park at a discounted rate. The average daily occupancy for the reporting period was 390 parked patrons per day. The public car park has now reached capacity on a number occasions and Officers have been investigating a temporary car parking solution while an extension to the new public car park is constructed. The original proposal was to fence off approximately 9,000m2 of the southern general aviation apron for FIFO passenger use and line mark with up to 300 car parks, however the costs of installing boom gates and a temporary pay system was unjustified. Officers are now proceeding with an alternative solution whereby an external fenced area to the transport operator's car park will be installed and FIFO parking will be accessed through the transport operators car park using the existing car parking system. A drawing of the proposed area is included below.



Operations

The focus for the reporting period has been on:

- Noise Management Plan and Noise monitoring
    - A review of the Noise Management Plan including public consultation was conducted from November 2021 through to January 2022 with a report submitted to the CEO of the Environmental Protection Authority (EPA) in early April. The compliance branch of the EPA have requested further information and justification as to why the City does not need to submit a Section 45c (request to amend a proposal and/or conditions) under the Environmental Protection Act for the two proposed amendments to the flight training guidelines.
    - Noise monitoring has been completed at two locations (Reinscourt and Kalgup) and a report prepared for the City by a noise consultant. The report included some discrepancies relating to flight schedules and the consultant has been asked to review the data recordings and resubmit the report.
- Commencement of Jetstar RPT services
    - Preparation for the Jetstar flights required a large number of operational readiness activities including equipment servicing and maintenance, a revised Transport Security Program (TSP) submission, mobilisation of the security screening team and landside activities such as wayfinding signage, car parking and provision of information for the public to be completed.

- The first flights highlighted some 'teething' problems and operational limitations which have impacted the turn-around times. The following key issues were identified;
  - The sterile departure lounge is at capacity for A320 operations and after seeking a number of quotes for demountables, a tender will be issued in mid-June for the supply and installation of three demountables; the departure/sterile lounge expanded area, an office/training room and ablution demountable.
  - An additional check-in injector belt is required and an order is ready to be placed;
  - The checked baggage system (CBS) baggage conveyor belt design was susceptible to blockages and alarms and improvements have been made and the CBS x-ray software settings have been reviewed;
  - Increased ground handling equipment storage areas have been quoted and waiting for contractors to complete the works;
  - Wayfinding and directional signage which is now in place;
- Officers have submitted a request to the State Government to fund the above mentioned items, including carpark expansion

- A request for tender (RFT) is currently being advertised to expand the car park which closes on 28 June 2022;
- The Department of Home Affairs have completed two site inspections, the first a scheduled audit of the TSP and security screening processes, and the second a unscheduled 'systems test' at the BMRA passenger screening point using part of a firearm as the test weapon. The City is yet to receive the formal reports for either site inspection.
- Regional Airport Program Funding projects (RAP) - Federal Government programs
  - RFDS relocation project – further consultation with the Royal Flying Doctors Service (RFDS) has resulted in a request to change the location of the new RFDS patient transfer facility to the General Aviation precinct. Officers have requested a variation to the funding agreement to defer the final delivery milestones into the 2022/23 financial year. The grant funding allocation is for $188,665 however with price escalations since the grant application submission the project is expected to cost in the region of $280k. The City will be required to fund this shortfall, however it can be funded through the Airport Infrastructure Renewal Reserve as part of the 2022/23 budget.
  - Central apron expansion project - Officers have been negotiating with the preferred tenderer however the works have not been awarded as yet. Officers are requesting a variation to the funding agreement at this time.
- Airside and landside mowing programs;
- Runway and taxiway line marking program.

Following endorsement by the Council (C2205/098) on 11 May 2022, the position of an Aviation Business Development Officer is being advertising and closes on 20 June. The City is also advertising for a casual Airport Reporting and Maintenance Officers to provide support to the team given the significant and rapid growth in FIFO closed charter and commencement of RPT services which now extend over six days a week (Monday – Saturday).

OFFICER COMMENT

With the end of the 2021/22 financial year approaching, the BMRA has seen significant growth over the past eleven months in aircraft and passenger activity. Officers are estimating that the BMRA will have had over 11,000 aircraft movements in 2021/22 and in the region of 64,000 passengers through the terminal.

Officers will continue to progress the delivery of the operational improvements listed above and will also focus on the following in 2022/23;

- An RFT was advertised for the supply and construction of three general aviation hangars. The RFT submissions indicated that the price escalation in materials and services meant that only two hangars could be constructed for the available budget. Officers have delayed awarding the tender to construct the hangars and have been investigating the design to see if there are cost efficiencies that can be achieved. A new RFT will be issued in the new financial year.
- The procurement of an Airport inspection, maintenance and reporting tablet/online system to facilitate accurate and real time reporting, recording and reporting of regulatory requirements, recording and workflow of maintenance and capital items; and processes such as online inductions and applications.
- Regional Airports Development Scheme (RADS) - Department of Transport (DoT)
    - Financial and Asset Management Framework. The completion of the framework is a new requirement by DoT for airports when applying for future RADS grants. The framework will also provide the City with key tools in the management of airport assets and provide improved financial management and modelling capabilities.
- A new Airport Master Plan will be delivered with a focus on business and commercial development to replace the existing BMRA Master Plan (2016-36) which was developed with a strong focus on infrastructure and for which the majority has now been achieved.
- A review of the BMRA Wildlife and Hazard Management Plan is required as regulatory requirement under CASA MOS Part 139.
- An external review /audit of the BMRA Transport Security Program is required as regulatory requirement under the Aviation Transport Security Regulations.
- Business development strategy and implementation plan to guide the marketing and development of commercial opportunities at and relating to the BMRA, including the attraction of new domestic routes and planning for future international operations.

Statutory Environment

The BMRA operates in accordance with the following:

- Aviation Transport Security Act 2004
- Aviation Transport Security Regulations 2005
- CASA part 139 Manual of Standards (Aerodromes)
- City of Busselton Transport Security Plan
- Ministerial Statement 1088
- City policies and procedures

Relevant Plans and Policies

The officer recommendation aligns to the following adopted plans:

- BMRA Master Plan (2016-2036)
- The BMRA operates under the Busselton Margaret River Airport Noise Management Plan 2019

Financial Implications

Revenue

Actual year-to-date (YTD) revenue for the reporting period is $2,215,989.14 compared to the YTD budget of $2,337,750, noting that security screening revenue has not been realised due to the delay in the Jetstar flights. Excluding the security screening revenue, YTD actual budget ($2,215,989.14) is tracking higher than the YTD budget ($1,715,759) with the key revenue areas contributing towards this being airport landing fees, sundry income and car parking income.

Expenditure

Actual YTD expenditure for the reporting period is $765,473.56 (including commitments) compared to the YTD budget of $1,054,701, not including the airline attraction program which has not been expended due to the delay in the Jetstar flights, and depreciation. Lower expenditure for the reporting period can mainly be attributed to the lower expenditure costs in security screening services of YTD budget $360,371 compared to actual budget of $96,584

Stakeholder Consultation

Consultation has been occurring on a regular basis with Department of Transport, Government agencies, airport stakeholders, Department of Home Affairs, Aviation Marine Security (AMS), Civil Aviation Safety Authority (CASA), Air Services Australia, Virgin Australia Regional Airline, Qantas Group, the Busselton Aero Club, Albany, Esperance, Geraldton Airports and Australian Airports Association, concerning many topics and issues relating to the Airport.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place.

No risks of a medium or greater level have been identified.

Options

The Airport Advisory Committee may choose not to receive and note the Airport Operations Report.

CONCLUSION

Officers continue to strive to provide a high level of customer service at the BMRA, while ensuring the airport is compliant, safe and security is maintained throughout. The commencement of Jetstar RPT services has identified a number of operational actions and infrastructure investment requirements.

The focus for the new financial year will be to prepare a new BMRA Master Plan, achieving operational efficiencies and business and commercial development initiatives have been deferred to date.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

Not applicable.

12.2 Policy and Legislation Committee - 22/6/2022 - PROPOSED AMENDMENTS TO THE CONSOLIDATED PARKING SCHEME (CPS)

STRATEGIC THEME	LIFESTYLE - A place that is relaxed, safe and friendly with services and facilities that support healthy lifestyles and wellbeing
STRATEGIC PRIORITY	2.10 Provide local road networks that allow for the safe movement of people through the District.
SUBJECT INDEX	Consolidated Parking Scheme
BUSINESS UNIT	Environmental Services
REPORTING OFFICER	Ranger & Emergency Services Coordinator - Ian McDowell
AUTHORISING OFFICER	Director, Planning and Development Services - Paul Needham
NATURE OF DECISION	Executive: Substantial direction setting, including adopting budgets, strategies, plans and policies (excluding local planning policies); funding, donations and sponsorships; reviewing committee recommendations
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A CPS Amendment Queen Street Attachment B CPS Amendment Castle Rock Road 1 Attachment C CPS Amendment Castle Rock Road 2 Attachment D CPS Amendment Castle Rock Road 3 Attachment E CPS Amendment Smiths Beach SLS Attachment F CPS Amendment Barnard Park West Attachment G CPS Amendment Old Tennis Club Attachment H CPS Amendment Smiths Beach Road Congestion Attachment I CPS Amendment Smiths Beach Road No Stopping Attachment J CPS Amendment Smiths Beach Road No Stopping (inclusive of Committee Amendments)

This item was considered by the Policy and Legislation Committee at its meeting on 22/6/2022, the recommendations from which have been included in this report.

COMMITTEE RECOMMENDATION

That Council, pursuant to clause 2.1 of the City of Busselton Parking Local Law 2020, approves the following amendments to the Consolidated Parking Scheme:

1. **Designation of two parking bays in Queen Street outside St Mary's Church, as shown in Attachment A, as "No Parking, 9am to 5pm Mon to Fri, Hearses Excepted";**
2. **Designation of both sides of Castle Rock Road in Meelup Regional Park, as shown in Attachments B, C and D, as "No Parking, Road or Verge";**
3. **Designation of an area close to the beach access gate to Smiths Beach, as shown in Attachment E, as "No Parking, 7am to 12pm Sun, Oct to Apr, Surf Life Saving Vehicles Excepted";**
4. **Designation of one parking bay in the Barnard Park West western car park, as shown in Attachment F, as "No Parking, 6am to 6pm Mon to Fri, Authorised Vehicles Excepted"; and**
5. **Designation of the following special purpose parking bays in the Old Tennis Club car park, as shown in Attachment G, as follows:**
   - **(a) five new disabled parking bays located within the car park;**
   - **(b) two loading zones on the northern side of Foreshore Parade; and**
   - **(c) one bus zone on the northern side of Foreshore Parade.**
6. **Amending the designation of both sides of Smiths Beach Road, as shown in Attachment J, inclusive of the Committee Amendments, removing "*No Stopping*" on Eastern side, and**

amending Western side to "*No Stopping, Road or Verge".*

Reasons: The Committee recommended to allow parking on the eastern side of Smiths Beach Road as per Attachment J to alleviate access issues on a trial basis for the 2022/2023 summer season.

OFFICER RECOMMENDATION

That Council, pursuant to clause 2.1 of the City of Busselton Parking Local Law 2020, approves the following amendments to the Consolidated Parking Scheme:

1. Designation of two parking bays in Queen Street outside St Mary's Church, as shown in Attachment A, as "*No Parking, 9am to 5pm Mon to Fri, Hearses Excepted*";
2. Designation of both sides of Castle Rock Road in Meelup Regional Park, as shown in Attachments B, C and D, as "*No Parking, Road or Verge*";
3. Designation of an area close to the beach access gate to Smiths Beach, as shown in Attachment E, as "*No Parking, 7am to 12pm Sun, Oct to Apr, Surf Life Saving Vehicles Excepted*";
4. Designation of one parking bay in the Barnard Park West western car park, as shown in Attachment F, as "*No Parking, 6am to 6pm Mon to Fri, Authorised Vehicles Excepted*"; and
5. Designation of the following special purpose parking bays in the Old Tennis Club car park, as shown in Attachment G, as follows:
   (a) five new disabled parking bays located within the car park;
   (b) two loading zones on the northern side of Foreshore Parade; and
   (c) one bus zone on the northern side of Foreshore Parade.
6. Amending the designation of both sides of Smiths Beach Road, as shown in Attachment I, from "*No Stopping*" to "*No Stopping, Road or Verge*".

EXECUTIVE SUMMARY

This reports presents a number of proposed changes to the Consolidated Parking Scheme (CPS) pursuant to Clause 2.1 of the City of Busselton Parking Local Law 2020.

BACKGROUND

The CPS is an administrative document and series of maps that detail car parking restrictions across the local government district. Restrictions include timed parking zones, no parking/no stopping zones, and special purpose parking zones including disabled parking bays, loading zones, taxi zones, and bus zones. The current version of the CPS was endorsed by the Council in February 2018 (CC1802/21) however, there have been some minor amendments to the CPS since that time.

The City of Busselton Parking Local Law was last reviewed in 2020. Under the provisions of the previous version (2010) of the Parking Local Law, the authority under clause 2.1 to determine parking stalls, parking stations and parking areas, approving amendments to the CPS, was delegated to the City's Chief Executive Officer.

Under this delegation amendments to the CPS did not occur without first consulting with Councillors. Prior to a change being made Councillors were provided written notice of the proposed change, and if they considered it appropriate to do so, could request a report be presented to the Council for their consideration.

During the review of the Parking Local Law in 2020, the Department of Local Government, Sport and Cultural Industries advised that the power to make determinations under clause 2.1 of the Local Law could not be delegated. As a result of this all amendments to the CPS, even those that are relatively minor in nature, require a resolution of the Council before taking effect.

OFFICER COMMENT

No Parking (Hearses Excepted): St Mary's Anglican Church, Queen Street - Attachment A.

St Mary's Anglican Church (the Church) has approached the City requesting that two of the Queen Street parking bays outside the Church be reserved for hearse parking only, Monday to Friday. Prior to the recent roundabout works at the intersection of Queen Street and Peel Terrace, the first of these two bays had the word "reserved" spray painted on the road however, the wording had faded and was not enforceable.

Currently, the two bays in question have no restrictions meaning motorists can park there all day. Anecdotally, employees of nearby businesses in Queen Street utilise these bays all day on a daily basis causing issues for the Church when funeral services are scheduled. In August 2021 for example, a funeral director (parked in the first bay) but was unable to remove the deceased from the hearse as another vehicle parked in the second bay behind the hearse was causing an obstruction.

Officers support the request from the Church and propose to regulate parking in the first two bays outside the Church in Queen Street (as shown in Attachment A) by designating them: "*No Parking, 9am to 5pm Mon – Fri, Hearses Excepted."* The change would not have a significant impact on overall parking availability or supply in the Busselton City Centre.

No Parking Road or Verge: Castle Rock Road - Attachments B, C and D.

The demand for parking at Castle Rock beach during peak holiday periods is high. This creates a hazardous situation when motorists, unable to park in the beach car park, park on both sides of Castle Rock Road. This has the potential to obstruct access for emergency service vehicles attending emergency incidents in the area. There is also an added risk of hot exhausts from vehicles parked over dry vegetation causing a bush fire.

To mitigate the risk on Boxing Day and Australia Day, traditionally two of the busiest days at Meelup Regional Park, from 2016/17 to 2020/21 the City controlled vehicular access to Meelup Regional Park through the implementation of vehicle check points at either end of Meelup Beach Road at an approximate cost of $4,500 per day.

It should be noted that part of the rationale for controlling access to Meelup Regional Park, on Boxing Day and Australia Day, was to discourage large gatherings of people who were at times engaging in anti-social behaviour. This strategy appears to have worked with incidents of anti-social behaviour greatly reduced over the past five years.

As a means of better controlling the hazards associated with vehicles parking along Castle Rock Road on a permanent basis, rather than just Boxing Day and Australia Day each year, this report proposes to prohibit parking along Castle Rock Road (as shown on Attachments B, C and D) by designating it *"No Parking, Road or Verge".*

No Parking (Surf Lifesaving Vehicles Excepted): Smiths Beach - Attachment E.

The Smiths Beach Surf Lifesaving Club (SLC) has approached the City requesting a 24 metre length of the gravel road shoulder, adjacent to the beach vehicle access ramp be reserved for SLC vehicle parking only, from 7am to 12pm on Sundays, October to April each year.

The basis for their request is that a suitable area to park and unload a trailer transported off-road all-terrain vehicle (ATV) for use on the beach is a critical aspect of running Smiths Beach SLC Nipper Program and surf patrols. Equipment trailers from the SLC Club Shed on Canal Rocks Road are towed by normal on-road vehicles to the beach access ramp, where they are unhitched from the vehicles and hitched to the ATV that then tows them onto the beach (3 to 5 trailers are used on any given Sunday during SLS operations). It has been getting increasingly difficult for the SLC to park and unload the ATV due to the high demand for public parking at Smiths Beach during peak holiday periods.

Officers support the request from Smiths Beach SLC and propose to regulate parking on the gravel road shoulder, immediately adjacent to the beach vehicle access ramp by designating it *"No Parking, 7am to 12pm Sun, Oct – April, Surf Life Saving Vehicles Excepted"* (as shown in Attachment E).

No Parking (Authorised Vehicles Excepted): Barnard Park West Western Car Park - Attachment F.

The City's Jetty Maintenance Team has requested that one parking bay in the Barnard Park West western car park be reserved for authorised City vehicles only from 6am to 6pm, Monday to Friday.

Although there is parking available within the jetty maintenance compound, immediately adjacent to the car park, there are times the compound needs to be cleared to allow larger vehicles to enter. Often during peak periods, there are no bays available in the car park, and this hinders jetty maintenance.

This report proposes to regulate parking in one bay, immediately adjacent to the maintenance compound, in the Barnard Park West western car park by designating it *"No Parking, 6am to 6pm Mon – Fri, Authorised Vehicles Excepted"* (as shown in Attachment F).

Special Purpose Parking: Old Tennis Club Car Park - Attachment G.

The Old Tennis Club car park is an all-day parking area bounded by Marine Terrace to the south, Queen Street to the west, Foreshore Parade to the north, and Jetty Way to the east. The car park was constructed in two parts and includes six disabled parking bays. One of the disabled parking bays has already been included in the CPS however, the remaining five have not.

Located on the northern side of Foreshore Parade are two loading zones, and one bus zone which are also not reflected in the CPS.

This report proposes to amend the CPS (as shown in Attachment G) by adding the as constructed five disabled parking bays, two loading zones, and one bus zone to the CPS.

No Parking Road or Verge: Smiths Beach Road (for P&L discussion) - Attachments H and I.

Currently both sides of Smiths Beach Road, from Canal Rocks Road to a point approximately level with the north-east corner of the Smiths Beach Resort, are designated no stopping areas in the CPS. This restriction applies only to the road. During peak holiday periods when the demand for parking is high, motorists often park on the verge in bush areas. Others park with half of their vehicle on the verge and the other half on the road. Some ignore the restrictions altogether and park wholly on the road.

A major issue during those peak periods is the 'follow the leader' affect which occurs when one or two people choose to park contrary to the existing no stopping signs, then others follow in the belief that if "they can do it, so can we". Unfortunately, when this happens it creates a hazardous situation due to traffic and parking congestion as shown at Attachment H.

Concerns regarding this congestion were raised through the City's Bush Fire Advisory Committee (BFAC), on behalf of some Smiths Beach residents by one of the Fire Control Officers of the local Volunteer Bush Fire Brigade. Concerns are that congestion of the type as shown in Attachment H may seriously hamper emergency access and egress for first responders to an incident, or a forced evacuation due to an emergency incident such as a bushfire.

Certainly one of the ways to manage this congestion is for the City to have zero tolerance to illegal parking along Smiths Beach Road. That would most likely only be a temporary fix, though, as the City's ability to rigorously enforce these restrictions on a regular basis is limited (Smiths Beach is only one area within the City where parking demand is high during peak holiday periods). It may also harm the reputation of the City as a tourist destination if we start to regularly issue parking infringements at this or any other location for which there is high demand for parking.

A solution to this problem may be to amend the CPS to change the restriction from "No Stopping" to "No Stopping, Road or Verge". This would act as a deterrent and provide greater clarity to those people who choose to straddle the road and verge when parking along Smiths Beach Road, apparently with the belief that because part of their vehicle is not on the road they are not committing an offence. Another major concern associated with people wholly or partially parking on the verge is the risk of a bushfire starting when a hot exhaust comes into contact with dry vegetation.

Should the CPS be amended as recommend the City's initial approach would be one of education, including written cautions for people who choose to ignore the restrictions, followed by a period of stronger enforcement whereby infringements would be issued to offenders as a means of changing behaviours.

This report proposes to amend the CPS (as shown in Attachment I) changing the parking designation of Smiths Beach Road from "*No Stopping*" to "*No Stopping, Road or Verge*".
P&L may choose to proceed with this amendment to the CPS as recommended above. Alternatively, due to high community interest in the proposed Smiths Beach Development, P&L may recommend consultation with the affected community prior to considering this proposal.

Statutory Environment

The officer recommendation supports the general function of a local government under the *Local Government Act 1995* to provide for the good government of persons in its district.

Pursuant to clause 2.1 of the City of Busselton *Parking Local Law 2020* (the Local Law):

"Determination of parking stalls, parking stations and parking areas

(1) The Council may by resolution constitute, determine or vary:

(a) parking stalls;

(b) parking stations;

(c) parking areas;

(d) no parking areas;

(e) no stopping areas;

(f) permitted time and conditions of parking in parking stalls, parking stations and parking areas which may vary with the locality;

(g) permitted classes of vehicles which may park in parking stalls, parking areas and parking stations;

(h) permitted classes of persons parking stalls, parking stations and parking areas; and

(i) the manner of parking in parking stalls, parking stations and parking areas.

(2) Where the Council makes a determination under subclause (1), the CEO must give local public notice of, and erect signs to give effect to, the determination."

Under the provisions of clause 1.8 of the Local Law:

"For the purpose of this local law, vehicles are divided into classes as follows:

a. buses;

b. commercial vehicles;

c. motorcycles and bicycles;

d. taxis; and

e. all other vehicles."

In the case of the recommendation to regulate parking in the first two parking bays outside St Mary's Anglican Church, a hearse would be included in the classification *"all other vehicles"*.

Relevant Plans and Policies

There are no relevant plans or policies to consider in relation to this matter.

Financial Implications

There are no financial implications associated with the officer recommendation. Costs for the installation of parking signage and/or line marking will be funded using existing operating budgets.

Stakeholder Consultation

The proposal to regulate parking along Castle Rock Road was presented to, and endorsed by the Meelup Regional Park Working Group.

Other than the above, no external stakeholder consultation was required or undertaken in relation to this matter.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place.No risks of a medium or greater level have been identified.

Options

As an alternative to the proposed recommendation the Council could approve with changes all or some of the proposed amendments to the CPS.

CONCLUSION

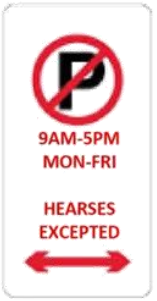
Officers are proposing that the Council approves the recommended amendments to the Consolidated Parking Scheme pursuant to Clause 2.1 of the City of Busselton Parking Local Law 2020.

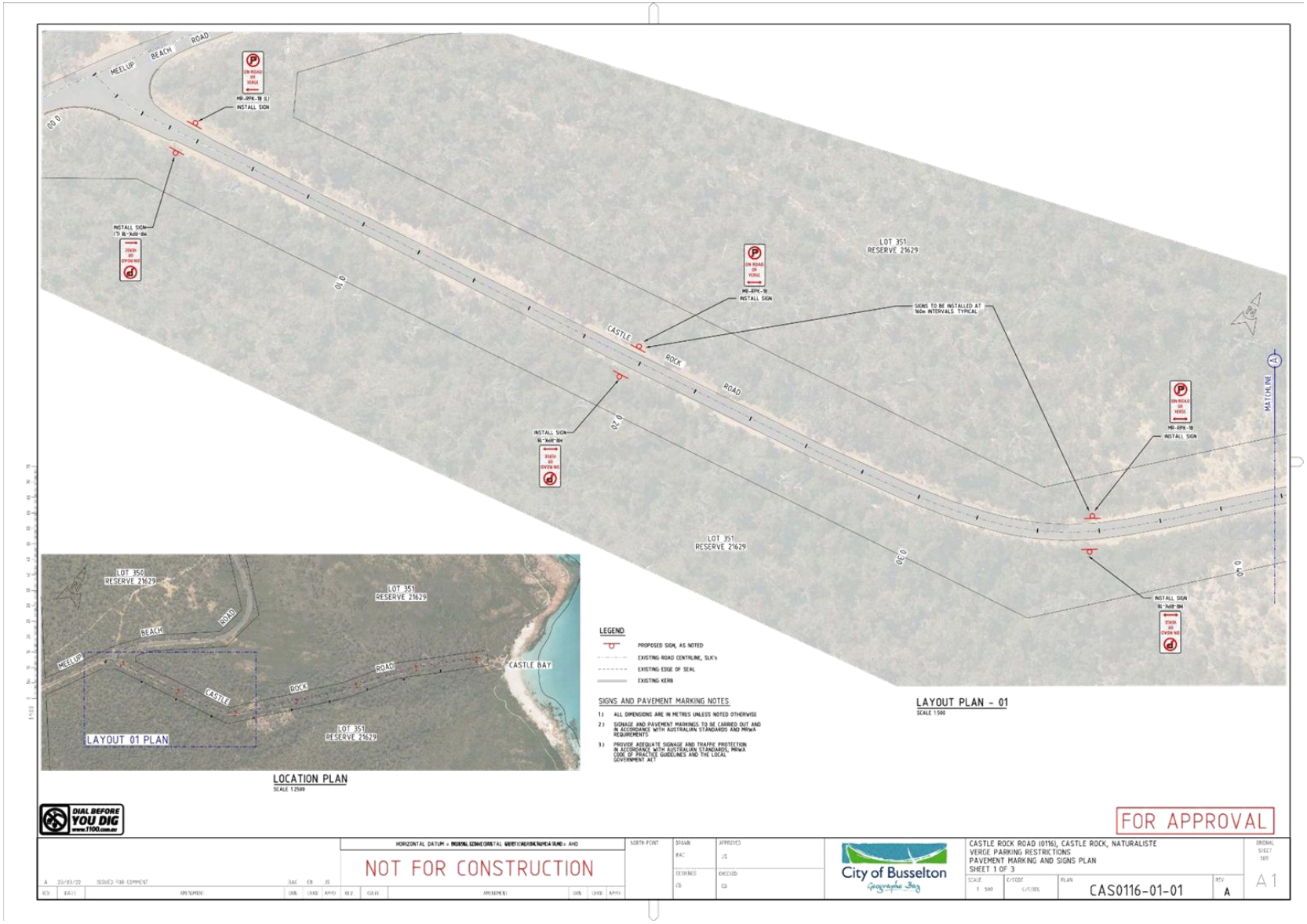
TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

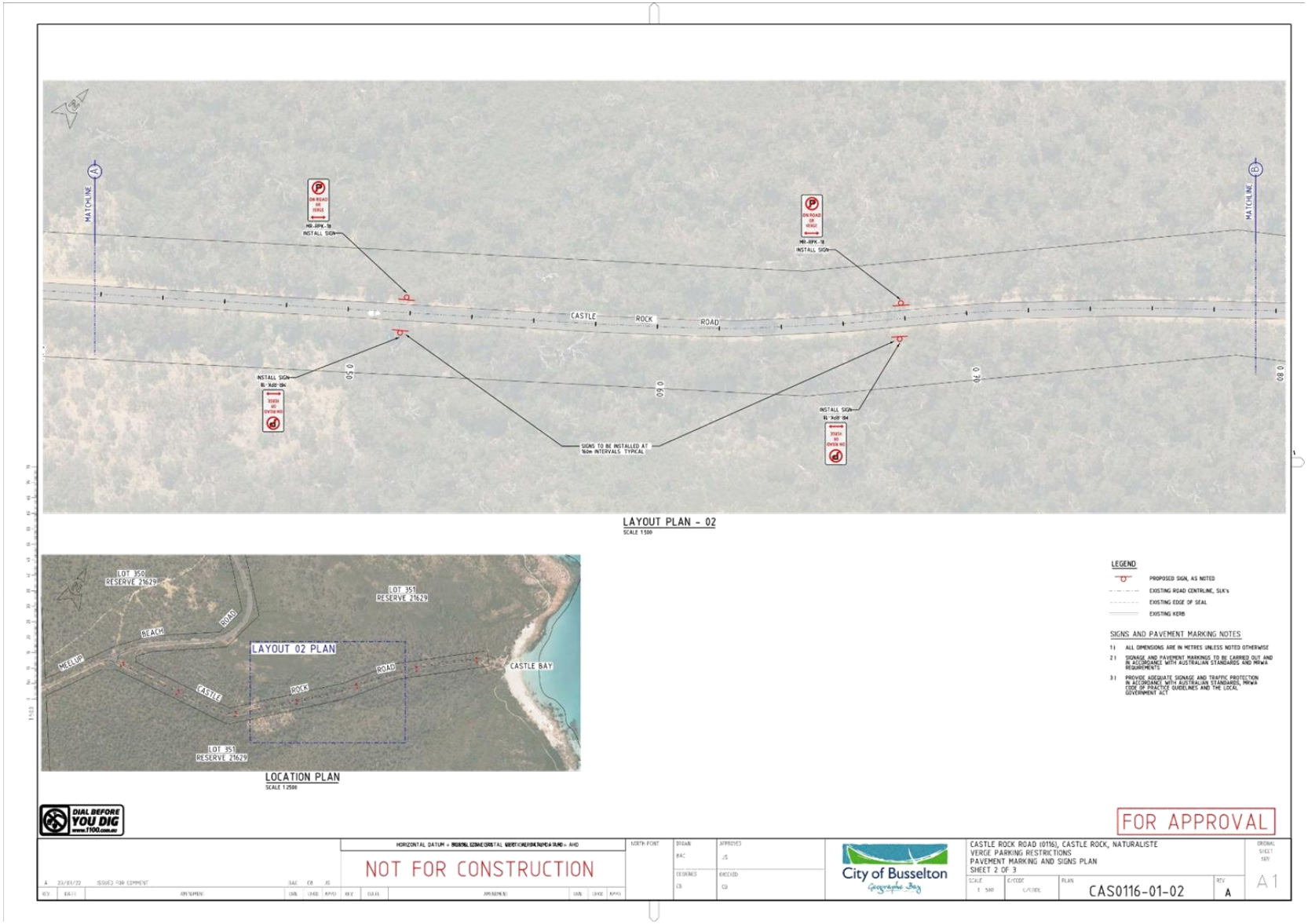
If approved by the Council, public notice of the amendments to the CPS will be given within four weeks. Signage designating the changes will be procured concurrently with the public notice and will be erected as soon as practicable after receipt.

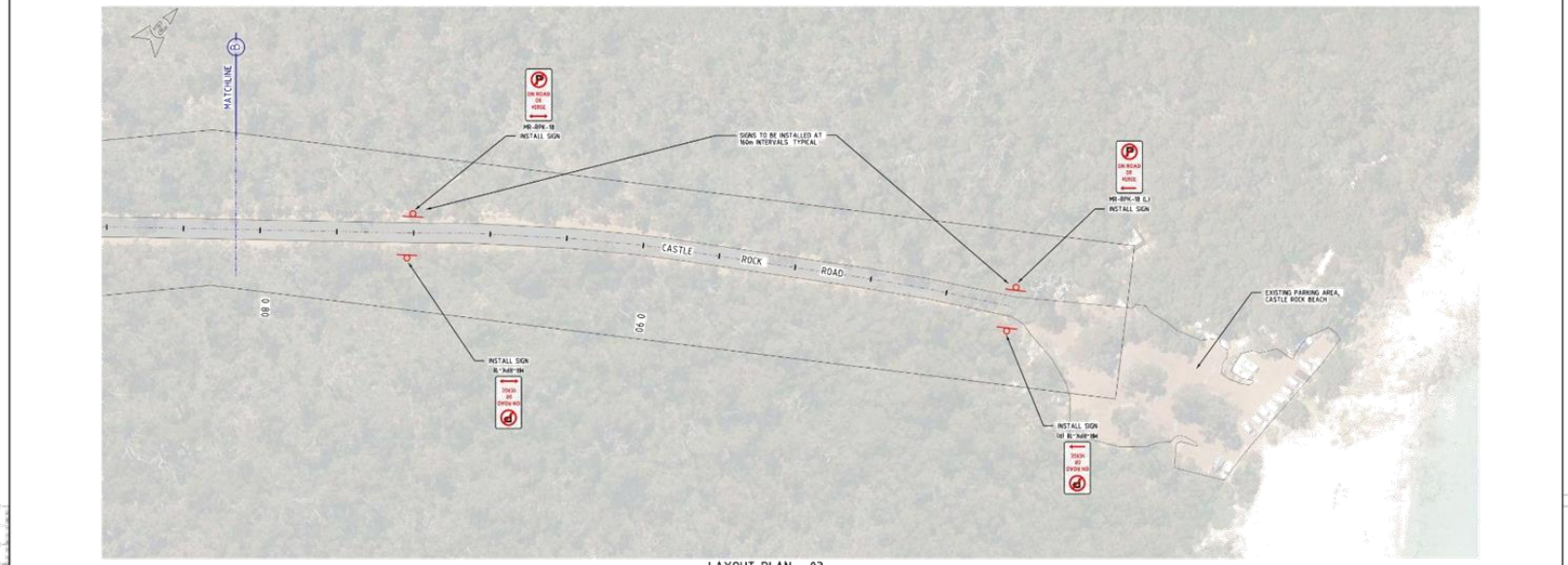
No Parking Hearses Excepted: Queen Street (St Mary's Church)



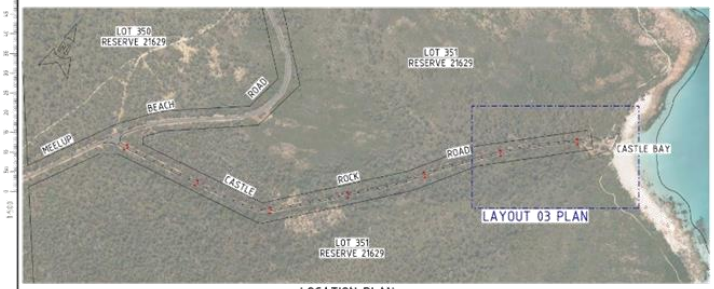



MEELUP BEACH ROAD
CASTLE ROCK ROAD
LOT 351 RESERVE 21629
SIGNS TO BE INSTALLED AT 160m INTERVALS TYPICAL
INSTALL SIGN
MATTHEWS
LAYOUT PLAN - 01
SCALE 1:500
LOT 350 RESERVE 21629
LOT 351 RESERVE 21629
CASTLE BAY
LAYOUT 01 PLAN
LOCATION PLAN
SCALE 1:2500
LEGEND
PROPOSED SIGN, AS NOTED
EXISTING ROAD CENTRELINE, SLK's
EXISTING EDGE OF SEAL
EXISTING KERB
SIGNS AND PAVEMENT MARKING NOTES
1) ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE
2) SIGNAGE AND PAVEMENT MARKINGS TO BE CARRIED OUT AND IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND MRWA REQUIREMENTS
3) PROVIDE ADEQUATE SIGNAGE AND TRAFFIC PROTECTION IN ACCORDANCE WITH AUSTRALIAN STANDARDS, MRWA CODE OF PRACTICE GUIDELINES AND THE LOCAL GOVERNMENT ACT
DIAL BEFORE YOU DIG
FOR APPROVAL
NOT FOR CONSTRUCTION
City of Busselton
CASTLE ROCK ROAD (0116), CASTLE ROCK, NATURALISTE
VERGE PARKING RESTRICTIONS
PAVEMENT MARKING AND SIGNS PLAN
SHEET 1 OF 3
CAS0116-01-01
A
A1


MATCHLINE
MATCHLINE
CASTLE ROCK ROAD
INSTALL SIGN
INSTALL SIGN
INSTALL SIGN
SIGNS TO BE INSTALLED AT 160m INTERVALS TYPICAL
LAYOUT PLAN - 02
SCALE 1:500
LOT 350 RESERVE 21629
LOT 351 RESERVE 21629
BEACH ROAD
MEELUP
CASTLE ROCK ROAD
CASTLE BAY
LAYOUT 02 PLAN
LOT 351 RESERVE 21629
LOCATION PLAN
SCALE 1:2500
LEGEND
PROPOSED SIGN, AS NOTED
EXISTING ROAD CENTRELINE, SLK's
EXISTING EDGE OF SEAL
EXISTING KERB
SIGNS AND PAVEMENT MARKING NOTES
1) ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE
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DIAL BEFORE YOU DIG
FOR APPROVAL
NOT FOR CONSTRUCTION
City of Busselton
CASTLE ROCK ROAD (0116), CASTLE ROCK, NATURALISTE
VERGE PARKING RESTRICTIONS
PAVEMENT MARKING AND SIGNS PLAN
SHEET 2 OF 3
CAS0116-01-02
A
A1



LAYOUT PLAN - 03
SCALE 1:500



LOCATION PLAN
SCALE 1:2500

LEGEND

- PROPOSED SIGN, AS NOTED
- EXISTING ROAD CENTRELINE, SLK's
- EXISTING EDGE OF SEAL
- EXISTING KERB

SIGNS AND PAVEMENT MARKING NOTES:

1) ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE
2) SIGNAGE AND PAVEMENT MARKINGS TO BE CARRIED OUT AND IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND MRWA REQUIREMENTS
3) PROVIDE ADEQUATE SIGNAGE AND TRAFFIC PROTECTION IN ACCORDANCE WITH AUSTRALIAN STANDARDS, MRWA CODE OF PRACTICE GUIDELINES AND THE LOCAL GOVERNMENT ACT

DIAL BEFORE YOU DIG www.1100.com.au

FOR APPROVAL

NOT FOR CONSTRUCTION

City of Busselton Geographe Bay

CASTLE ROCK ROAD (0116), CASTLE ROCK, NATURALISTE
VERGE PARKING RESTRICTIONS
PAVEMENT MARKING AND SIGNS PLAN
SHEET 3 OF 3

CAS0116-01-03 A A1

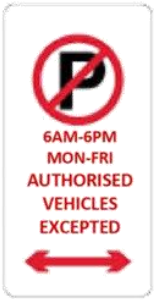
No Parking Surf Life Saving Vehicles Excepted: Smiths Beach



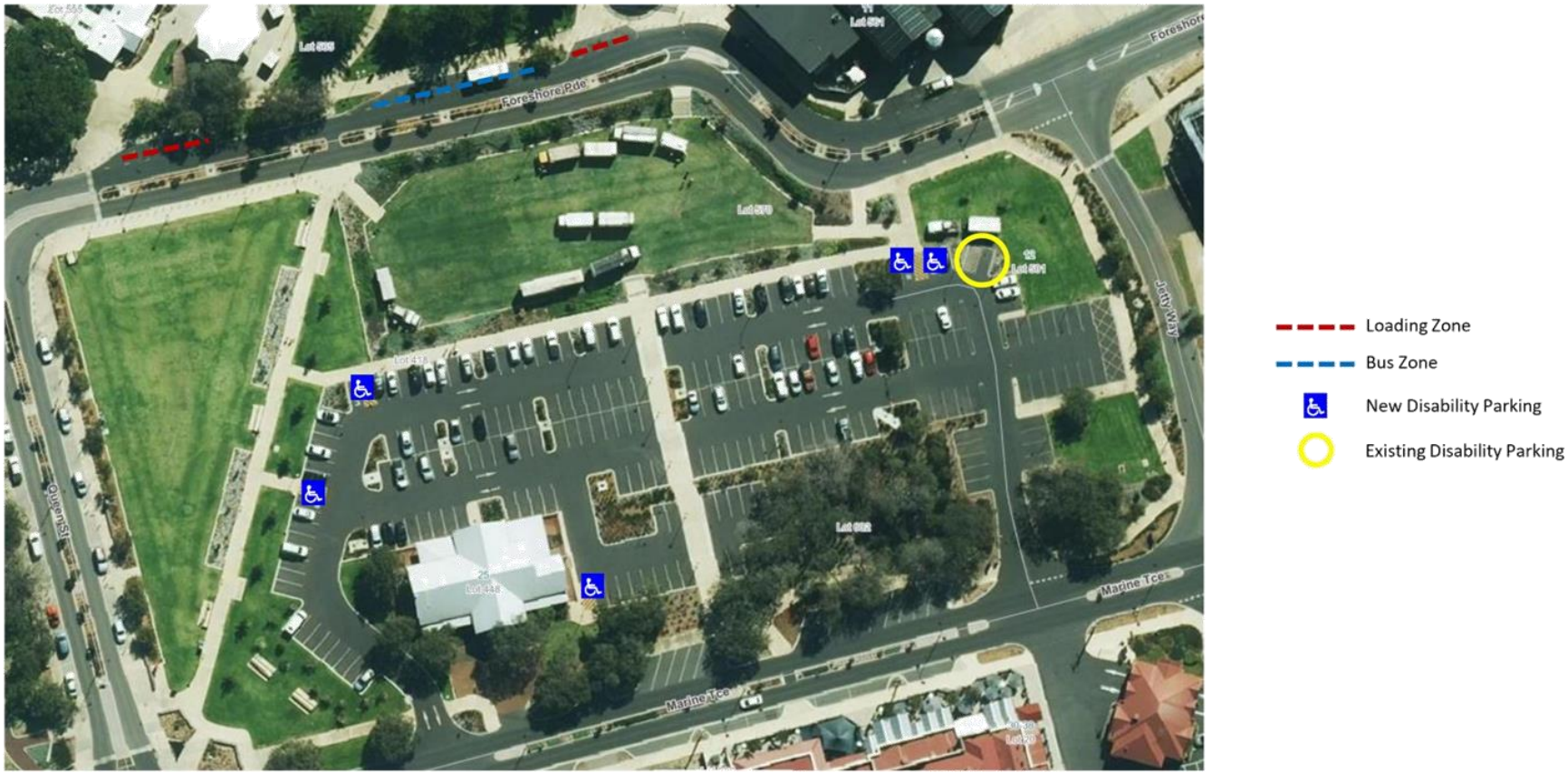


No Parking Authorised Vehicles Excepted: Barnard Park Western Car Park





Special Purpose Parking: Busselton Foreshore (Old Tennis Club Car Park)

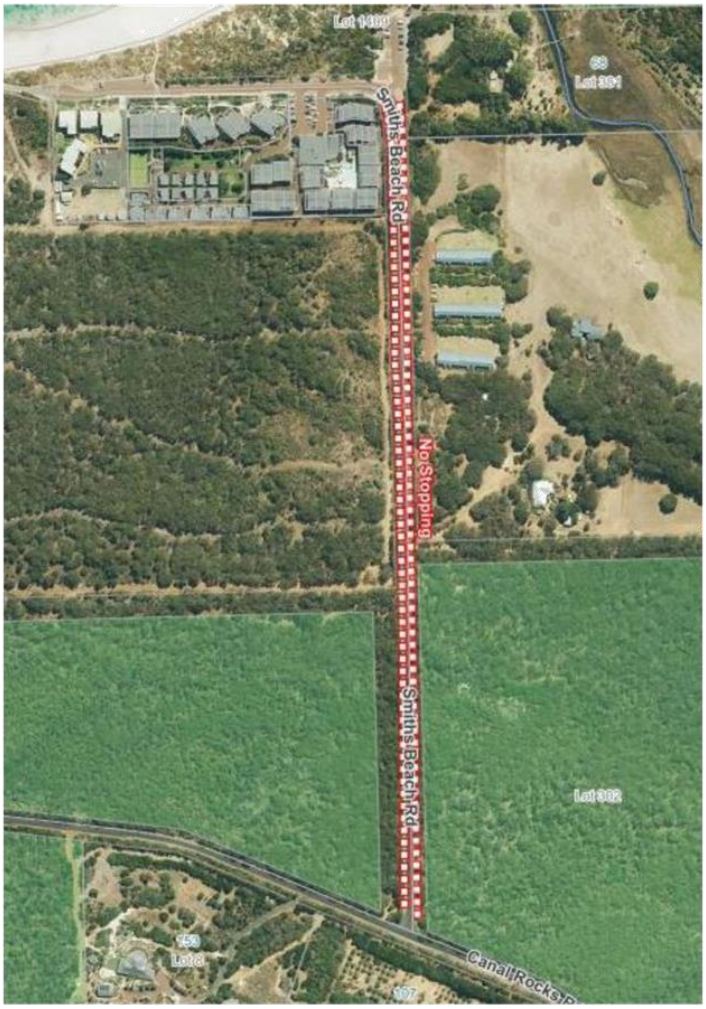


Parking Congestion – Smiths Beach Road

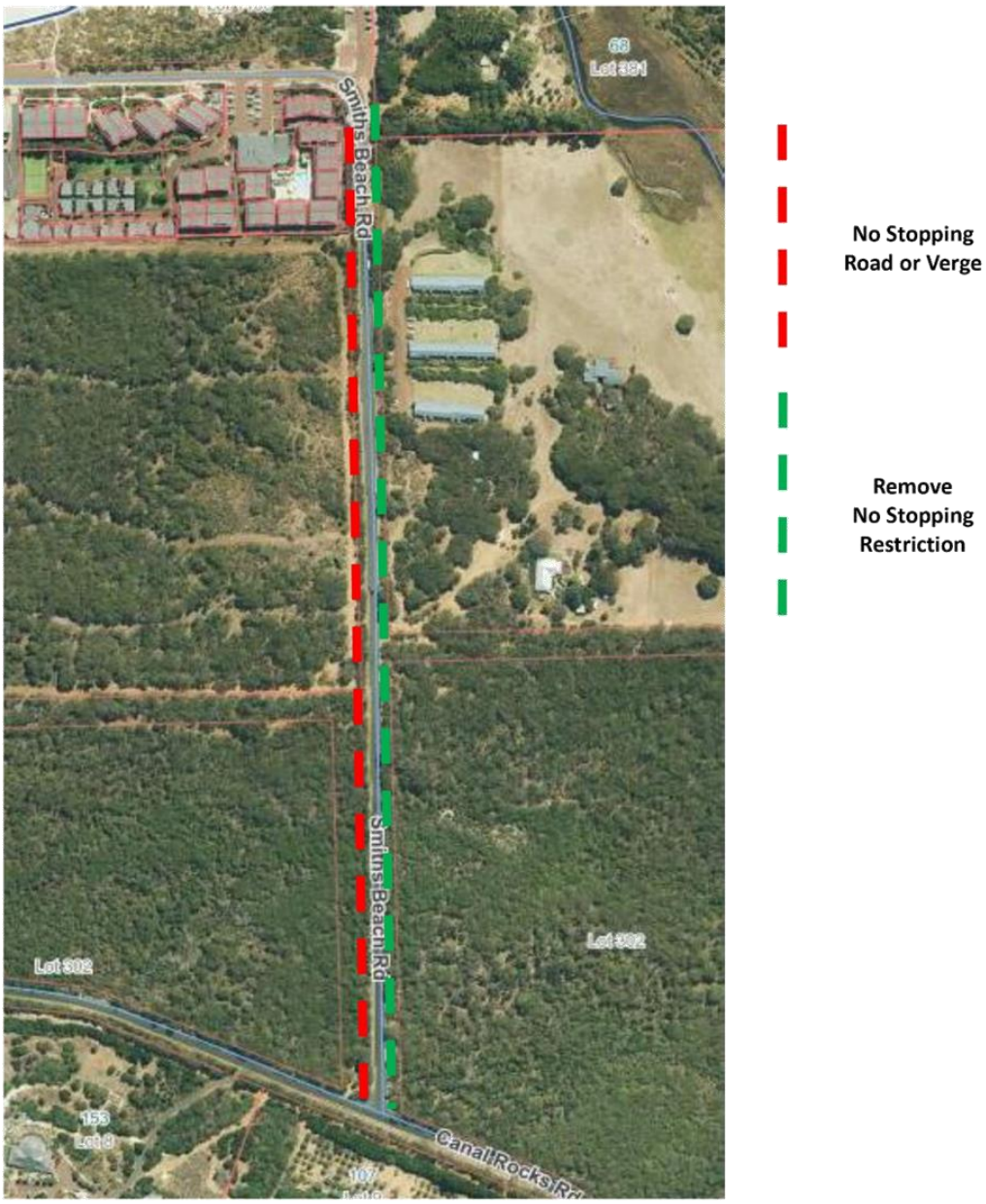




No Stopping Road or Verge: Smiths Beach Road



No Stopping Restrictions: Smiths Beach Road



12.3 Policy and Legislation Committee - 22/6/2022 - DOG EXERCISE AREA - YALLINGUP BEACH NORTH OF THE DAWSON DRIVE ACCESS PATH

STRATEGIC THEME	LIFESTYLE - A place that is relaxed, safe and friendly with services and facilities that support healthy lifestyles and wellbeing
STRATEGIC PRIORITY	2.3 Provide well planned sport and recreation facilities to support healthy and active lifestyles.
SUBJECT INDEX	Animal Management
BUSINESS UNIT	Environmental Services
REPORTING OFFICER	Ranger & Emergency Services Coordinator - Ian McDowell
AUTHORISING OFFICER	Director, Planning and Development Services - Paul Needham
NATURE OF DECISION	Executive: Substantial direction setting, including adopting budgets, strategies, plans and policies (excluding local planning policies); funding, donations and sponsorships; reviewing committee recommendations
VOTING REQUIREMENT	Absolute Majority
ATTACHMENTS	Attachment A Yallingup Beach - Dog Exercise Area North of Dawson Drive

This item was considered by the Policy and Legislation Committee at its meeting on 22/6/2022, the recommendations from which have been included in this report.

COMMITTEE RECOMMENDATION

That the Council:

1. **After the giving of 28 days public notice, pursuant to section 31(3C) of the Dog Act 1976, resolves to adopt and implement, pursuant to section 31(3A) of the Dog Act 1976, a one kilometre length of Yallingup Beach north of the Dawson Drive access path , bounded by Leeuwin Naturaliste National Park in the east, Ngari capes marine park in the west as a dog exercise area; and**

2. **Resolves to adopt the following with regard to the specified area in recommendation 1:**

   (a) Beach areas, including the beach only (i.e. from the limit of the ephemeral vegetation or the toe of the seawall to the low water marks only, and not including vegetated foreshore areas, beach access paths or car parks) to be categorised as 'Dog Exercise Area' with that area being defined as follows:

      (i) Pursuant to s.31(3A) of the Dog Act 1976 dogs are permitted, including off-leash, at all times except when approved organised events are taking place, wherein dogs are to be prohibited (except assistance dogs as defined by s.8 of the Dog Act 1976) unless specifically permitted by the City.

Reasons: The Committee requested an amendment to part 2(a)(1) of the recommendation to provide clarity and alignment to the *Dog Act 1976*.

OFFICER RECOMMENDATION

That the Council:

1. After the giving of 28 days public notice, pursuant to section 31(3C) of the Dog Act 1976, resolves to adopt and implement, pursuant to section 31(3A) of the Dog Act 1976, a one kilometre length of Yallingup Beach north of the Dawson Drive access path, bounded by Leeuwin Naturaliste National Park in the east, Ngari capes marine park in the west as a dog exercise area; and

2. Resolves to adopt the following with regard to the specified area in recommendation 1:

   (a) Beach areas, including the beach only (i.e. from the limit of the ephemeral vegetation or the toe of the seawall to the low water marks only, and not including vegetated foreshore areas, beach access paths or car parks) to be categorised as 'Dog Exercise Area' with that area being defined as follows:

      (i) Pursuant to s.31(3A) of the Dog Act 1976 and means that dogs are permitted, including off-leash, at all times except when approved organised events are taking place, wherein dogs are to be prohibited (except assistance dogs as defined by s.8 of the Dog Act 1976) unless specifically permitted by the City.

EXECUTIVE SUMMARY

The Department of Biodiversity, Conservation and Attractions (DBCA) Parks and Wildlife Services has approached the City to request Yallingup Beach north of the Dawson Drive access path (as identified in green within Attachment A), be designated as a dog exercise area under the provisions of the *Dog Act 1976* (the Act).

This section of beach has been informally used as a dog exercise area (DEA) for some years. This report seeks to formalise this practice, and in doing so, enable the City's Rangers to enforce relevant provisions of the Act if and when required.

BACKGROUND

The City's existing dog management controls were established through a series of Council decisions between September 2014 and October 2016. During the process of establishing these controls, there was extensive consultation with the community and community groups.

As a result of this, Yallingup Beach south of the Dawson Drive access path was declared a dog prohibited area (an area where dogs are prohibited at all times). Consideration was given to declaring the proposed DEA north of Dawson Drive as a DEA, however as the land was understood to be within the marine park this did not eventuate.

In January this year, officers from DBCA approached the City requesting that we assume dog management responsibility for the northern section of the beach by designating it a DEA under the provisions of the Act.

The request was triggered from negative public feedback from beach users to DBCA, impacted by nuisance behaviour of dogs left unattended by owners in the water. As the City already has a dog prohibited area designated on the southern section of the beach, DBCA approached the City to request assistance in dog management controls for the proposed area in the north. Formalisation of this location as a DEA will mean all beach users are aware that dogs off leash are permitted on the northern section of the beach.

OFFICER COMMENT

This report proposes to establish a one kilometre length of Yallingup Beach, north of the Dawson Drive access path as a DEA (the green shaded area of Attachment A).

Yallingup Beach south of the Dawson Drive access path (the red shaded area of Attachment A) will remain a dog prohibited area as will the car park, known as the Rabbit's car park and including all beach access paths, within the Leeuwin Naturaliste National Park. This means the only access path to the dog beach will be from the Dawson Drive access path.

The responsibility for enforcing the dog prohibition within the National Park will remain with Parks and Wildlife Services.

If approved by the Council, this area would be the only dog exercise beach on the Western Cape. Although a portion of Smiths Beach is designated a seasonal DEA, the seasonal restrictions means that dogs are prohibited on the beach from 9am to 5pm, December to February inclusive.

Designating the section of the beach north of Dawson Drive as a dog exercise area is the preferred option of officers. This would allow dog owners to continue to exercise their dogs off-leash. Whilst the City's ability to patrol this or any other beach within the district would not be increased as a result of this designation, it would allow the City to engage with and educate dog owners and taking stronger enforcement action if necessary.

It should be noted that without some type of dog control designation under the provisions of the Act, the UCL portion of the beach would default to an area where dogs may be exercised but only on-leash. Therefore, as there has been no formal dog control designation on that part of the beach in the past, it has not been an area patrolled by the City. From a practical enforcement perspective, any formal reduction in what has become custom and practice for many years (i.e. dogs being exercised off-leash) would be problematic and likely to create an unrealistic expectation that those controls would be rigorously enforced and/or complied with. If dogs were prohibited, or required to be on-leash it would create an influx of complaints to the City or DBCA whenever non-compliance is observed by those who oppose dogs on the beach.

Statutory Environment

The management and control of dogs in public areas is prescribed under the following sections of the *Dog Act 1976*:

> *Section 31(3A):*
>
> *A local government may, by absolute majority as defined in the Local Government Act 1995 section 1.4, specify a public place, or a class of public place, that is under the care, control or management of the local government to be a dog exercise area.*
>
> *Section 31(3C)(b):*
>
> *At least 28 days before specifying a place to be a dog exercise area under subsection (3A) a local government must give local public notice as defined in the Local Government Act 1995 section 1.7 of its intention to so specify.*

Assistance dogs, and persons entitled to be accompanied by assistance dogs, are defined in section 8 of the *Dog Act 1976*. Under the provisions of section 8(2) a person mentioned in subsection (3):

> a. *is entitled to be accompanied by an assistance dog, in any building or place open to or used by the public, for any purpose, or in any public transport: and*
>
> b. *is not guilty of an offence by reason only that he or she takes that dog into or permits that dog to enter any building or place open to or used by the public or on any public transport.*

Relevant Plans and Policies

There are no relevant plans or policies to consider in relation to this matter.

Financial Implications

There are no financial implications associated with the officer recommendation.

Stakeholder Consultation

Extensive consultation has been undertaken by City officers to assess the feasibility of determination of the proposed area as a DEA. The process has been triggered from a request from DBCA, followed by on site meetings and extensive email correspondence between the City and DBCA officers.

Property owners in Yallingup townsite were invited in writing to comment on the proposal to specify Yallingup Beach north of Dawson Drive access path, a dog exercise area.

The Yallingup Residents Association (YRA), and Yallingup Land Conservation District Committee (LCDC) were also invited to comment and whilst both acknowledged this is an important community issue, both committees chose not to provide comment on behalf of their members. Instead they recommended their members respond on an individual and independent basis.

Of the 206 property owners who were invited to comment, 41 responded. Six of the respondents oppose the proposal, and 34 support it. It was unclear whether the remaining respondent opposed or supported the proposal and when requested to clarify, they did not respond further.

The views expressed by respondents were at either end of the spectrum with those in opposition "*strongly opposed*" to it, and many of those in support "*strongly supporting*" it.

It appeared that from some comments provided, there was a perception the area is already a designated dog exercise area. Some supporters welcomed the social aspects of formalising the designation, and noted the lack of dog exercise beaches on the Western Cape.

Reasons for opposing the proposal include:

1. *Some dogs are left unrestrained (unattended) on the beach while their owners are swimming or surfing in the water;*
2. *Unattended dogs are:*
    a. *jumping up on children and the elderly walking on the beach;*
    b. *running on and through the personal belongings of other beach users;*
    c. *aggressive towards other beach users and dogs;*
    d. *toileting on the beach with absent owners not cleaning up after their dog;*
3. *The proposed area includes a portion of the beach patrolled by Surf Life Saving WA (SLSWA) during the summer months;*
4. *Yallingup beach is an iconic beach, no other iconic beaches throughout Australia allow dogs; and*
5. *The beach is part of the Leeuwin National Park and as such dogs are prohibited under the provisions of the Conservation and Land Management Act 1984.*

Due to the amount of community interest in the management of dogs at Yallingup Beach, officers will advise all respondents to the consultation process of the Committee's recommendation and when it will be put to Council for consideration.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place.No risks of a medium or greater level have been identified.

Options

As an alternative to the proposed recommendation the Council could:

1. Resolve to maintain the status-quo and not to make any formal dog management controls at Yallingup Beach north of the Dawson Drive access path.
2. Resolve to establish dog management controls at Yallingup Beach north of the Dawson Drive access, other than that recommended. That could be, pursuant to section 31(2B) of the *Dog Act 1976*, to specify the area:
    a. an area where dogs are prohibited at all times; or
    b. an area where dogs are prohibited at specified times (a seasonal dog exercise area).

CONCLUSION

Specifying Yallingup Beach north of the Dawson Drive access path as a dog exercise area will formalise what has been occurring informally in that area for many years. The City has consulted with property owners in Yallingup townsite, the Yallingup Residents' Association, and the Yallingup Land Conservation District Committee (LCDC). The results of the consultation indicate respondents are overwhelmingly in support of specifying this part of the beach a dog exercise area.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

Should the Council endorse the officer recommendation to specify Yallingup Beach north of the Dawson Drive access path, officers will arrange for the public notice requirements of the *Dog Act 1976* to be actioned within two weeks.

The changes will then come into force 28 days after the giving of the public notice, at which time arrangements will be made to erect the necessary signage at that location to indicate it is a dog exercise area.


Proposed Off Leash Dog Exercise Area
Existing Area where Dogs are Prohibited
OCEAN
Yallingup
YALLINGUP
Dawson Dr
Elsegood Av
Hammond Rd
Wardanup Cr
Valley Rd

12.4 Policy and Legislation Committee - 22/6/2022 - COUNCIL POLICY REVIEW: VERGE AND PUBLIC OPEN SPACE IMPROVEMENT

STRATEGIC THEME	LEADERSHIP - A Council that connects with the community and is accountable in its decision making.
STRATEGIC PRIORITY	4.2 Deliver governance systems that facilitate open, ethical and transparent decision making.
SUBJECT INDEX	Council Policies
BUSINESS UNIT	Governance Services
REPORTING OFFICER	Governance Coordinator - Emma Heys
AUTHORISING OFFICER	Director Finance and Corporate Services - Tony Nottle
NATURE OF DECISION	Executive: Substantial direction setting, including adopting budgets, strategies, plans and policies (excluding local planning policies); funding, donations and sponsorships; reviewing committee recommendations
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Council policy: 185/3 Verge and Public Open Space Improvement - Subdivision (Current) Attachment B Council policy: Verge and Public Open Space Improvement - Subdivisions (Proposed)

This item was considered by the Policy and Legislation Committee at its meeting on 22/6/2022, the recommendations from which have been included in this report.

COMMITTEE RECOMMENDATION

That Council adopt the amended Council policy: Verge and Public Open Space Improvement – Subdivisions (Attachment B) to replace the current policy (Attachment A).

OFFICER RECOMMENDATION

That Council adopt the amended Council policy: Verge and Public Open Space Improvement – Subdivisions (Attachment B) to replace the current policy (Attachment A).

EXECUTIVE SUMMARY

This report presents an amended Council policy: Verge and Public Open Space Improvement – Subdivisions (the Policy) (Attachment B), with the policy having been reviewed as part of the City's ongoing review of its Council policies. Officers recommend it replaces the current Council policy (Attachment A.)

BACKGROUND

Council policy: Verge and Public Open Space Improvement – Subdivisions was last reviewed 13 December 2017 (Attachment B). The intention of the policy is to establish the City's minimum landscaping standards and to provide guidance around how the City will deal with proposals from a developer to implement within a subdivision a higher standard of landscaping and infrastructure.

Officers have undertaken a review of the Policy as part of the City's ongoing review of Council policies and are proposing a number of amendments to improve the application of the policy.

OFFICER COMMENT

The objective of the Policy is to outline how the City will deal with proposals from developers of subdivisions to construct or apply a higher standard of landscaping and infrastructure to new subdivisions that are to be vest to the City for management.

The City has set out a minimum standard of subdivision landscaping and infrastructure within its Engineering Technical Standards and Specifications (Technical Specifications) and whilst the preference is that this standard is not exceed, it is acknowledged that historically in selected subdivisions a higher standard has been constructed and provided for through application of a Specified Area Rate (SAR), and that there may be instances where the Council would consider this in the future.

The information required for developing landscaped areas is contained within the Technical Specifications, Section 9(a) and 9(g) – Landscape;

- Section 9a - Landscaping General
- Section 9b - Landscape Irrigation
- Section 9c - Landscape Road Reserve or Nature Verge
- Section 9d - A Guide to Landscape POS Rev A
- Section 9e - Combined Species Rev A
- Section 9f - Environmental Weeds Rev A
- Section 9g - A Guide to Landscape Entry Statements

These standards and specifications need to be read in conjunction with the City's relevant statutory requirements, Council Policies, relevant State and Federal Government policy and the WA Planning Commission (WAPC) conditions including operational policy Liveable Neighbourhoods (latest version).

The proposed amendments to the Policy set out the City's position with respect to proposals from a developer for a higher standard of landscaping and infrastructure in subdivisions that are intended to be vested in the City for management. That is, that a SAR would be applied subject to the approval of Council, and the submission of plans. The option of a Developer Funded Landscape Annuity Proposal has been removed, as this is not a current practice.

The duplications with the Technical Specifications has been removed from the Policy and replaced with a simple reference to the minimum standards of landscaping and infrastructure required by the City.

How a SAR is to be calculated has been removed from the Policy as this would be determined at the time as part of any application to Council for a SAR. This detail is to be included in the Technical Specifications when a review of these documents is undertaken.

Statutory Environment

The Officer Recommendation supports the general function of a local government under the *Local Government Act 1995* to provide for the good government of persons in its district.

Relevant Plans and Policies

The City's Engineering Technical Standards and Specifications are a relevant document associated with the officer recommendation.

Financial Implications

There are no financial implications associated with the officer recommendation.

Stakeholder Consultation

No external stakeholder consultation was required or undertaken in relation to this matter.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. No risks of a medium or greater level have been identified.

Options

As an alternative to the proposed recommendation the Council could chose not to adopt the amended policy and retain the policy in its current form. For the reasons outlined in the officer comment above, this option is not recommended. The Council could also choose to make further amendments to the Policy.

CONCLUSION

An amended Council policy: Verge and Public Open Space Improvement – Subdivisions (the Policy) (Attachment B), is presented to Council for endorsement, with the policy having been reviewed as part of the City's ongoing review of its Council policies. Officers recommend it replaces the current Council policy (Attachment A.)

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

The officer recommendation will be implemented within one week of Council's endorsement.

Last Updated 13 December 2017

185/3	Verge and Public Open Space Improvement - Subdivision	V4 Current

Definition: 'Verge' means road verges, roundabouts and medians within the road reserve

Policy: Verge Improvement and Public Open Space

It is the Council Policy to seek a verge and public open space improvement to a minimum standard that makes areas functional, aesthetic and usable, as part of the urban subdivision process, prior to subdivision clearance. Improvements should comply with minimum landscaping standards in Western Australia Planning Commission's (WAPC's) current "Liveable Neighbourhoods Edition" Operational Policy and shall also be financially, socially and environmentally sustainable.

The intention of this policy is to establish the City of Busselton's minimum landscaping standard and to provide guidance to the Council when considering any proposal from a developer to implement a higher standard of landscaping, including associated maintenance agreements and arrangements.

Scope of Policy

This policy applies to passive recreation parks, reserves, and verges. Active sports fields that are designed and developed for organized sport are excluded from the policy provisions but the surrounds to such areas shall be included and assessed as passive recreation areas.

Applicable areas shall include all reserves that are to be landscaped or rehabilitated as part of the subdivision, that are intended to be vested in the City as reserves for recreation, landscape protection, foreshore management, drainage or other purposes, including verges.

Landscape Categories

Three categories of Verge and Public Open Space (POS) are adopted for reference:

Category 1

This category relates to reserves that have a high profile which require a high level of maintenance for whole of community benefit.

Category 2

These are passive activity areas with a medium level of maintenance required and include elements or all of the following; trees, shrubs, lawned areas, mulched gardens, infrastructure and reticulation.

Category 3

These areas are not reticulated and require minimum maintenance.

The use of native plants and waterwise designs is encouraged in all categories.

It should be noted that a single reserve or area might contain more than one category of landscape treatment.

Landscaping to Be Provided By Developers

For all options A, B & C that follow, irrigation demand (if any), whether from bore or scheme water, shall be minimal and shall be from a secure, adequate and sustainable supply source.

Option A

This is the preferred option for maintenance of reserves following developer handover as reflected in the City of Busselton's Engineering Technical Standards and Specifications – Section 9 – Subdivisions and Developments – Landscaping, Revegetation and Stabilisation which sets out that the City will not accept maintenance liability for intensively developed open space.

The City's preference is that POS areas and verges areas created by subdivision should consist predominantly of Category 3 landscaping, with consideration of limited Category 2 treatments (if any) in key areas. The total annual maintenance cost of all landscaping in the subdivision should not exceed the "Option A standard percentage" of "nominal general rate" revenue from the fully developed subdivision that is nominated by the City to reflect the normal sustainable maintenance spending by the City each year on Public Open Space Maintenance. The Option A standard percentage was set at 15% back in the 2007/08 Financial Year but may be revised by the City each year based on adopted City budgets. The term "Nominal general rate revenue" as applicable to this policy is defined in the guidelines that follow.

Under Option A, basic public open space low maintenance facilities such as playground equipment in addition to the improvement to the landform, appearance and/or vegetation is encouraged. High maintenance landscaping such as artificial water bodies, extensive reticulated lawn, garden bed, exotic vegetation or barbecues is discouraged. This is to avoid the expectation of residents that the Council will accept the cost of high maintenance facilities.

Option A requires:

A landscape maintenance period of 2 years.

A landscape maintenance performance bond equal to two years of estimated maintenance cost (with no margin or loading).

Refer to the Option A example calculation elsewhere in this Policy.

A Landscape Maintenance Agreement is may be required for Option A at the discretion of the City.

Alternatives for a Higher Standard of Landscaping

If a developer wishes for a higher standard than Option A, where annual maintenance costs exceed the Option A standard percentage of nominal general rates, the proposal shall be referred for the Council's approval, prior to the approval for construction of landscape treatments or clearance of subdivision. The proposal shall be an Option B or Option C Proposal as described below, or an alternative "high standard" proposal that the developer might seek to implement based on similar principles.

Proposals shall be considered by the City on individual merit. Arrangements accepted for other subdivisions shall not be construed to establish a precedent. The Council may withhold approval at its discretion, in which case the developer may fall back to Basic Landscape Option A, or may canvass the Council in respect of other High Standard Options not previously canvassed.

Note that the ability to pay for high quality Option B or C landscape treatments in the foreseeable future should not be the sole consideration as to its acceptance and will not over-ride other sustainability considerations. Those considerations will include compliance with Water Sensitive Urban Design (WSUD) guidelines, retention of biodiversity values, use of endemic landscape species and general resource consumption issues.

Option B – Specified Area Rate (SAR) Proposal

Option B (SAR Proposals) require:

Council approval;

A Landscape Maintenance Agreement;

Identification of the areas to be landscaped, annual maintenance budgets for each area, the total annual landscape maintenance budget for the whole subdivision as well as the whole of life cost;

Details of the proposed SAR. The SAR should:

fund the extra-over landscape maintenance cost that exceeds the Option A standard percentage of the nominal general rate revenue;

include an additional minor allowance to cover City expense costs for administering the SAR (amount to be advised by Shire);

aim to be no more than a 20% addition to the general rate levy per property (i.e. a SAR limit of about $329 per lot based on average rate levy of $1615 in 2017/18 dollars) to support longer term acceptability to ratepayers;

identify the proposed SAR commencement date, to be within the developer's landscape maintenance period and as soon as possible following clearance of initial stages of the subdivision;

include a cashflow forecast for the developers maintenance period and beyond, that as a minimum shall account for the SAR accumulations in reserve during the maintenance period and the financial (rating) implications of lots remaining undeveloped (vacant) after the maintenance period. The former would be envisaged to offset the latter.

identify the SAR Area boundary suitably located to avoid equity objections from ratepayers.

A landscape maintenance period of minimum 5 years.

A landscape maintenance performance bond equal to 5 years multiplied by the Option A standard percentage of nominal general rate revenue from the subdivision (with no margin or loading).

Section 70A Notifications on Title by the developer at clearance, to inform purchasers. Any proposal to establish a SAR must gain the Council's endorsement well ahead of the clearance of the first stage of subdivision as failure to establish section 70A Notices on title would normally make Option B SAR proposals untenable.

Provisions to extend the developer's maintenance period (delay handover) until financial and environmental sustainability criteria and other Landscape Maintenance Obligations in the Landscape Maintenance Agreement have been met to the reasonable satisfaction of the City.

Refer to the Option B example calculation elsewhere in this Policy. Note - the 5 year maintenance period for Option B is nominated to:
ensure adequate time for the developer to achieve and prove sustainability objectives prior to handover;

allow sufficient time to implement the SAR and accumulate SAR revenues in reserve as a buffer against ongoing vacant lots or later cost over-runs; and

allows for the ramping up SAR collections from low starting levels in the initial years.

Option C – Developer Funded Landscape Annuity Proposal

Option C proposals should be based on a 40 Year Developer Funded Landscape Maintenance Annuity. Option C proposals require;

The Council's approval;

Identification of the areas to be landscaped, annual maintenance budgets for each area and the total annual landscape maintenance budget for the whole subdivision;

Funding the extra-over landscape maintenance cost that exceeds the Option A standard percentage of the nominal general rate revenue via a "40-year Developer Funded Landscape Annuity;

A developer maintenance period of minimum 2 years.

A landscape maintenance performance bond equal to 2 years multiplied by the Option A standard percentage of nominal general rate revenue from the subdivision (with no margin or loading).

Refer to the Option C example calculation elsewhere in this Policy.

Option C proposals do not require a formal Landscape Maintenance Agreement from a City perspective. However, it is expected that developers may seek such an agreement to oblige appropriate expenditure of the annuity by the City.

Guidelines: Verge and Public Open Space Improvement

Landscaping Generally

The extent of works required and approved will ultimately be determined by the Chief Executive Officer.

More than one WAPC subdivision approval area may be combined in a single proposal under Option B or C.

The works shall be carried out under the direction and the supervision of the Chief Executive Officer.

Works shall be carried out as soon as practicable before clearance of subdivision following completion of civil engineering works on the subdivision, except that outstanding works may be bonded under the provisions of the Council's early clearance subdivision policy as applicable.

Verge Landscaping

Road verge landscape plantings are normally intended to be established and maintained by the adjoining landowner. Verge plantings provided by the developer should therefore be limited under ALL landscape Options to no greater than the following:

Roundabouts and medians of dual carriageways;

drainage basins and swales provided in roundabouts, medians or verges;

verges immediately abutting POS and reserves (landscaped to the same detail as the adjoining POS or reserve);

road verges that have no directly adjoining lot frontage. These are typically higher order roads classified as arterial roads, district

distributors or local distributors or the Western Australia Planning Commission's (WAPC's) current "Liveable Neighbourhoods Edition" Operational Policy road equivalents that are designed to prevent or limit direct property access; such verges can include the separator or buffer strips between major roads and adjacent parallel local or service roads.

generally for local roads, only a single street tree per lot frontage (2 for corner lots) should be provided by the developer in verges that adjoin residential or other development lots.

verge landscaping (in excess of single street trees) may be supported for the front verge of rear accessed (laneway) lots where the verge is divorced from the lot via a front retaining wall and there is no front driveway.

Works scope may extend beyond the immediate frontage of the subdivision. In this way verges of the collector and distributor roads associated with the subdivision, can be improved.

Estimates of Landscape Maintenance Costs

Estimates of annual landscape maintenance costs shall be provided on request, to the satisfaction of the City, if the City believes that the annual landscape maintenance cost might exceed the Option A standard percentage of the nominal general rate revenue, for the subdivision and the landscaping proposed.

Landscape maintenance costs estimates shall account for all landscape areas developed as part of the subdivision whether internal or external to the subdivision boundary. Estimates and costings may be rejected, accepted or otherwise adjusted at the sole discretion of the City. Estimates shall account for normal annualised operating costs (excluding GST) that include borewater supply costs and license fees, utility (power and water) rates and consumption charges. End of life replacement costs for hard landscaping shall be excluded.

Maintenance cost estimates shall reflect the anticipated annual costs occurring after expiry of the developer's maintenance period and should therefore make due allowance for items downgraded (by agreement) prior to handover and should exclude initial maintenance costs that are of an establishment nature.

Definition of "Nominal General Rate Revenue"

Nominal general rate revenue is defined as the estimate (to the satisfaction of the City) of the general rates that would theoretically arise from all lots within the subject subdivision boundary, if the lots were fully developed with housing etc. and rated as such at current year values. Actual rate revenues will differ in early years due to vacant lots.

Last Updated 13 December 2017

Downgrade Items/ Entry Statements

Landscape elements should generally not be planned to be downgraded prior to handover, as a means of achieving financial sustainability due to problems with managing public expectations.

An exception is "Entry Statements" that are developed to category 1 or 2 standard. An Entry Statement is any construction or landscaping arrangement constructed with the express aim of promoting and enhancing the entry and presentation of a subdivision or development. These SHOULD be planned to be downgraded prior to handover. A specific stand- alone (short form) Entry Statement Maintenance agreement is required for Entry Statements proposed as part of Landscape Option A or C subdivisions, consistent with – Section 9 – Subdivisions and Developments – Landscaping, Revegetation and Stabilisation of the City of Busselton's Engineering Technical Standards and Specification. . However, at the City's discretion, Entry Statements may form part of Landscape Option A or C subdivisions' Landscape Maintenance Agreement. In Landscape Option B subdivisions equivalent provisions that are specific to the Entry Statement/s (where one or more is proposed) should form part of the larger Landscape Maintenance Agreement that is required in respect of Option B.

Landscape Maintenance Performance bonds

These may be cash bonds or bank guarantees of acceptable format, lodged prior to clearance and held until expiry of the developer's maintenance period for the purpose of securing the performance of the developer's landscape maintenance obligations;

Landscape Maintenance Bonds shall be separate to the twelve months maintenance period bonds otherwise provided for subdivision civil works due to the different timeframe for release of bonds; and

Landscape Maintenance bonds should be separate and additional to outstanding works bonds that may be lodged in respect of incomplete landscape works at time of clearance under other City of Busselton policies.

Landscape Maintenance Period

The date of expiry of the (Developer's) Landscape Maintenance Period in respect of Options A, B & C (notwithstanding other provisions that extend the date for non-compliance) shall be based on applying the Landscape Maintenance Period from the latest of:

the clearance date of the subdivision, and

the "Date of Practical Completion" of the landscape elements.

In any event, the developer's landscape maintenance period extends from the clearance date until the expiry date. This is significant where early clearance is supported and there is substantial bonding of incomplete landscape works.

"Practical Completion" of landscape elements shall be based on 95% completion of all Landscape Work by value and no less than 95% completion of all "soft landscape" plantings (grass, shrubs & trees), to the satisfaction of the City.

For multi-staged subdivisions, the maintenance periods and corresponding expiry dates apply independently to each stage. Alternatively a single landscape maintenance period expiry date may be determined for all stages (for simplicity) relative to the final stage, in which case shortening of the landscape maintenance period relative to the final stage may be supported at the discretion of the Chief Executive Officer, to achieve the normally specified maintenance period as an average across all stages. For example, a subdivision progressively staged and cleared over a two year period that otherwise warrants a 5 year maintenance period could have a maintenance period expiry date set for all stages that is 4 years after the practical completion of the final stage.

Notifications on Title

All lots created in subdivisions with other than Option A landscaping require section 70A Notices (Transfer of Land Act 1893) to warn purchasers of potential downgrading of high maintenance standards provided at subdivision (despite downgrading only being normally intended for entry statements). For Option B proposals the Section 70A Notice shall also warn of the application of Landscape Specified Areas Rates. Typical text follows:

This lot is part of the "<insert>" subdivision which upon original development was provided with a higher standard of landscaping in its parks and road reserves than is normally supported by the Shire of Busselton. Considering this higher standard, there is a potential for the Shire of Busselton to impose a Specified Area Rate in relation to landscape maintenance and there is also potential for the Shire to amend the standard of the landscaping and the amount of any such Specified Area Rate in future."

Example Calculations

Option A – Basic Landscaping Calculation:

Example - A 500 lot subdivision anticipates average general rates payable per rated (residential/industrial/commercial) property of $1,615 (in 2017/18 dollars) per lot when fully developed with housing. The Landscape design is predominantly category 3 with an estimated annual maintenance cost of
$102,625 (at 2017/18 dollars excluding GST);

Maintenance cost = $102,625/500 lots = $205 per lot per year;

Maximum acceptable Option A cost is 15% x $1,615 per lot = $242 per lot, (x 500 lots = $121,000 overall) per year, so the Option A cost criteria is satisfied;

A landscape maintenance performance bond of 2 years x $102,625 = $205,250 is required prior to clearance.

Option B – SAR Proposal:

Example - A 500 lot subdivision anticipates average general rates payable per rated (residential/industrial/commercial) property of $1,615 (in 2017/18 dollars) per lot when fully developed with housing. The higher quality Landscape design has an estimated annual maintenance cost of $249,232 (at 2017/18 dollars excl GST).

Maintenance cost = $249,232/500 lots = $498 per lot per year. This amount exceeds the Option A limit by $498 - $242 = $256 per lot (x 500 lots = $128,000 in 2017/18 dollars).

The Specified Area Rating Proposal must therefore generate the extra-over amount of $128,000 per year (in 2017/18) dollars at full development of all 500 lots. Actual SAR revenues will be less in early years prior to full development, but will "ramp up" and accumulate in reserve during this period while the developer meets the full landscape maintenance cost;;

The $498 average per lot cost is ultimately to be funded $242 from general rate revenue and $256 from SAR revenue. All figures escalate annually for inflation. However, general and Specified Area Rates are expected to escalate simply via escalation of underlying gross rental valuations;

A landscape maintenance performance bond of 5 years x 500 lots x $242 per lot = $605,000 is to be lodged prior to clearance.

The landscape maintenance period will extend until the developer demonstrates that annual maintenance costs lie within the $249,232 annual target (indexed to the date of handover).

Option C – Developer Landscape Annuity Example:

Example - A 500 lot subdivision anticipates average general rates payable per rated (residential/industrial/commercial) property of $1,615 (in 2017/18 dollars) per lot when fully developed with housing. The higher quality Landscape design has an estimated annual maintenance cost of $249,232 (at 2017/18 dollars Excl GST).

A landscape maintenance performance bond of 2 years x $249,232 = $498,464 is required prior to clearance.

The annual Maintenance cost = $249,232/500 lots = $498 per lot per year. This exceeds the Option A limit by $498 - $242 = $256 per lot (x 500 lots = $128,000 per year in 2017/18 dollars). The developer must pay an annuity amount (a fee) that is the Present Value of the $128,000 per year extra-over cost, with appropriate inflation and discount allowances for a 40 year period after clearance, less the component of this amount that is

applicable to the 2 year maintenance period and otherwise covered by the maintenance bond. The fee is calculated in this manner as follows:

$$\text{Present Value} = \left[\frac{1-(1+r)^{-n}}{r}\right] \times \$\,Y$$

In this example,

n=40 annual payments of Y,

* Y= $128,000 (in FY2017/18 dollars),

r = the (real) discount rate which, accounting for inflation of maintenance cost 'Y' at the assumed annual inflation rate "i" is reasonably approximated as the difference between the nominal discount rate "rn" and "i". The nominal discount rate (rn) shall be the interest rate available for City investments. In this example the following rates are assumed,

nominal discount rate, rn = 8%

inflation rate i = 6%

r = real discount rate (approx) = rn – i = 2%

The formulagives present value = $2,393,604, for which the corresponding fee to be paid prior to clearance is:

$3,501,500 - $498,464 = $3,003,036

History

Council Resolution	Date	Information
C1712/323	13 December 2017	Reviewed
C0707/162	25 July 2007	Completely revised version of former policy 185/3 Version 3
C0111/566	28 November 2001	Substantially revised version of former policy 185/3 Version 2
(W94/0194) C94/0368	28 September 1994	Date of implementation Version 1

Council Policy

Council Policy Name: Verge and Public Open Space Improvements - Subdivisions
Responsible Directorate: Finance and Corporate Services **Version:** PROPOSED

1. PURPOSE

1.1. The purpose of this Policy is to outline the City's approach to proposals from developers for higher value landscaping and infrastructure in subdivisions which is intended to be vested to the City for management.

2. SCOPE

2.1. The Policy applies to all subdivisions intended to be vested to the City for management.

3. DEFINITIONS

Term	Meaning
Policy	this City of Busselton Council policy titled "Verge and Public Open Space Improvements"

4. STRATEGIC CONTEXT

4.1. This Policy links to Key Theme 2 - Lifestyle and Key Theme 4 – Leadership of the City's Strategic Community Plan 2021 and specifically the following Strategic Priorities:
a. 2.12: Provide well maintained community assets through robust asset management practices.
b. 4.5: Responsibly manage ratepayer funds to provide for community needs now and in to the future; and

5. POLICY STATEMENT

5.1. The City seeks to manage and maintain its assets in a financially and environmentally responsible manner.

5.2. The City of Busselton Engineering Technical Standards and Specifications (Technical Standards), outlines the minimum standards / levels of landscaping and infrastructure required by the City in subdivision developments.

5.3. The City will not accept liability for landscaping and infrastructure which exceeds these standards without the application of a specified area rate (SAR).

5.4. A SAR may be imposed under Section 6.37 of the *Local Government Act 1995* for the purpose of providing a higher standard of maintenance for development which exceeds the minimum requirements.

5.5. Council approval will be required for the application of a SAR, with proposals to be considered by the City on individual merit, taking into account not only financial implications but also sustainability considerations of the proposed improvements.

5.6. A proposal for a SAR must be accompanied by detailed landscaping and infrastructure plans, and a total annual operating budget and whole of life cost for the specified area.

5.7. The City will require developers to enter into landscape maintenance agreements.

6. RELATED DOCUMENTATION / LEGISLATION

6.1. *Local Government Act 1995*
6.2. City of Busselton Engineering Technical Standards and Specifications

7. REVIEW DETAILS

Review Frequency		**3 yearly** [adjust if earlier review is appropriate]		
Council Adoption	**DATE**		**Resolution #**	
Previous Adoption	**DATE**	13 December 2017	**Resolution #**	C1712/323

12.5 Policy and Legislation Committee - 22/6/2022 - COUNCIL POLICY REVIEW: MANAGEMENT OF COMPLAINTS OF ALLEGED BREACHES OF BEHAVIOUR

STRATEGIC THEME	LEADERSHIP - A Council that connects with the community and is accountable in its decision making.
STRATEGIC PRIORITY	4.2 Deliver governance systems that facilitate open, ethical and transparent decision making.
SUBJECT INDEX	Council Policies
BUSINESS UNIT	Corporate Services
REPORTING OFFICER	Manager Governance and Corporate Services - Sarah Pierson Governance Coordinator - Emma Heys
AUTHORISING OFFICER	Director Finance and Corporate Services - Tony Nottle
NATURE OF DECISION	Executive: Substantial direction setting, including adopting budgets, strategies, plans and policies (excluding local planning policies); funding, donations and sponsorships; reviewing committee recommendations
VOTING REQUIREMENT	Absolute Majority
ATTACHMENTS	Attachment A Council Policy: Management of Complaints of Alleged Breaches of Behaviour (Current) Attachment B Amended Council Policy: Management of Complaints of Alleged Breaches of Behaviour (Clean) Attachment C Amended Council Policy: Management of Complaints of Alleged Breaches of Behaviour (Tracked Changes) Attachment D Council Policy: Management of Complaints of Alleged Breaches of Behaviour (inclusive of Committee Amendments)

This item was considered by the Policy and Legislation Committee at its meeting on 22/6/2022, the recommendations from which have been included in this report.

COMMITTEE RECOMMENDATION

That the Council adopts the amended Council policy: Management of Complaints of Alleged Breaches of Behaviour (the Policy) (Attachment D), inclusive of the Committee Amendments, to replace the current policy (Attachment A).

Reasons: The Committee recommended the amendments as per Attachment D to provide clarity during the Committee finding process.

OFFICER RECOMMENDATION

That the Council adopts the amended Council policy: Management of Complaints of Alleged Breaches of Behaviour (the Policy) (Attachment B), to replace the current policy (Attachment A).

EXECUTIVE SUMMARY

This report presents an amended Council policy: Management of Alleged Breaches of Behaviour (the Policy) (Attachment B) for Council endorsement, to replace the current policy (Attachment A).

BACKGROUND

In accordance with section 5.103 of the *Local Government Act 1995* (the Act) and the *Local Government (Model Code of Conduct) Regulations 2021* (the Regulations), Council adopted a Code of Conduct for Council Members, Committee Members and Candidates (the Code). The Code includes general principles and behaviours for Council Members, Committee Members and Candidates. Alleged breaches of Part 3 of the Code - 'Behaviours' are subject to a complaints process, to be determined and managed by the local government.

Council initially adopted Council policy: Management of Complaints of Alleged Breaches of Behaviour (the Policy) at its Ordinary Meeting of Council 9 June 2021 (C2106/113).

At its meeting of 27 October 2021, the Policy and Legislation Committee recommended the formation of a Behaviour Complaints Committee (the Committee) consisting of 5 members and 4 deputy members, with the Committee to make findings on complaints under delegation from the Council. The Committee recommended revisions to the Policy including an additional clause to provide the CEO with the discretion to refer the Complaints Officers' report, in extraordinary circumstances, to a Council Meeting for Council to make a finding in relation to the complaint.

At the Ordinary Meeting of Council, 10 November 2021, Council endorsed an alternative motion to establish a Behaviour Complaints Committee and appoint all members of Council to the Committee. This was in response to further research and practical examples from other local governments where appointing all Councillors to the Committee removed any perception of bias in its decision making (C2111/087).

OFFICER COMMENT

Since the implementation of the current policy, the City's Complaints Officer has referred five complaints in relation to alleged breaches of behaviour to the Committee. This has provided officers with the opportunity to review what elements of the Policy work well and which elements are less effective. Additionally, officers have had the opportunity to discuss with other local governments their experiences in managing complaints.

Officers are recommending several amendments to the Policy and the process by which complaints are managed. Key changes are:

- the implementation of a response form to be completed by the person to whom the complaint relates (the Respondent) and submitted to the City's Complaints Officer;
- mediation to be an option for the Complainant and Respondent to opt in through the complaint and response form, and to be arranged by the Complaints Officer if requested;
- initial assessment of the complaint by the Complaints Officer based on the complaint and response form submitted, with option to for the Complaints Officer to make a recommendation for the complaint to be dismissed if it meets the relevant section of the Code or to assess the complaint and determine a recommendation to the Committee. Use of an external assessor remains an option at the Complaints Officer's discretion;
- change in terminology from Investigator to Assessor to reflect that investigation beyond the submitted complaint and response form is not a feature;
- the Committee's findings and its reasons to be made publicly available;
- an action plan to be developed by the City's Complaints Officer or an external party as determined by the Committee finding, as opposed to prior, and endorsed by the Committee at a meeting separate to the determination of the complaint;

- a reduction in timeframes throughout the complaints management process; and
- removal of the ability for the CEO to refer a complaint to the Council, given all Councillors are now appointed to the Committee and that the Committee delegation requires those party to the complaint to leave the meeting.

The changes are designed to streamline the management of complaints in order to achieve a timelier and cost effective outcome. While the use of an external assessor is considered necessary and appropriate in most instances, there may be some complaints that the Complaints Officer can readily determine or recommend dismissal of, and the Complaints Officer should, where guidance is provided by the Committee, be able to determine an action plan.

Statutory Environment

Section 5.103 of the *Local Government Act 1995* (the Act) [Model code of conduct for council members, committee members and candidates] provides that regulations must prescribe a Model Code of conduct for council members, committee members and candidates and must include –

(a) general principles to guide behaviour; and

(b) requirements relating to behaviour; and

(c) provisions specified to be rules of conduct,

and may include provisions about how to deal with alleged breaches of the behaviour requirements.

Relevant Plans and Policies

The officer recommendation aligns to the City's Code of Conduct for Council Members, Committee Members and Candidates.

Financial Implications

The cost to date in managing complaints of alleged breaches of behaviour totals $13,984. The proposed changes to the Policy seek to reduce these costs.

Stakeholder Consultation

The City of Busselton participated in a 'feedback lab' in February run by the Department of Local Government, Sport and Cultural Industries, where other local governments shared their experiences.

Many local governments have adopted a model similar to ours (as per the WALGA proposal), however through consultation we have identified improvements such as the use of a standard response form.

Alternative models do also exist – for instance, for the Council to determine the complaints in session without the recommendation of an officer / assessor. At this stage however officers believe the Policy with the proposed revisions strikes the right balance.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. No risks of a medium or greater level have been identified.

Options

As an alternative to the officer recommendation the Council could determine not to make any changes to the Policy or to make additional or different amendments.

CONCLUSION

The City has processed five complaints of alleged breaches of behaviour under the Code, and through this experience has identified a number of improvements in the way in which complaints are managed. The changes proposed to the Policy are aimed at a more timely and cost effective management process.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

The officer recommendation will be implemented within one week of Council's endorsement.

Council Policy

Council Policy Name: Management of Complaints of Alleged Breaches of Behaviour
Responsible Directorate: Finance and Corporate Services **Version:** Adopted

1. PURPOSE

1.1. The purpose of this Policy is to outline the City's approach to the management of complaints relating to breaches of the behaviour requirements in Part 3 of the City of Busselton Code of Conduct for Council Members, Committee Members and Candidates (the Code).

2. SCOPE

2.1. This Policy is applicable to complaints about breaches of the behaviour requirements in Part 3 of the Code, and should be read in conjunction with the Code.

2.2. A breach of Part 4 of the Code is a minor breach under section 5.105(1) of the Act, and is not the intended subject of this Policy. The following are inappropriate to be dealt with under this Policy:

a. complaints made with the intent of addressing personal grievances or disagreements;
b. complaints made to express dissatisfaction with a council or committee member's lawfully made decisions or performance of their role;
c. minor breaches under section 5.105(1) of the Act;
d. serious breaches under section 5.114 of the Act; and
e. allegations of corruption.

3. DEFINITIONS

Term	Meaning
Committee	**The Behaviour Complaints Committee established under section 5.8 of the *Local Government Act 1995* and delegated the power to make findings of complaints of alleged breaches of Part 3 of the Code**
City's Complaints Officer	a person authorised in writing by Council resolution or by the CEO exercising delegated authority under clause 12.3 of the Code to receive complaints and withdrawals of complaints and in accordance with this Policy.
Investigator	an impartial third party, appointed by the CEO, with the skills, knowledge and experience to investigate complaints in accordance with this Policy.
Mediator	an impartial third party, appointed by the CEO, with the skills, knowledge and experience to facilitate mediation between the person to whom the complaint relates and the complainant in accordance with this Policy.
Policy	this City of Busselton Council policy titled "Management of Complaints of Alleged Breaches of Behaviour".

4. STRATEGIC CONTEXT

4.1. This Policy links to Key Theme 4 - Leadership of the City's Strategic Community Plan 2021-2031 and specifically the Strategic Priority 4.2: Deliver governance systems that facilitate open, ethical and transparent decision making.

5. POLICY STATEMENT

5.1. The Code provides for requirements relating to the behaviour of council members, committee members and candidates.

5.2. The Code sets out requirements for:
a. making a complaint;
b. dealing with a complaint;
c. dismissal of a complaint; and
d. withdrawal of a complaint.

5.3. This Policy further outlines how the City will deal with a complaint; specifically the mechanism for investigating, determining, making recommendations and implementing action plans when dealing with alleged breaches of the behavioural requirements set out in the Code.

Investigating a complaint

5.4. The Chief Executive Officer (CEO) will appoint an Investigator to investigate complaints of alleged breaches of behaviour, and if required under paragraph 5.9, a Mediator.

5.5. A complaint cannot be submitted anonymously.

5.6. The City's Complaints Officer, within 14 days of receiving a complaint:
a. will contact the complainant acknowledging that the complaint has been received;
b. as part of the acknowledgment process, will provide the complainant with a copy of this Policy and the Code;
c. will outline the process that will be followed and possible outcomes and the application of confidentiality;
d. will provide the council or committee member to whom the complaint relates with a copy of this Policy, the Code, and a copy of the complaint, including the name of the complainant; and
e. will send to the Investigator the complaint together with details of the alleged breach and any supporting evidence provided by the complainant.

5.7. Complaints are to be dealt with and considered in the order in which they are received by the City's Complaints Officer. If more than one complaint is received that relates to the same alleged behaviour, the City's Complaints Officer may determine to progress those complaints concurrently.

5.8. In investigating the complaint, the Investigator may request the City's Complaints Officer to search for any relevant records in the City's record management system.

5.9. The Investigator must offer mediation to both parties as the first option for dealing with a complaint and before progressing with the assessment of the complaint.

5.10. If mediation is accepted by both parties, the investigative timelines outlined in this Policy are suspended until such time as the mediation is finalised or discontinued in accordance with paragraph 5.11.

5.11. If issues raised in the complaint are resolved to the satisfaction of both parties in mediation, or otherwise, the complainant must, before the assessment of the complaint, lodge a withdrawal of complaint in accordance with the Code. In the event that the complainant does not withdraw the complaint, assessment of the complaint will continue.

5.12. Before making an assessment in relation to a complaint, the Investigator must provide the person to whom the complaint relates with an opportunity to respond to the allegations in the complaint, and to provide their own comments and evidence for consideration. The person to whom the complaint relates must do this within 21 days of formally being notified of the complaint.

5.13. After considering a complaint, the Investigator must make an assessment as to whether or not the alleged behaviour breach has occurred.

5.14. The Investigator's assessment must be made within 21 days from receiving a copy of the response to the allegations by the person to whom the complaint relates.

5.15. Within 21 days of making an assessment on the alleged behaviour breach, the Investigator must provide a report to the City's Complaints Officer.

5.16. If the Investigator makes an assessment that the alleged breach has occurred, the report must make a recommendation as to whether further action is required.

5.17. In making a recommendation of further action, the Investigator is to prepare an action plan to address the behaviour of the person to whom the complaint relates.

5.18. An action plan should be prepared in consultation with the person to whom the complaint relates. If the person to whom the complaint relates does not participate in the preparation of an action plan, this is to be noted in the Investigator's report to the City's Complaints Officer and included in the report to Council.

5.19. The Investigator may recommend to the Committee or Council to dismiss a complaint in accordance with clause 14.1 of the Code.

5.20. If the Investigator assesses that the behaviour is an offence under the City's *Standing Orders Local Law 2018*, the complaint should be referred back to the City's Complaints Officer.

5.21. The Investigator's deliberations and assessment are to be confidential and reported only to the CEO and the City's Complaints Officer, but subject to any consultation with the person to whom the complaint relates.

Committee or Council finding

5.22. A meeting of the Committee must be convened within 21 days after receipt of the Investigators assessment, at which the City's Complaints Officer must provide a confidential report.

5.23. In accordance with clause 5.26, if the matter is referred to the Council, the City's Complaints Officer must provide a confidential report at the next practicable Council meeting.

5.24. The confidential report is to include:

a. a copy of the complaint;
b. the report of the Investigator together with the evidence received and any submissions or other communications from parties;
c. a recommendation on the question whether or not a breach of behaviour has occurred;
d. a recommendation as to whether any, and if so what, further action is required; and
e. an action plan, prepared in consultation with the person to whom the complaint relates, if relevant.

5.25. Based on the Investigator's report, the evidence and any further comments or submissions by the parties, the Committee or Council may do one of the following:
   a. dismiss the complaint in accordance with clause 14.1 of the Code;
   b. find the alleged breach has occurred and decide no further action is required;
   c. find the alleged breach has occurred, decide that further action is required; and
      i. vary the proposed action plan; or
      ii. consider the adoption of the action plan.
   d. find that the alleged breach has not occurred.

5.26. The CEO has the discretion to refer matter, in extraordinary circumstances, to Council to make a finding in relation to an alleged breach of behaviour.

Action plans

5.27. An action plan should outline:
   a. the behaviour/s of concern;
   b. the actions to be taken to address the behaviour/s;
   c. who is responsible for the actions; and
   d. an agreed timeframe for the actions to be completed.

5.28. In deciding whether to implement an action plan, the Committee or Council should consider:
   a. the nature and seriousness of the breach(es);
   b. any submission made by the person to whom the complaint relates;
   c. whether the person to whom the complaint relates breached the Code knowingly or carelessly;
   d. whether the person to whom the complaint relates has breached the Code on previous occasions; and
   e. any other matters which may be regarded as contributing to the conduct or mitigating its seriousness.

Confidentiality of complaints

5.29. The complaint, its existence and details, and the processes undertaken in connection with it, are confidential matters and should not be disclosed unless and until the Committee has reached an outcome in respect of the complaint.

Compliance with plan requirement

5.30. The City's Complaints Officer is to monitor the actions and timeframes set out in an action plan.

5.31. Failure to comply with a requirement included in an action plan is a minor breach under section 5.105(1) of the *Local Government Act 1995* and clause 24.1 of the Code.

5.32. The City's Complaints Officer must provide a report to Council advising of any failure to comply with a requirement included in an action plan.

6. RELATED DOCUMENTATION / LEGISLATION

6.1. *Local Government Act 1995*
6.2. *Local Government (Model Code of Conduct) Regulations 2021*
6.3. City of Busselton Code of Conduct for Council Members, Committee Members and Candidates
6.4. Code of Conduct Alleged Breach Form

7. REVIEW DETAILS

Review Frequency		3 yearly		
Council Adoption	**DATE**	10 November 2021	**Resolution #**	C2111/087
Previous Adoption	**DATE**	9 June 2021	**Resolution #**	C2106/113

Council Policy

Council Policy Name: Management of Complaints of Alleged Breaches of Behaviour
Responsible Directorate: Finance and Corporate Services **Version:** Proposed

1. PURPOSE

1.1. The purpose of this Policy is to outline the City's approach to the management of complaints relating to alleged breaches of the behaviour requirements in Part 3 of the City of Busselton Code of Conduct for Council Members, Committee Members and Candidates (the Code).

2. SCOPE

2.1. This Policy is applicable to complaints about alleged breaches of the behaviour requirements in Part 3 of the Code, and should be read in conjunction with the Code.

2.2. A breach of Part 4 of the Code is a minor breach under section 5.105(1) of the Act, and is not the intended subject of this Policy. The following are inappropriate to be dealt with under this Policy:

a. complaints made with the intent of addressing personal grievances or disagreements;
b. complaints made to express dissatisfaction with a council or committee member's lawfully made decisions or performance of their role;
c. minor breaches under section 5.105(1) of the Act;
d. serious breaches under section 5.114 of the Act; and
e. allegations of corruption.

3. DEFINITIONS

Term	Meaning
Committee	the Behaviour Complaints Committee established under section 5.8 of the *Local Government Act 1995* and delegated the power to make findings of complaints of alleged breaches of Part 3 of the Code
Complaints Officer	a person authorised in writing by Council resolution or by the CEO exercising delegated authority under clause 12.3 of the Code to receive complaints and withdrawals of complaints and in accordance with this Policy.
Complainant	a person lodging a complaint
Assessor	an impartial third party, appointed by the CEO, with the skills, knowledge and experience to assess complaints in accordance with this Policy.
Mediator	an impartial third party, appointed by the CEO, with the skills, knowledge and experience to facilitate mediation between the person to whom the complaint relates and the complainant in accordance with this Policy.
Policy	this City of Busselton Council policy titled "Management of Complaints of Alleged Breaches of Behaviour".
Respondent	the Council or Committee member to whom a complaint relates

4. STRATEGIC CONTEXT

4.1. This Policy links to Key Theme 4 - Leadership of the City's Strategic Community Plan 2021-2031 and specifically the Strategic Priority 4.2: Deliver governance systems that facilitate open, ethical and transparent decision making.

5. POLICY STATEMENT

5.1. The Code provides for requirements relating to the behaviour of council members, committee members and candidates.

5.2. The Code sets out requirements for:
a. making a complaint;
b. dealing with a complaint;
c. dismissal of a complaint; and
d. withdrawal of a complaint.

5.3. This Policy further outlines how the City will deal with a complaint of alleged breaches of the behavioural requirements set out in the Code.

Complaint Submission and Response

5.4. A complaint must be submitted to the Complaints Officer and cannot be submitted anonymously.

5.5. The Complaints Officer, within 7 days of receiving a complaint:
a. will contact the Complainant acknowledging that the complaint has been received;
b. will outline the process that will be followed and the application of confidentiality;
c. will provide the Respondent with a copy of the complaint, including the name of the Complainant; and the City's response form.

5.6. The Respondent will complete and submit the response form to the Complaints Officer within 7 days of receiving notification from the Complaints Officer.

5.7. If more than one complaint is received that relates to the same alleged behaviour, the Complaints Officer may determine to progress those complaints concurrently.

5.8. If mediation is requested by both parties, the Complaints Officer will appoint a Mediator and the assessment timelines outlined in this Policy will be suspended until such time as the mediation is finalised in accordance with paragraph 5.9 or discontinued.

5.9. The Complainant must within 5 days of mediation lodge a withdrawal of complaint in accordance with the Code, or the assessment of the complaint will continue.

Assessment of the Complaint

5.10. Within 7 days of receiving a response from the Respondent, the Complaints Officer will undertake a review of the complaint to determine:
a. whether it could be dismissed under Clause 14.1 of the Code; or
b. whether they will refer the complaint to an Assessor; or
c. make an assessment themselves as to whether the alleged behaviour breach has occurred.

5.11. Where a complaint is to be referred to an Assessor, the Complaints Officer must engage an Assessor within 14 days of receiving a response from the Respondent.

5.12. The Assessor must provide to the Complaints Officer a report containing a determination within 21 days of receiving a copy of the complaint and response.

5.13. In assessing the complaint, the Assessor may request the Complaints Officer to search for any relevant records in the City's record management system.

5.14. A meeting of the Committee must be convened:
   a. within 14 days after receipt of the Assessor's assessment; or
   b. where recommended for dismissal or assessed by the Complaints Officer, within 21 days of the Complaints Officer having received the response from the Respondent.

Committee finding

5.15. The Complaints Officer must present each complaint to the Committee in a confidential report. The report is to include:
   a. a copy of the complaint;
   b. a copy of the response;
   c. any evidence received and any submissions or other communications from parties;
   d. the report of the Assessor where relevant;
   e. a recommendation on the question whether or not a breach of behaviour has occurred;
   f. a recommendation as to whether any further action is required.

5.16. Based on the Complaints Officer's report, and the evidence presented, the Committee may do one of the following:
   a. dismiss the complaint in accordance with clause 14.1 of the Code;
   b. find the alleged breach has occurred and decide no further action is required;
   c. find the alleged breach has occurred, decide that further action is required and request that the Complaints Officer prepare an action plan; or
   d. find that the alleged breach has not occurred.

5.17. In deciding whether to implement an action plan, the Committee should consider:
   a. the nature and seriousness of the breach(es);
   b. any submission made by the person to whom the complaint relates;
   c. whether the person to whom the complaint relates breached the Code knowingly or carelessly;
   d. whether the person to whom the complaint relates has breached the Code on previous occasions; and
   e. any other matters which may be regarded as contributing to the conduct or mitigating its seriousness.

Action plans

5.18. If the Committee has made a finding in accordance with clause 5.16(c) to prepare an action plan, the Complaints Officer will prepare an action plan in consultation with the person to whom the complaint relates or engage a suitably qualified third party to prepare an action plan.

5.19. An action plan should outline:
   a. the behaviour/s of concern;
   b. the actions to be taken to address the behaviour/s;
   c. who is responsible for the actions; and
   d. an agreed timeframe for the actions to be completed.

Confidentiality of complaints

5.20. The complaint, response and any deliberations and assessment by the Complaints Officer / Assessor are confidential as they relate to the affairs of a person.

5.21. The Committee's findings and reasons will be published in the Committee minutes.

Compliance with plan requirement

5.22. The Complaints Officer is to monitor the actions and timeframes set out in an action plan.

5.23. Failure to comply with a requirement included in an action plan is a minor breach under section 5.105(1) of the *Local Government Act 1995* and clause 24.1 of the Code.

5.24. The Complaints Officer must provide a report to Council advising of any failure to comply with a requirement included in an action plan.

6. RELATED DOCUMENTATION / LEGISLATION

6.1. *Local Government Act 1995*
6.2. *Local Government (Model Code of Conduct) Regulations 2021*
6.3. City of Busselton Code of Conduct for Council Members, Committee Members and Candidates
6.4. Code of Conduct Alleged Breach Form

7. REVIEW DETAILS

Review Frequency		**3 yearly**		
Council Adoption	**DATE**		**Resolution #**	
Previous Adoption	**DATE**	10 November 2021	**Resolution #**	C2111/087

Council Policy

Council Policy Name: Management of Complaints of Alleged Breaches of Behaviour
Responsible Directorate: Finance and Corporate Services **Version:** ~~Adopted~~Proposed

1. PURPOSE

1.1. The purpose of this Policy is to outline the City's approach to the management of complaints relating to alleged breaches of the behaviour requirements in Part 3 of the City of Busselton Code of Conduct for Council Members, Committee Members and Candidates (the Code).

2. SCOPE

2.1. This Policy is applicable to complaints about alleged breaches of the behaviour requirements in Part 3 of the Code, and should be read in conjunction with the Code.

2.2. A breach of Part 4 of the Code is a minor breach under section 5.105(1) of the Act, and is not the intended subject of this Policy. The following are inappropriate to be dealt with under this Policy:

a. complaints made with the intent of addressing personal grievances or disagreements;
b. complaints made to express dissatisfaction with a council or committee member's lawfully made decisions or performance of their role;
c. minor breaches under section 5.105(1) of the Act;
d. serious breaches under section 5.114 of the Act; and
e. allegations of corruption.

3. DEFINITIONS

Term	Meaning
Committee	t~~T~~he Behaviour Complaints Committee established under section 5.8 of the *Local Government Act 1995* and delegated the power to make findings of complaints of alleged breaches of Part 3 of the Code
~~City's~~ Complaints Officer	a person authorised in writing by Council resolution or by the CEO exercising delegated authority under clause 12.3 of the Code to receive complaints and withdrawals of complaints and in accordance with this Policy.
Complainant	a person lodging a complaint
Assessor~~Investigator~~	an impartial third party, appointed by the CEO, with the skills, knowledge and experience to ~~investigate~~ assess complaints in accordance with this Policy.
Mediator	an impartial third party, appointed by the CEO, with the skills, knowledge and experience to facilitate mediation between the person to whom the complaint relates and the complainant in accordance with this Policy.
Policy	this City of Busselton Council policy titled "Management of Complaints of Alleged Breaches of Behaviour".
Respondent	the Council or Committee member to whom a complaint relates

4. STRATEGIC CONTEXT

4.1. This Policy links to Key Theme 4 - Leadership of the City's Strategic Community Plan 2021-2031 and specifically the Strategic Priority 4.2: Deliver governance systems that facilitate open, ethical and transparent decision making.

5. POLICY STATEMENT

5.1. The Code provides for requirements relating to the behaviour of council members, committee members and candidates.

5.2. The Code sets out requirements for:
a. making a complaint;
b. dealing with a complaint;
c. dismissal of a complaint; and
d. withdrawal of a complaint.

5.3. This Policy further outlines how the City will deal with a complaint ~~; specifically the mechanism for resolving, investigating, determining, making recommendations and implementing action plans when dealing with~~of alleged breaches of the behavioural requirements set out in the Code.

~~Investigating a complain~~ Complaint Submission and Response~~t~~

~~5.4. T~~the ~~Chief Executive Officer (CEO) will appoint an Investigator to investigate complaints of alleged breaches of behaviour, and if required under paragraph~~ 5.105.9, ~~a Mediator.~~

~~5.5.~~5.4. A complaint must be submitted to the Complaints Officer and ~~complaint~~ cannot be submitted anonymously.

~~5.6.~~5.5. The ~~City's~~ Complaints Officer, within ~~14~~7 days of receiving a complaint:
a. will contact the Ccomplainant acknowledging that the complaint has been received;
~~b. as part of the acknowledgment process, will provide the complainant with a copy of this Policy and the Code;~~
~~c.~~b. will outline the process that will be followed ~~and possible outcomes~~ and the application of confidentiality;
~~d.~~c. will provide the ~~council or committee member to whom the complaint relates~~Respondent with a copy of ~~this Policy, the Code, and a copy of~~ the complaint, including the name of the Ccomplainant; and the City's response form.~~and~~

~~5.7.~~5.6. The Respondent will complete and submit the response form to the Complaints Officer within 7 days of receiving notification from the Complaints Officer~~send to the Investigator the complaint together with details of the alleged breach and any supporting evidence provided by the complainant~~.

5.7. ~~Complaints are to be dealt with and considered in the order in which they are received by the City's Complaints Officer.~~ If more than one complaint is received that relates to the same alleged behaviour, the ~~City's~~ Complaints Officer may determine to progress those complaints concurrently.

5.8. If mediation is requested by both parties, the Complaints Officer will appoint a Mediator and the assessment timelines outlined in this Policy will be suspended until such time as the mediation is finalised in accordance with paragraph 5.9 or discontinued.

5.9. ~~If issues raised in the complaint are resolved to the satisfaction of both parties in mediation, or otherwise, t~~The Ccomplainant must ~~, before the assessment of the complaint,~~ within 5 days of mediation lodge a withdrawal of complaint in accordance with the Code, or the ~~. In the event that the complainant does not withdraw the complaint,~~ assessment of the complaint will continue.

~~5.8. In investigating the complaint, the Investigator may request the City's Complaints Officer to search for any relevant records in the City's record management system.~~

~~5.9. The Investigator must offer mediation to both parties as the first option for dealing with a complaint and before progressing with the assessment of the complaint.~~

~~5.10. If mediation is accepted by both parties, the investigative timelines outlined in this Policy are suspended until such time as the mediation is finalised or discontinued in accordance with paragraph 5.141.~~

~~5.11. If issues raised in the complaint are resolved to the satisfaction of both parties in mediation, or otherwise, the complainant must, before the assessment of the complaint, lodge a withdrawal of complaint in accordance with the Code. In the event that the complainant does not withdraw the complaint, assessment of the complaint will continue.~~

~~5.12. Before making an assessment in relation to a complaint, the Investigator must provide the person to whom the complaint relates with an opportunity to respond to the allegations in the complaint, and to provide their own comments and evidence for consideration. The person to whom the complaint relates must do this within 1421 days of formally being notified of the complaint.~~

~~5.13.~~

~~5.14. After considering a complaint, the Investigator must make an assessment as to whether or not the alleged behaviour breach has occurred.~~

Assessment of the Complaint

5.10. Within 7 days of receiving a response from the Respondent, the Complaints Officer will undertake a review of the complaint to determine
   a. whether it could be dismissed under Clause 14.1 of the Code; or
   b. whether they will refer the complaint to an Assessor or make an assessment themselves as to whether the alleged behaviour breach has occurred.

5.11. Where a complaint is to be referred to an Assessor, the Complaints Officer must engage an Assessor within 14 days of receiving a response from the Respondent.

~~5.15.~~5.12. ~~The Investigator's assessment~~ The Assessor must ~~be~~ provide to the Complaints Officer a report containing a determination ~~made~~ within 21 days ~~from~~ of receiving a copy of the complaint and response ~~to the allegations by the person to whom the complaint relates~~.

5.13. In assessing the complaint, the Assessor may request the Complaints Officer to search for any relevant records in the City's record management system.

5.14. A meeting of the Committee must be convened:
   a. within 14 days after receipt of the Assessor's assessment; or
   ~~a.~~b. where recommended for dismissal or assessed by the Complaints Officer, within 21 days of the Complaints Officer having received the response from the Respondent.

~~5.16. Within 1421 days of making an assessment on the alleged behaviour breach, the Investigator must provide a report to the City's Complaints Officer.~~

~~5.17. If the Investigator makes an assessment that the alleged breach has occurred, the report must make a recommendation as to whether further action is required, including the preparation of an action plan.~~

~~5.18. In making a recommendation of further action, the Investigator is to prepare an action plan to address the behaviour of the person to whom the complaint relates.~~

~~5.19. An action plan should be prepared in consultation with the person to whom the complaint relates. If the person to whom the complaint relates does not participate in the preparation of an action plan, this is to be noted in the Investigator's report to the City's Complaints Officer and included in the report to Council.~~

~~5.20.~~

~~5.21. The Investigator may recommend to the Committee or Council to dismiss a complaint in accordance with clause 14.1 of the Code.~~

~~5.22. If the Investigator assesses that the behaviour is an offence under the City's *Standing Orders Local Law 2018*, the complaint should be referred back to the City's Complaints Officer.~~

~~5.23. The Investigator's deliberations and assessment are to be confidential and reported only to the CEO and the City's Complaints Officer, but subject to any consultation with the person to whom the complaint relates.~~

Committee ~~or Council~~ finding

~~5.24. A meeting of the Committee must be convened within 21 days after receipt of the Investigators assessment, at which the City's Complaints Officer must provide a confidential report.~~

~~5.25. In accordance with clause 5.26, if the matter is referred to the Council, the City's Complaints Officer must provide a confidential report at the next practicable Council meeting.~~

~~5.26.~~5.15. The Complaints Officer must present each complaint to the Committee in a ~~The~~ confidential report. The report ~~is~~ is to include:

a. a copy of the complaint;
~~a.~~b. a copy of the response;
c. any evidence received and any submissions or other communications from parties;
~~b.~~d. the report of the ~~Investigator~~ Assessor where relevant; ~~together with the evidence received and any submissions or other communications from parties;~~
~~c.~~e. a recommendation on the question whether or not a breach of behaviour has occurred;
f. a recommendation as to whether any~~, and if so what,~~ further action is required.
~~; and~~
~~an action plan, prepared in consultation with the person to whom the complaint relates, if relevant.~~

~~5.27.~~5.16. Based on the ~~Investigator's~~ Complaints Officer's report, and the evidence presented, ~~and any further comments or submissions by the parties,~~ the Committee ~~or Council~~ may do one of the following:

a. dismiss the complaint in accordance with clause 14.1 of the Code;
~~b.~~ find the alleged breach has occurred and decide no further action is required;
b.
~~c.~~ find the alleged breach has occurred, decide that further action is required and ~~; and~~ request that the Complaints Officer~~he Investigator~~ prepare an action plan; or ~~vary the proposed action plan; or~~
~~d.~~c. ~~consider the adoption of the action plan.~~
~~e.~~d. find that the alleged breach has not occurred.

5.17. In deciding whether to implement an action plan, the Committee ~~or Council~~ should consider:

a. the nature and seriousness of the breach(es);
b. any submission made by the person to whom the complaint relates;
c. whether the person to whom the complaint relates breached the Code knowingly or carelessly;

~~whether the person to whom the complaint relates has breached the Code on previous occasions; and~~

d. any other matters which may be regarded as contributing to the conduct or mitigating its seriousness.

~~5.28. The CEO has the discretion to refer the matter, in extraordinary circumstances, to Council to make a finding in relation to an alleged breach of behaviour.~~

Action plans

5.18. If the Committee ~~or Council~~ has made a finding in accordance with clause 5.~~24~~17(c) to prepare an action plan, the Complaints Officer will ~~Investigator should~~ prepare an action plan in consultation with the person to whom the complaint relates or engage a suitably qualified third party to prepare an action plan.

~~5.29.~~5.19. An action plan should outline:

a. the behaviour/s of concern;
b. the actions to be taken to address the behaviour/s;
c. who is responsible for the actions; and
d. an agreed timeframe for the actions to be completed.

~~5.30.1.1. In deciding whether to implement an action plan, the Committee or Council should consider:~~

~~a. the nature and seriousness of the breach(es);~~
~~b.a. any submission made by the person to whom the complaint relates;~~
~~c.a. whether the person to whom the complaint relates breached the Code knowingly or carelessly;~~
~~d.a. whether the person to whom the complaint relates has breached the Code on previous occasions; and~~
~~e.a. any other matters which may be regarded as contributing to the conduct or mitigating its seriousness.~~

Confidentiality of complaints

~~The complaint, its existence and details, and the processes undertaken in connection with it, are confidential matters and should not be disclosed unless and until the Committee has reached an outcome in respect of the complaint.~~

5.20. The complaint, response and any deliberations and assessment by the Complaints Officer / Assessor are confidential as they relate to the affairs of a person.

5.21. The Committee's findings and reasons will be published in the Committee minutes.

Compliance with plan requirement

~~5.31.~~5.22. The ~~City's~~ Complaints Officer is to monitor the actions and timeframes set out in an action plan.

~~5.32.~~5.23. Failure to comply with a requirement included in an action plan is a minor breach under section 5.105(1) of the *Local Government Act 1995* and clause 24.1 of the Code.

~~5.33.~~5.24. The ~~City's~~ Complaints Officer must provide a report to Council advising of any failure to comply with a requirement included in an action plan.

6. RELATED DOCUMENTATION / LEGISLATION

6.1. *Local Government Act 1995*
6.2. *Local Government (Model Code of Conduct) Regulations 2021*
6.3. City of Busselton Code of Conduct for Council Members, Committee Members and Candidates
6.4. Code of Conduct Alleged Breach Form

7. REVIEW DETAILS

Review Frequency		**3 yearly**		
Council Adoption	**DATE**	~~10 November 2021~~	**Resolution #**	~~C2111/087~~
Previous Adoption	**DATE**	10 November 2021~~9 June 2021~~	**Resolution #**	C2111/087~~C2106/113~~

Council Policy

Council Policy Name: Management of Complaints of Alleged Breaches of Behaviour
Responsible Directorate: Finance and Corporate Services **Version:** Proposed

1. PURPOSE

1.1. The purpose of this Policy is to outline the City's approach to the management of complaints relating to alleged breaches of the behaviour requirements in Part 3 of the City of Busselton Code of Conduct for Council Members, Committee Members and Candidates (the Code).

2. SCOPE

2.1. This Policy is applicable to complaints about alleged breaches of the behaviour requirements in Part 3 of the Code, and should be read in conjunction with the Code.

2.2. A breach of Part 4 of the Code is a minor breach under section 5.105(1) of the Act, and is not the intended subject of this Policy. The following are inappropriate to be dealt with under this Policy:

a. complaints made with the intent of addressing personal grievances or disagreements;
b. complaints made to express dissatisfaction with a council or committee member's lawfully made decisions or performance of their role;
c. minor breaches under section 5.105(1) of the Act;
d. serious breaches under section 5.114 of the Act; and
e. allegations of corruption.

3. DEFINITIONS

Term	Meaning
Committee	the Behaviour Complaints Committee established under section 5.8 of the *Local Government Act 1995* and delegated the power to make findings of complaints of alleged breaches of Part 3 of the Code
Complaints Officer	a person authorised in writing by Council resolution or by the CEO exercising delegated authority under clause 12.3 of the Code to receive complaints and withdrawals of complaints and in accordance with this Policy.
Complainant	a person lodging a complaint
Assessor	an impartial third party, appointed by the CEO, with the skills, knowledge and experience to assess complaints in accordance with this Policy.
Mediator	an impartial third party, appointed by the CEO, with the skills, knowledge and experience to facilitate mediation between the person to whom the complaint relates and the complainant in accordance with this Policy.
Policy	this City of Busselton Council policy titled "Management of Complaints of Alleged Breaches of Behaviour".
Respondent	the Council or Committee member to whom a complaint relates

4. STRATEGIC CONTEXT

4.1. This Policy links to Key Theme 4 - Leadership of the City's Strategic Community Plan 2021-2031 and specifically the Strategic Priority 4.2: Deliver governance systems that facilitate open, ethical and transparent decision making.

5. POLICY STATEMENT

5.1. The Code provides for requirements relating to the behaviour of council members, committee members and candidates.

5.2. The Code sets out requirements for:
a. making a complaint;
b. dealing with a complaint;
c. dismissal of a complaint; and
d. withdrawal of a complaint.

5.3. This Policy further outlines how the City will deal with a complaint of alleged breaches of the behavioural requirements set out in the Code.

Complaint Submission and Response

5.4. A complaint must be submitted to the Complaints Officer and cannot be submitted anonymously.

5.5. The Complaints Officer, within 7 days of receiving a complaint:
a. will contact the Complainant acknowledging that the complaint has been received;
b. will outline the process that will be followed and the application of confidentiality;
c. will provide the Respondent with a copy of the complaint, including the name of the Complainant; and the City's response form.

5.6. The Respondent will complete and submit the response form to the Complaints Officer within 7 days of receiving notification from the Complaints Officer.

5.7. If more than one complaint is received that relates to the same alleged behaviour, the Complaints Officer may determine to progress those complaints concurrently.

5.8. If mediation is requested by both parties, the Complaints Officer will appoint a Mediator and the assessment timelines outlined in this Policy will be suspended until such time as the mediation is finalised in accordance with paragraph 5.9 or discontinued.

5.9. The Complainant must within 5 days of mediation lodge a withdrawal of complaint in accordance with the Code, or the assessment of the complaint will continue.

Assessment of the Complaint

5.10. Within 7 days of receiving a response from the Respondent, the Complaints Officer will undertake a review of the complaint to determine:
a. whether it could be dismissed under Clause 14.1 of the Code; or
b. whether they will refer the complaint to an Assessor; or
c. make an assessment themselves as to whether the alleged behaviour breach has occurred.

5.11. Where a complaint is to be referred to an Assessor, the Complaints Officer must engage an Assessor within 14 days of receiving a response from the Respondent.

5.12. The Assessor must provide to the Complaints Officer a report containing a determination within 21 days of receiving a copy of the complaint and response.

5.13. In assessing the complaint, the Assessor may request the Complaints Officer to search for any relevant records in the City's record management system.

5.14. A meeting of the Committee must be convened:
   a. within 14 days after receipt of the Assessor's assessment; or
   b. where recommended for dismissal or assessed by the Complaints Officer, within 21 days of the Complaints Officer having received the response from the Respondent.

Committee finding

5.15. The Complaints Officer must present each complaint to the Committee in a confidential report. The report is to include:
   a. a copy of the complaint and any supporting attachments;
   b. a copy of the response and any supporting attachments;
   ~~c. any evidence received and any submissions or other communications from parties;~~
   ~~d.~~c. the report of the Assessor where relevant;
   ~~e.~~d. a recommendation on the question whether or not a breach of behaviour has occurred;
   ~~f.~~e. a recommendation as to whether any further action is required.

5.16. Based on the Complaints Officer's report, and the evidence presented, the Committee ~~may~~ must do one of the following:
   a. dismiss the complaint in accordance with clause 14.1 of the Code;
   b. find the alleged breach has occurred and decide no further action is required;
   c. find the alleged breach has occurred, decide that further action is required and request that the Complaints Officer prepare an action plan; or
   d. find that the alleged breach has not occurred.

5.17. In deciding whether to implement an action plan, the Committee should consider:
   a. the nature and seriousness of the breach(es);
   b. any submission made by the person to whom the complaint relates;
   c. whether the person to whom the complaint relates breached the Code knowingly or carelessly;
   d. whether the person to whom the complaint relates has breached the Code on previous occasions; and
   e. any other matters which may be regarded as contributing to the conduct or mitigating its seriousness.

Action plans

5.18. If the Committee has made a finding in accordance with clause 5.16(c) to prepare an action plan, the Complaints Officer will prepare an action plan in consultation with the person to whom the complaint relates or engage a suitably qualified third party to prepare an action plan.

5.19. An action plan should outline:
   a. the behaviour/s of concern;
   b. the actions to be taken to address the behaviour/s;
   c. who is responsible for the actions; and
   d. an agreed timeframe for the actions to be completed.

Confidentiality of complaints

5.20. The complaint, response and any deliberations and assessment by the Complaints Officer / Assessor are confidential as they relate to the affairs of a person.

5.21. The Committee's findings and reasons will be published in the Committee minutes.

Compliance with plan requirement

5.22. The Complaints Officer is to monitor the actions and timeframes set out in an action plan.

5.23. Failure to comply with a requirement included in an action plan is a minor breach under section 5.105(1) of the *Local Government Act 1995* and clause 24.1 of the Code.

5.24. The Complaints Officer must provide a report to Council advising of any failure to comply with a requirement included in an action plan.

6. RELATED DOCUMENTATION / LEGISLATION

6.1. *Local Government Act 1995*
6.2. *Local Government (Model Code of Conduct) Regulations 2021*
6.3. City of Busselton Code of Conduct for Council Members, Committee Members and Candidates
6.4. Code of Conduct Alleged Breach Form

7. REVIEW DETAILS

Review Frequency		**3 yearly**		
Council Adoption	**DATE**		**Resolution #**	
Previous Adoption	**DATE**	10 November 2021	**Resolution #**	C2111/087

13. PLANNING AND DEVELOPMENT SERVICES REPORT

13.1 DRAFT COASTAL HAZARD RISK MANAGEMENT AND ADAPTATION PLAN - CONSIDERATION FOR ADOPTION FOR FINAL APPROVAL

STRATEGIC THEME	ENVIRONMENT - An environment that is valued, conserved and able to be enjoyed by current and future generations.
STRATEGIC PRIORITY	1.4 Respond to the impacts of climate change on the City's coastlines through informed, long term planning and action .
SUBJECT INDEX	Planning and Development Services
BUSINESS UNIT	Strategic Planning
REPORTING OFFICER	Principal Strategic Planner - Louise Koroveshi Strategic Planning Coordinator - David Sands
AUTHORISING OFFICER	Director, Planning and Development Services - Paul Needham
NATURE OF DECISION	Executive: Substantial direction setting, including adopting budgets, strategies, plans and policies (excluding local planning policies); funding, donations and sponsorships; reviewing committee recommendations
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Draft Coastal Hazard Risk Management and Adaptation Plan (2021) Attachment B Proposed general and management unit recommendations Attachment C Inland minimum finished floor level maps Attachment D Revised boundaries for Marybrook & Siesta Park management units Attachment E Schedule of submissions Attachment F Long submissions

OFFICER RECOMMENDATION

That the Council, with respect to the Draft Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) -

1. **Adopts the CHRMAP for final approval as a guide for future planning, subject to the following modifications -**
   a) **Inclusion of the revised recommendations set out at Attachment B;**
   b) **Updating and editing to reflect the revised recommendations set out at Attachment B; and**
   c) **Inclusion of information relating to the consultation process, reflecting the information set out in the agenda report;**
2. **Notes the Schedule of Submissions provided in Attachment E and thanks submitters for their contributions during and after the formal consultation period;**
3. **Refers the CHRMAP to the Western Australian Planning Commission for its consideration; and**
4. **Notes that the City will prepare an implementation strategy to guide the prioritisation and progression of future work.**

EXECUTIVE SUMMARY

The Council is requested to consider adopting the *Draft Coastal Hazard Risk Management and Adaptation Plan* (CHRMAP) for final endorsement, subject to changes addressing issues raised through the consultation process.

The strategic direction and recommendations outlined in the CHRMAP attracted a considerable level of interest during the consultation period and, in response to substantive matters raised in submissions primarily relating to recommendations for the Marybrook and Siesta Park sections of the coast, modifications are being recommended.

The CHRMAP, modified as recommended, sets out a well-reasoned and equitable strategic direction for the City to address a significant issue. Once adopted, the CHRMAP is intended to underpin and guide future planning and infrastructure/land management decisions by the City.

BACKGROUND

Introduction

At its Ordinary Meeting of 24 February 2021 the Council resolved to adopt for public consultation a draft Coastal Hazard Risk Management and Adaptation Plan (CHRMAP). The CHRMAP, as advertised, is provided at Attachment A.

The CHRMAP is a high level strategic document that identifies the current and projected extent of risk to private and public assets (as well as environmental/social/cultural values) from coastal erosion and coastal inundation hazards, including those arising from future sea level rise. The CHRMAP sets out recommendations for responding to those hazards, including funding considerations, over the next 100 years. The CHRMAP is intended to provide a basis for prioritising and undertaking more detailed work after a final CHRMAP has been adopted.

The development of the CHRMAP reflects the requirements of *State Planning Policy 2.6: State Coastal Planning Policy* (SPP2.6) and the fact that the City has a long and dynamic coastline with significant property, infrastructure and environmental assets in close proximity to the coast and potentially vulnerable to coastal processes. SPP2.6 requires planning authorities to consider the potential impact of coastal processes on proposed development over a 100 year time horizon (i.e. if a decision is being made in 2022, through to 2122). SPP2.6 also sets out that planning authorities should assume an increase in mean sea level over that period of 0.9 metres.

That rise, should it occur, is expected to significantly increase risks associated with the two main coastal hazards – coastal erosion and coastal inundation (the latter may also be referred to as ‘storm surge’ or ‘coastal flooding’). It may also increase other hazards, such as through the lifting and salinization of groundwater tables in near coastal areas. Such a rise in mean sea level is expected to result in accelerated coastal erosion, with approximately 100-200 metres of land along the City’s northern coast potentially being lost to erosion over the 100 year period, if the coast is not actively managed.

SPP2.6 also requires that planning authorities consider the potential coastal inundation impact of a 1 in 500 year coastal storm surge event (or, to use the current technical term, a 1 in 500 Annual Exceedance Probability - ‘AEP’ - event). Whilst there have been more recent assessments which indicate the risk may be somewhat lower, the current advice of the Department of Transport (‘DoT’ - which is effectively the State’s ‘coastal engineer’) applicable to most of the City’s northern / Geographe Bay coast is that such an event may result in storm surge as high as 2.9 AHD (i.e. 2.9 metres above mean sea level) with present day mean sea levels, or 3.8 AHD with mean sea level 0.9 metres higher.

Cyclone Alby is thought to have resulted in water levels of around 1.8 AHD. A 3.8 AHD event, however, could result in coastal inundation several kilometres inland in some cases, and could result in flooding to depths of around 2.0 metres, in significant parts of both Busselton and Dunsborough.

Given the above, the issues that the CHRMAP seeks to understand and address are clearly very significant issues for the City and its community.

Summary of CHRMAP direction – as set out in draft document

The CHRMAP divides the City's coastline into nine management units and recommends adaptation pathways for each over three time periods: short-term (through to 2040); medium-term (2040-2070); and long-term (2070-2120, note these dates are proposed to be adjusted back by three years for the final CHRMAP to reflect the required 100 year timeframe). In some cases, the fundamental adaptation pathway differs between coastal erosion and coastal inundation hazards.

The five different kinds of adaptation strategies recommended for the various management units are summarised below (noting these reflect the draft CHRMAP, and that some changes are recommended for the final CHRMAP) –

i. *MU01 – Smiths Beach, MU02 – Yallingup* and *MU03 – Bunker Bay:* **Protect** from coastal erosion hazard, and **avoid** coastal inundation hazard.

ii. *MU04 – Eagle Bay and MU05 – Old Dunsborough:* **Protect** from coastal erosion hazard, and **accommodate** coastal inundation hazard (principally, through setting minimum finished floor levels for new development, in the small areas that may be vulnerable).

iii. *MU06 – Dunsborough Townsite, MU07 – Quindalup, MU11 – Abbey, MU12 – Broadwater, MU13 – Busselton West (A), MU14 – Busselton West (B), MU15 - Busselton Central, MU16 – Busselton East, MU17 – Port Geographe* and *MU18 – Wonnerup:* **Protect** from coastal erosion hazard. **Accommodate** coastal inundation hazard through setting minimum finished floor levels for new development over the short term (and emergency management responses), and protect from inundation in the medium and long terms (through a continuous seawall/bund or elevated/protected foredune).*MU08 – Marybrook, MU09 – Siesta Park* and *MU19 – Forrest Beach:* **Protect** from coastal erosion hazard for the short term (subject to resolution of land tenure issues, and to be fully funded by the benefitting landowners). **Accommodate** coastal inundation through setting minimum finished floor levels for new development over the short term (and emergency management responses). Leave open the option of **retreat** in the longer-term, supported by controls on new development (i.e. time-limited approval).

iv. *MU10 – Locke Estate:* Land in this Management Unit is all publicly owned, and the campsites on the northern side of Caves Road are leasehold facilities. In some respects there is a different planning time horizon, which coincides with the current 21 year lease terms that are in place. **Protect** from erosion in the short-term (noting there are already coastal protections in place with a design life that extends for at least another ten years). **Accommodate** inundation risk (through minimum floor levels for new development and emergency management approaches) and keep open the option of **retreat** over the medium to long term for future decision-makers.

SPP2.6 sets out that, if a section of the coast is likely to be affected by coastal hazards over the next 100 years, the response in relation to both potential and existing development should be considered sequentially, i.e. Avoid, Retreat, Accommodate, Protect (an explanation of each term is provided in the Relevant Plans and Policies section of this report). In reality, though, for the City's northern/Geographe Bay coast, avoid is not an option as there is already significant development in vulnerable areas. The choice is effectively between a protect strategy or a retreat strategy for coastal erosion, and a protect strategy or accommodate strategy for coastal inundation in some areas at some times.

Even in the absence of a CHRMAP, though, much of the City's coast is actively managed today, and has been historically, mostly in response to risk and impacts from coastal erosion. If the direction was to not commit to long-term protection what would most likely occur is a continuation of current management practices for sections of the coast, such as groynes, beach nourishment and seawalls and localised retreat where the coast is not currently managed. This would be a 'de facto' combination of protect and retreat that is unlikely to be a successful, sustainable or acceptable long term adaptation response.

Future decisions (timing would vary for different sections of the coast) would need to be made on maintenance and/or refurbishment of current coastal infrastructure to enable continued management of, and protection from, coastal erosion (groynes and seawalls do not have a design life of 100 years). If adjoining sections of the coast not requiring active management (such as parts of the coast with a wide beach and foreshore reserve) are left to retreat the beach and foreshore would most likely be lost. Should this occur, it would be extremely challenging to protect from inundation risk as there would not be continuous public land along the coast within which to implement a medium to long term protect strategy (i.e. what the CHRMAP is currently recommending – the construction of a continuous seawall/bund or similar in the foreshore reserve for much of the coast). Similar challenges would arise also for a medium to long term protect strategy for coastal erosion risk – which is needed to protect not only the foreshore reserve within which the infrastructure would be placed, but also the land that sits behind it.

In parts of the Marybrook/Siesta Park area, there are a number of private coastal erosion protection structures (seawalls) along a vulnerable and relatively narrow strip of developed land with very narrow or absent foreshore reserve. Not all properties have seawalls and not all of the current seawalls are the same in terms of size and scale, construction materials and design life. There are gaps where some properties do not have any defences in place and these 'gaps' are vulnerable to erosion (and have been subject to erosion damage/recession in the past). A situation where a landowner whose property has protection infrastructure on the seaward boundary of their lot cannot rely on neighbouring properties having similar protection in place. To be fully protected, that landowner would also have to install seawalls along the side boundaries of their property to safeguard against risk of accelerated erosion pressure emanating from adjoining properties – which would clearly be an undesirable outcome. This is one of the reasons why the CHRMAP recommends an integrated strategy for erosion protection in these areas.

In considering retreat, for undeveloped or more natural areas, the coastline would 'naturally' recede and progressively adjust. For those parts of the coastline that are developed, if the coast was allowed to retreat (without support for that such as acquisition of land by government, and proactive and progressive removal or relocation of buildings, roads and other infrastructure ahead of coastal erosion), it would not be such a passive process. Houses and other public and private buildings, utilities (infrastructure for water/sewerage/electricity/gas etc), roads, dual use pathways, carparks and so forth would become increasingly vulnerable to damage from, and progressively lost to, coastal erosion. There would no longer be a public beach or foreshore reserve – the beach and foreshore would be in private property - and the 'new' coastline would be blighted for many decades by the damage inflicted on assets and infrastructure.

There are also highly valuable and significant assets that would also be compromised or lost, such as the Ramsar wetlands in the Vasse-Wonnerup estuary, recognised habitat areas for the critically endangered Western Ringtail Possum, wetlands, groundwater aquifers and sites of both Aboriginal and European historical, spiritual and cultural significance.

Background work

Commencing as early as 2008, the City has undertaken, or been otherwise directly involved in, a number of projects and initiatives that have assisted in understanding the risks and setting the future direction for the effective management of our coastline, including:

i. Formation of the Peron-Naturaliste Partnership (PNP), which is a collaboration of the nine coastal local authorities between Point Peron (in the City of Rockingham) and Cape Naturaliste (in the City of Busselton) providing regional direction and leadership in terms of coastal monitoring and management, particularly through the:

   - Federally funded Coastal Adaptation Pathways project that delivered an economic analysis of adaptation options at a 'whole of region' scale, and a demonstration of coastal adaptation pathways and options at a scale relevant to partner local governments (ACIL Tasman/Damara 2012).
   - Coastal Community Adaptation Awareness Plan project (2013) that engaged with the City of Busselton community regarding coastal adaptation challenges and options, with the aim that 'lessons learned' could be applied for similar engagement elsewhere within the PNP region and beyond (ACCARNSI 2013).

ii. A number of coastal erosion studies to model the potential impacts of sea level rise on the Geographe Bay coastline, with the most recent of these (Damara 2012) reflecting the direction of the WAPC that coastal planning be undertaken on the basis of a predicted 0.9 metre sea level rise over a time period of 100-years. The Damara study produced interim coastal modelling maps that provided an interpretation of development planning setbacks for coastal erosion under a set of possible climate change scenarios. These are publicly available on the City's website.

iii. A Coastal Vulnerability Assessment for four settlements either side of Cape Naturaliste: Smiths Beach, Yallingup, Bunker Bay and Eagle Bay (Damara 2017).

iv. A rolling *Coastal Management Programme 10 Year Plan (2020-2030)* (CMP) for the Geographe Bay coastline that provides the basis for a 'whole of coast' approach to managing coastal erosion, through the definition of six coastal management areas based on tertiary sediment cells and local management practices (Shore Coastal 2020). The CMP also sets out planned and costed coastal protection maintenance works, beach width monitoring, investigations (such as sediment and coastal inlet dynamics, coastal stratigraphy, numerical modelling of coastal flooding and review of sand and rock sources) and coastal adaptation works. The CMP has a time horizon, however, that is less than what is needed for long-term coastal adaptation planning. The focus of the CMP to date is also on reserves and public assets, with little explicit consideration of private land and assets. A previous five-year CMP (2014-2018) has already been implemented.

v. The transition of the City's 'Beach Protection Reserve' to a 'Climate Adaptation Reserve' in 2015/16 to enable the direct allocation of funds towards the preparation of a short term (<25 years) coastal protection plan/long-term coastal adaptation strategy (i.e. the CHRMAP) to be reflected in an integrated way into the City's local planning scheme, as well as the City's long-term infrastructure and financial plans.

vi. Two legal implications related projects to assist coastal local government authorities to identify, manage and mitigate legal risks in an environment of changing climate policy.

vii. A WALGA-led project to obtain qualified legal advice and opinion to assist coastal local government authorities with respect to matters associated with coastal hazard planning issues relating to sea level rise.

The CHRMAP process formally commenced in 2017 and has been overseen by a multi-agency steering group. The City was successful in securing a $75,000 WAPC Coastal Management Plan Assistance Programme (CMPAP) grant to support the project. Formulation of the CHRMAP included the following components -

- Coastal hazard modelling gaps filled and identification of when and where different sections of the coast may be vulnerable (with each section identified as one of 19 management units).
- Engagement and consultation to determine what our community values about the coast, and to elicit views on how coastal hazards should be managed.
- Development of a financial model to identify potential financial implications and costs associated with different adaptation strategies.
- Development and application of a multi-criteria analysis (MCA) framework to inform the formulation of 'whole of coast' recommendations, as well as recommendations for multiple or specific management units.

Most of the technical work which underpins the CHRMAP was undertaken by an external consulting team. The development of the MCA framework and recommendations, however, was largely undertaken in-house.

Early community engagement (prior to formal consultation on the CHRMAP)

Early consultation in the form of a community survey was undertaken in 2018 to determine what people value most about the City's coastline. An important objective of the consultation was to deliver a random and representative sample of the community, including those members of the community who may not typically participate in such consultation due to their residing away from the coastline.

The north-facing sandy beaches were strongly valued by the community with uninterrupted stretches of sandy beach being a vital part of the character and well-being of Busselton. The most important coastal value from respondents was essentially preserving the coastline as it is today, or in a better state, for future generations.

On the question of who should be responsible to pay for costs associated with the prevention or mitigation of likely coastal erosion impacts, 41% of respondents felt that the State taxpayer should bear the majority of such necessary costs, with the balance to be borne by all ratepayers in the City (29%) and private landowners/businesses more directly affected (30%). Further detail on the community survey is provided under the Stakeholder Consultation section of this report.

The results of the community coastal values survey were used to inform the MCA of adaptation options for the CHRMAP, as well as the financial model (where all scenarios assume protection and preservation of a continuous beach and foreshore, wherever possible, is the preferred end result).

In June 2020, the City undertook a 'community scorecard survey' to support a review of the *Strategic Community Plan* and to assist with identifying community priorities. The survey asked respondents to rank local projects and issues, from the most important to the least important. Of those respondents, 46% ranked the management and protection from coastal erosion of the City's coastline as the most important.

Advertising of the CHRMAP

Consultation on the CHRMAP commenced in May 2021. The strategic direction and recommendations outlined in the CHRMAP attracted a significant level of community interest during the consultation period. Of the 62 public submissions received, nearly half (29) indicated general support for the CHRMAP and/or recommended response(s) to managing risk from coastal hazards. Most of the rest of the submissions were from Siesta Park/Marybrook landowners, and expressed concerns about the approach proposed for that part of the coast.

Originally the end date for consultation was intended to be 23 July 2021. Following higher levels of enquiry and concern from landowners in the Marybrook and Siesta Park coastal areas, consultation was extended to 28 September 2021. An overview of the consultation process and issues raised is provided in the 'Stakeholder Consultation' section of this report.

The recommendations of the advertised CHRMAP of most contention during consultation related to MU08 Marybrook and MU09 Siesta Park management units, and in particular –

- The boundaries of the Marybrook and Siesta Park management units.
- Option for long term managed retreat.
- Planning controls on development.
- Proposals to address inundation hazard (finished floor levels for habitable floor space).
- Proposals to address erosion hazard.
- Proposed approach to fund coastal protection and management.

Following the formal consultation phase, the Geographe Bay Coastal Action Group (GBCAG) was formed. A working group, comprised of five members acting as a committee on behalf of GBCAG, two Councillors and City staff, was convened to discuss matters arising from the advertised CHRMAP. The working group met on four occasions to discuss potential changes to the advertised CHRMAP. The City and GBCAG also co-hosted an information session that all Marybrook/Siesta Park landowners were invited to attend.

Engagement with GBCAG has led to both the City and GBCAG members having a better understanding of the issues of concern, and a range of recommended modifications to the CHRMAP. Feedback from the GBCAG indicates a reasonable degree of support for the direction as now proposed by officers. It cannot, however, be assumed that the direction proposed by officers is necessarily supported by all landowners in that area, or indeed in other parts of the City's coast.

OFFICER COMMENT

Officers are proposing a range of modifications to the recommendations of the CHRMAP. It is proposed to replace the recommendations contained in Part 7 of the draft CHRMAP with the proposed recommendations set out in Attachment B. The modifications proposed are a response to careful consideration of the substantive issues raised in submissions (principally from landowners in Marybrook and Siesta Park).

Sections A and B below set out the principles proposed to be applied consistently to all management units and includes setting of minimum finished floor levels for new development and high level commentary on the community use of foreshore reserves (something that was not explicit in the draft CHRMAP).

Section C below describes the proposed changes to the general recommendations and section D provides further detail on changes proposed for the Marybrook, Siesta Park and Forrest Beach management units.

A. Coastal inundation risk and finished floor levels (FFL)

The draft CHRMAP, reflecting SPP2.6 requirements and Department of Transport advice, considers and seeks to address the potential impacts of a 3.8m AHD coastal flooding event. Given the geology and topography that does not create significant issues for the settlements either side of Cape Naturaliste (i.e. Smiths Beach, Yallingup, Bunker Bay, Eagle Bay, Old Dunsborough). It does, however, create significant issues along the rest of the City's coast, from the Dunsborough Townsite all the way to the boundary with the Shire of Capel, at Forrest Beach. Fundamentally, there are two potential strategies to address this risk.

The first would be an accommodation strategy, potentially requiring the minimum finished floor level (FFL) for new development to be at or above 3.8m AHD (note that this would principally be for 'habitable' floorspace such as houses, sheds or similar could have lower floor levels). In new/greenfields development areas, that would mean that the floor level for all development would be at or above that level. Most of the vulnerable areas, however, are not new/greenfields development areas. They are older and largely developed areas, so such a requirement would only have a practical impact as and when sites are redeveloped.

Whilst some redevelopment can no doubt be expected to occur over coming decades, in many areas, a significant proportion of existing buildings will still exist in 20, 30 or even 100 years' time. That would mean that, whilst the lifting of floor levels would mitigate the risk to some degree, it would represent a partial solution only, and the largest flooding events could still be expected to have very significant consequences, both during and after any such event. Given the scale and nature of the vulnerable areas, the task of evacuating and accommodating people living in houses with floor levels below the flood level in and of itself would be extremely challenging. The shorter-term cost and amenity impacts of requiring floor levels for new development to be, in some cases, over 2.0 metres than existing ground or floor levels would, however, also be considerable – and probably unacceptable to the community.

For those and other reasons, the draft CHRMAP instead recommended a medium- to long-term protect strategy for inundation risk for the City's main urban/developed areas. That would entail the construction of a continuous seawall/bund or similar in the foreshore reserve for much of the coast. It would also entail works to prevent seawater entering urban areas via the various 'gaps' along the coast – e.g. drain and inlet entry channels, or the Port Geographe Marina entry. The CHRMAP recommends further investigations into the potential costs and means of managing the 'gaps', as well as further investigation into coastal inundation risk more broadly (note that the City has recently been awarded a Federal Government grant that will enable those further investigations to commence).

Together, those approaches enabled the draft CHRMAP to recommend that FFLs in the main urban/developed areas be set at 3.0m AHD, rather than 3.8m AHD. 3.0m AHD was chosen in recognition of the fact that it may take several decades to implement the medium- to long-term protect strategy for inundation risk for the City's main urban/developed areas, and there is still a significant risk to mitigate coastal inundation risk in the interim period.

In the Siesta Park/Marybrook/Locke Estate and Forrest Beach areas, a long-term protect strategy for inundation risk was not proposed in the draft CHRMAP. Given that, a minimum FFL of 3.8M AHD was recommended. The reasons for the different approach proposed in those areas are returned to later in this section of the report.

Returning to the City's main developed/urban areas, officers remain concerned about the cost and amenity impacts of requiring floor levels for new development to be 3.0m AHD. In some cases, that would still be over 1.0 metre higher than existing ground or floor levels. Two strategies have been identified and are now proposed to reduce those impacts.

Firstly, consideration has been given to coastal inundation modelling undertaken to support a review of structure planning for Port Geographe. That modelling indicates that the level of a 1 in 500 year coastal storm surge with present day mean sea levels is 2.5m AHD (i.e. 2.5 metres above mean sea level), or 3.4m AHD with mean sea level 0.9 metres higher, rather than 2.9m AHD or 3.8m AHD respectively. That modelling, prepared by Baird Consultants for the developers (Aigle Royal) has been accepted by DoT, and there is not seen to be any clear reason why the figure would be higher for other parts of the City's coast.

On the basis of that, it is considered that minimum FFLs for new development in areas where a medium- to long-term protect strategy for inundation risk is being proposed could be reduced from the originally proposed 3.0m AHD to 2.7m AHD. The reason that 2.5m AHD is not proposed is because some of the projected 0.9m sea level rise over the next 100 years will occur in the period between now and when the medium- to long-term protect strategy for inundation risk can actually be implemented. Note that the recommended revised recommendations also add the word 'generally', and that the additional modelling being funded by the Federal Government and progressed by the City is also likely to have been completed prior to the City's town planning scheme being amended to actually implement this recommendation of the CHRMAP – and the actual level(s) required could be adjusted based on that modelling.

Secondly, consideration has also been given to allowing some development, especially additions or alterations to existing development, to occur at a somewhat lower level – down to 2.2m AHD. It is proposed that be allowed to occur where development has been built to withstand temporary inundation, with moisture proofing up to a level of at least 2.7m AHD. Whilst in extreme events, such development could still be inundated, residents needing to be evacuated and significant damage done to finishes, furniture or appliances, the integrity of the structure would be expected to be maintained.

Further work would be required to determine the specific/requirements for new floorspace below 2.7m AHD, but it is seen as important that option is accommodated. There are some small areas where a minimum FFL of 2.7m AHD would be around 1.0 metre higher than existing ground or floor levels, and even a 2.2m AHD FFL would be around 0.5 metres above existing ground or floor levels. Even that level would have cost and in some cases amenity impacts, and whilst it is seen as vital that the City does seek to mitigate future flooding risk, that does need to be considered in a broader context, especially in terms of potential cost and amenity impacts.

Turning to the Siesta Park/Marybrook/Locke Estate and Forrest Beach areas, whilst a long-term protect strategy is no longer proposed to be explicitly 'ruled out' in the CHRMAP, neither is a commitment to do so recommended at this stage. A key impact of that is that the minimum FFL for new development should reflect the projected 1 in 500 year coastal storm surge, including an allowance for a 0.9 metre increase in mean sea level. Given material identified above, however, it is now considered that can be 3.4m AHD, rather than 3.8m AHD – although that would also be subject to the additional modelling as also described above. It should also be noted that application of that requirement would require a town planning scheme amendment, which would entail further community and stakeholder engagement.

The cost and amenity impacts of that higher minimum FFL in Siesta Park/Marybrook/Locke Estate and Forrest Beach are likely to be less than in significant parts of the main urban/developed areas, as natural ground levels are generally above 2.5m AHD, and through building (rather than planning) controls the City has been recommending (and in most cases applying) a minimum FFL of 3.0m AHD in any case. As such, in many cases, the increase in minimum FFL is only from 3.0m AHD to 3.4m AHD. It is also considered that, on average, the rate of redevelopment in these areas will be a little higher than the average rate elsewhere, enhancing the risk mitigation value of that approach, as a larger proportion of existing development, some of which may be at a lower level, would be demolished and then replaced with new development with a hjgher FFL.

There are several other key reasons why it is not seen as necessary or appropriate to recommend a protect strategy for inundation risk for the Siesta Park/Marybrook/Locke Estate and Forrest Beach areas in the CHRMAP –

1. The total population and value of assets that would be protected per kilometer of coast would be considerably lower, as there are not the extensive urban/residential areas inland from the coast that would benefit from the protection, instead there is a relatively narrow strip of developed land along Caves Road in the case of Siesta Park/Marybrook/Locke Estate, and a small number of somewhat sparsely distributed houses in the case of Forrest Beach;
2. The costs of protection per kilometer of coast would be somewhat higher, as the number of 'gaps' is higher – in the entire approximately 18km length of coast between Abbey and Wonnerup, there are four such gaps (counting the two at either end – the Buayanyup Drain and Vasse-Wonnerup Estuary mouth), whereas in the approximately 7km length of coast between the Locke Estate and Quindalup there are six;
3. As there is not a continuous foreshore reserve in the Siesta Park/Marybrook area, and even where there is in some cases it is quite narrow, without the City acquiring private land, the land on which to build a continuous seawall/bund that would provide that protection is actually not available; and
4. There could be significant amenity issues and challenges maintaining a continuous beach, with continuous seawall/bund in this section of the coast, given the absence of or limited width of the foreshore reserve.

One of the other issues that has been considered in developing the revised recommendations is the definition of the inland boundaries of areas where different floor level controls may apply. Because so much of the land in the City is flat and low, those areas need to extend quite some distance inland – essentially sufficiently far inland to a point where existing ground levels are at or above the minimum FFLs proposed. If the same minimum FFL was being proposed everywhere, that would be fairly straightforward, as the town planning scheme could simply establish a minimum FFL throughout the whole of the City.

Reflecting the approach to flood risk mitigation proposed, it is envisaged that a general minimum of 2.7m AHD would be introduced, but that in the areas inland from Siesta Park/Marybrook/Locke Estate and Forrest Beach, a minimum of 3.4m AHD would apply, extending south through to east-west oriented roads (i.e. Vasse-Yallingup Siding Road and Tuart Drive respectively), by which point existing ground levels are above 3.4 AHD. As noted, there would also be allowance for some development to be approved below that level, and the exact levels and boundaries would also be identified following the further modelling work that has been noted above.

B. Community use of foreshore reserves

A new theme is proposed with the intent that very high level recommendation is being made for all management units on community use of foreshore reserves. As evidenced by the coastal values survey, a significant proportion of our community use the local beaches and foreshore areas, with stretches of sandy beaches to walk on, natural vegetation and habitat afforded by foreshore and beach areas, safe swimming beaches, and the 'natural' aesthetic of some parts of the coast being very highly valued. Handing the beaches and foreshore areas to future generations in the same or better state than it is now was cited as the most important value.

For Abbey, and most of the rest of the coast, the response is to continue to support and consider accommodating new community infrastructure within the foreshore reserve. The principle also recognises that there is public access and use of the foreshore in Marybrook and Siesta Park and flags that some areas could accommodate community infrastructure at some point in the future, but other parts are too constrained.

The direction set for adaptation response to coastal erosion risk is to protect public assets and infrastructure (including foreshore areas) as well as private properties. The CHRMAP should recognised that public assets are protected at the City's cost and therefore those assets should be available and able to be used by the whole community. Protection also provides an opportunity to consider new or expanded infrastructure available for use by the whole community.

C. General recommendations

The changes proposed to the general recommendations are set out below.

Recommendations 1 and 2

Recommendations 1 and 2 are proposed to be retained without change in the final CHRMAP, other than updating to reflect the renumbering of current recommendation 8 a Recommendation 9. The wording proposed for Recommendations 8 and 9 is as follows -

> *Recommendation 1:*
>
> *That the coastal erosion hazard lines shown on the maps for each of the identified Management Units in Recommendation 9 be adopted as a guide for future planning.*
>
> *Recommendation 2:*
>
> *That the adaptation pathways for the identified Management Units are generally as set out in Recommendation 9.*

Recommendation 3

Recommendation 3 is proposed to be retained with a minor update to part (a) reflecting that since adoption of the draft CHRMAP, the Council has already reflected this in the LTFP. The wording proposed for Recommendation 4 is as follows -

Recommendation 3:

That the City:

a. Allocates, through a phased increase from 1% (as applies currently), a minimum of 2.0% of total rates revenue to the 'Coastal Adaptation Reserve', as set out in within the City's current 10-year Long Term Financial Plan;

b. Advocates and make application for State and/or Federal Government grants funding to support coastal adaptation measures and initiatives as these become available and necessary;

c. Advocates at State and Federal Government level for the identification and implementation of a sustainable, equitable and efficient framework for the funding of coastal adaptation;

d. Advocates at State Government level to identify and secure strategic sand supplies for beach nourishment, including a coordinated regional approach to the delivery of such supplies.

Recommendation 4

Recommendation 4 is proposed to be retained without change in the final CHRMAP, as follows -

Recommendation 4:

That the City undertake or support, subject to appropriate assistance from the State and/or Federal Government, the following associated but additional work:

a. A cost-benefit and/or benefit distribution analysis and/or systemic financial and economic system risk analysis of the identified adaptation pathways.

b. Coastal erosion modelling, following specific geotechnical investigations (possibly in partnership with landowners), for the following Management Units:

i. Smiths Beach;

ii. Yallingup;

iii. Bunker Bay;

iv. Eagle Bay; and

v. Old Dunsborough.

c. Given the identified pathways for coastal erosion hazard management in the CHRMAP, further coastal inundation hazard modelling including for both Geographe Bay and west coast settlements (Yallingup and Smiths Beach).

d. Preliminary design and costings associated with storm surge events (coastal inundation hazard) protection at:

i. Toby Inlet mouth.

ii. The mouths of all agricultural drains.

iii. The eastern bank of the Buayanyup River Drain.

iv. Vasse Diversion Drain mouth and Vasse-Wonnerup Estuary storm surge barrier.

v. Port Geographe Marina entry channel and seawall.

vi. Vasse-Wonnerup Estuary Channel.

vii. Layman Road, from a point just to the north of the Vasse-Wonnerup Estuary Channel to a point somewhat to the north of Tuart Drive.

viii. Urban stormwater outlets.

Recommendation 5

Recommendation 5 is a proposed new recommendation. It places the planning responses from the MU recommendations into a general recommendation, setting out approaches/principles to be applied consistently to sections of the coast with similar characteristics. The proposed recommendation also reflects the fact that the CHRMAP is a strategic and relatively high level document that seeks to set the broad direction and provide a basis for undertaking more detailed work after a final CHRMAP is adopted. Implementation of some of the recommendations of the CHRMAP will require amendments to the town planning scheme and the development of a local planning policy. The proposed wording of Recommendation 5 is as follows -

Recommendation 5:

That the City amends the Local Planning Strategy and town planning scheme, and develops local planning policy, as follows -

a. Amend Theme 4, Strategies (f), (g) and (i) of the Local Planning Strategy to identify the adoption of the CHRMAP, and reflect at a high level the strategic direction set out in the CHRMAP;

b. Extension of a modified Coastal Management Special Control Area or other suitable mechanism in the town planning scheme to –

i. Create a head of power for requiring development approval for development that is not infill, but which would otherwise not require development approval;

ii. Support the setting out of advice in local planning policy around –

I. what types of development could be supported beyond the 'infill line';

II. how to calculate/determine the location of the infill line; and

III. guidance relating to private coastal protection works, which may be supported, but which will generally not be supported where coordinated approaches to coastal protection are being implemented, unless they are consistent with those coordinated approaches; and

iii. Apply the Special Control Area or other suitable mechanism to coastal areas across the whole of the coast, on the seaward side of the 2120 coastal erosion hazard line.

c. Introduce controls on minimum FFLs for new development throughout the whole of the City through a suitable mechanism which would set out that –

i. Unless a higher minimum FFL is required elsewhere in the Scheme, or through the application of the BCA, the minimum FFL for new habitable floorspace is –

I. Generally 2.7m AHD; and

II. A reduction to 2.2m AHD may be considered, subject to –

- *Development being additions or extensions;*
- *Electrical wiring and installations being placed at or above 3.4m AHD; and*
- *Structures being moisture proofed up to 3.4m AHD.*

ii. Subject to resolution of detailed boundary and interface issues, in an area bound by Geographe Bay, Station Gully Drain, Caves Road, Quindalup Siding Road, Vasse-Yallingup Siding Road, the section of Bussell Highway between Vasse-Yallingup Siding Road and Caves Road, the section of Caves Road between Bussell Highway and Buayanyup Drain, and the section of Buayanyup Drain between Caves Road and Geographe Bay, and in an area bound by Geographe Bay, the Shire of Capel boundary, Ludlow North Road, Tuart Drive, the section of Layman Road between Tuart Drive and the Vasse Estuary Channel, and the Vasse Estuary Channel, unless a higher minimum FFL is required through the application of the BCA, the minimum FFL for new habitable floorspace is –

I. Generally 3.4m AHD; and

II. A reduction to 3.0m AHD may be considered, subject to –

- *Development being additions or extensions;*
- *Electrical wiring and installations being placed at or above 3.4m AHD; and*
- *Structures being moisture proofed up to 3.4m AHD.*

iii. For the purposes of assessing compliance with height, overlooking, overshadowing, building separation or setback controls, if Natural Ground Level is less than the generally applicable minimum FFL, NGL shall be assumed to be the generally applicable minimum FFL.

Part (a) reflects the progress on the CHRMAP since the City's *Local Planning Strategy* was adopted in 2019 and the need to update the strategy accordingly. Part (b) generally reflects the need to provide clarity that development, whether within or outside the infill area, would always require development approval and that further guidance and advice would be set out in a local planning policy for the Special Control Area. This would be applied to all MUs. Part (c) reflects the need to give statutory effect to the principles set out in the CHRMAP on minimum FFLs throughout the City.

Recommendation 6

Recommendation 6 (recommendation 5 in the advertised CHRMAP) is proposed to be retained in the final CHRMAP (note reference to the local planning scheme is now part of proposed Recommendation 5), worded as follows –

Recommendation 6:

That the above recommendations are all incorporated into the City's:

a. Community Strategic Plan;

b. Corporate Business Plan;

c. Long-Term Financial Plan;

d. Rolling, ten-year Coastal Management Programme; and

e. Local Emergency Management arrangements.

Recommendations 7 and 8

Recommendations 7 and 8 are proposed to be retained in the final CHRMAP, without change (other than renumbering), worded as follows -

> *Recommendation 7:*
>
> *That the City provide an annual update to the community and other relevant stakeholders on progress towards implementation of the findings and recommendations of the CHRMAP.*
>
> *Recommendation 8:*
>
> *That the CHRMAP is the subject of scheduled periodic review, at least once every ten years.*

D. Marybrook and Siesta Park management unit recommendations

The rationale for the proposed direction for these management units for inundation risk is set out in Part A of this section of the report. That rationale is not reiterated in this section of the report. The focus here is therefore on issues/considerations that are particular to this section of the coast – which principally relate to erosion risk.

As has already been noted, the now proposed coastal adaptation direction for these areas is protection from erosion and accommodation for inundation. This is different to the direction in the draft CHRMAP, where erosion protection was proposed for the short to medium term only (through to 2070), with the potential for retreat in the long term. That had necessitated a recommendation that any new development approval contain a 'sunset clause', with approvals only being valid until 2070. That recommendation had generated a high and consistent level of concern from affected landowners.

Having further considered the issues, officers are no longer recommending a long-term retreat strategy for this section of the coast. There are two key reasons for that –

1. The significant landowner concerns, especially in the context of a situation where there is seen to be a need for the City to work closely with some of the landowners to be able to implement erosion protection in the more vulnerable, central portion of this section of the coast; and
2. A very strong sense that retreat would only be politically acceptable if it involved property acquisition by government, and that the only level of government that is likely to do that is the State, meaning that the right approach for the City was to proactively plan to protect the coast from erosion.

There are a range of more detailed issues/concerns requiring consideration and changes to the CHRMAP proposed to address those matters. The headings below reflect the themes of the substantive matters raised in submissions (as set out under the 'Stakeholder Consultation' section of this report and the 'Key Issues' column of the Schedule of Submissions at Attachment D).

1. Distribution of costs and benefits

A number of submissions raised concerns that, through the direction set out in the draft CHRMAP, landowners in the Siesta Park and Marybrook areas were having costs imposed on them that were greater than other landowners. Costs do, however, also need to be understood in the context of the related benefits. For a variety of reasons, however, officers are recommending a range of changes to recommendations that would reduce those costs. Those include –

- No longer applying a sunset clause condition as described above;
- No longer requiring direct contributions to coastal protection from landowners at the eastern and western ends of the Siesta Park/Marybrook area, recognizing that vulnerability in those areas is significantly lower, and protection is not needed in the next 20 years or so – this is addressed in more detail below;
- Within the central section of the Siesta Park/Marybrook area, rather than requiring the entire cost of erosion protection to be met by landowners, proposing that the cost be split between State or Federal Government, City of Busselton ratepayers as a whole, and direct contributions from landowners – also addressed in more detail below;
- Reducing minimum FFL for new development from 3.8m AHD to 3.4m AHD – as described above;
- No longer requiring the ceding of a foreshore reserve where development approval is being granted – again addressed further below; and
- No longer proposing the prohibition of new private coastal protection structures, although some controls on such structures are still proposed (and there are some controls currently too- again, this is also addressed further below.

The result of those changes is that the only landowners from which direct contributions would be sought are those in the central section of the Siesta Park/Marybrook area, where properties often are and in fact have been vulnerable in the past to coastal erosion, and many landowners have chosen to develop private coastal protection structures in the past. Through the integrated approach now recommended, however, it is envisaged that protection can be enhanced and made more consistent, and through economies of scale, at lower overall cost. There is also an opportunity to ensure that the beach is protected and maintained long-term, as well as the land, buildings and other assets.

Wherever possible, the proposed strategic direction is also intended to be applied via general rather than MU specific recommendations, reflecting the application of consistent principles across the whole of the coast wherever possible. Because the issues are not the same everywhere, though, there are also some differences in approach proposed, reflecting the different characters of different parts of the coast.

2. Boundaries of MU08 Marybrook and MU09 Siesta Park management units

It is proposed to divide these two management units into four (Attachment D) -

i. MU08(a) Marybrook West – wide beach and foreshore reserve mostly in public ownership. Coastal erosion risk similar to MU11 Abbey (unlikely to be at risk before 2040). Larger foreshore area allows consideration at some point in the future for new public infrastructure with a long term protection strategy. Land to the south of Caves Road is not immediately at risk from coastal erosion, and Caves Road itself is a significant State asset.

ii. MU09(b) Siesta Park East – similar characteristics as MU08(a) Marybrook West and includes the Siesta Park groyne and dual use path.

iii. MU08(b) Marybrook/Siesta Park Central – a single row of privately owned beachfront properties with a narrow beach and little or no public foreshore. Landowners have constructed various private coastal protection structures at their own cost. Includes the Lennox River Drain outlet that has contributed to some coastal management issues.

iv. MU09(a) Siesta Park Holiday Resort – single ownership with a coastal frontage of approximately 400m which is of sufficient length to implement its own protection strategy.

The management units in the advertised CHRMAP were defined on the basis of: coastal erosion hazard assessments; Department of Transport sediment cell framework; existing coastal infrastructure; and the distribution/types of assets vulnerable to coastal hazards. A more nuanced approach is now being proposed that also reflects variation in beach/foreshore width, the vulnerability of private assets by 2040 and provides for a refinement of recommendations/risk responses along this part of the coast.

3. Planning controls: ceding of land/development approval for all development/time limited development approvals/prohibit private coastal protection structures

The planning response set out for Marybrook and Siesta Park management units included the following planning controls:

- *As a condition of approval for any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.*
- *Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.*

It is proposed to not include these planning controls in the final CHRMAP.

- *Prohibit private coastal protection structures.*

It is proposed to not include this in the final CHRMAP. Consideration of private coastal protection works is now proposed to be set out under the proposed, new general recommendation 5 and addressed through potential amendments to the planning framework and progression towards implementation of an integrated approach to coastal protection.

4. Infill subdivision/development density

It is proposed to not include this in the final CHRMAP. This principle is already established in the City's *Local Planning Strategy* Theme 4(i) which seeks to maintain the physical separation of settlements, in particular, through not supporting intensification of development in the Marybrook/Siesta Park area.

5. Integrated approach to erosion protection

An 'integrated approach' has been used to refer to the City-led integrated protection strategy for the Marybrook and Siesta Park MUs in the advertised CHRMAP, instead of the current, ad hoc, individual landowner-led approaches. With the changes to the MU boundaries set out in point 1 above, the integrated approach would now only apply to proposed to the most vulnerable section being MU08(B) Marybrook/Siesta Park Central, and where many landowners have spent money on coastal protection in the past.

Detailed design and other work will be necessary to advance an integrated approach to coastal protection. If groynes and beach nourishment are seen as sufficient to protect property and assets in Marybrook/Siesta Park Central without necessarily needing a seawall, then there may be capacity to allow individual landowners to construct private seawalls if they wanted an additional level of protection.

For the proposed MU08(A) Marybrook West and MU09(B) Siesta Park East, infrastructure, buildings and the foreshore reserve are less vulnerable and an integrated approach is not necessary due to the relatively wide reserve. Erosion control would be through a combination of groynes, beach nourishment and seawalls as required (same as for Abbey where it is possible to do so, and most of the rest of the coast).

Over the course of the next couple of decades, such an integrated approach will provide much more effective protection than current ad hoc, individual landowner-led approaches, and is likely to do so at lower overall cost – due to economies of scale, and the possibility that seawalls may not be required to the extent that would likely be required if protection was being done on a lot by lot basis.

In relation to proposed MU09(A) Siesta Park Holiday Resort, the City has had discussions with the landowner who is willing to prepare and implement an integrated coastal adaptation strategy ('mini-CHRMAP') for the MU.

The direction for the abovementioned approaches also relates to changes proposed to fund coastal protection works, described under point 6 below.

6. Funding

The financial response is proposed to be removed from MU recommendations. For the most vulnerable parts of Marybrook/Siesta Park (proposed MU08a Marybrook/Siesta Park Central), and where an integrated erosion protection strategy is being recommended, a shared funding model (costs apportioned between State/Federal Government, City ratepayers and direct contribution from landowners) to fund works is proposed under the infrastructure/coastal management response.

For proposed MU09(A) Siesta Park Holiday Resort, the landowner would be responsible for funding coastal protection works, and funding contributions from the State through grants could be pursued.

7. Use of beach and foreshore reserves

This is proposed as a new recommendation theme to be applied to all MUs in recognition of the value that our community places on using the beaches and foreshore areas and that these areas should be available and able to be used by the whole community. Protection also provides an opportunity to consider new or expanded infrastructure available for use by the whole community.

8. Shortening Siesta Park Groyne

It is proposed to not include this in the final CHRMAP. The maintenance of coastal protection structures is set out in the City's *Coastal Management Programme (2020 – 2030)* and would be subject to coastal monitoring and modelling/investigation of potential adverse updrift and downdrift impacts, as well as community consultation.

Statutory Environment

The Officer Recommendation supports the general function of a local government under the *Local Government Act 1995* to provide for the good government of persons in its district.

In addition, the final CHRMAP will guide the City and WAPC in the development and review of the City's town planning scheme, which is adopted pursuant to powers established in the *Planning and Development Act 2005*.

Relevant Plans and Policies

The key policy considerations are set out in *State Planning Policy 2.6 State Coastal Planning Policy* (SPP2.6). SPP2.6 requires planning authorities to consider the potential impact of coastal processes on proposed development over a 100 year time horizon (i.e. if a decision is being made in 2021, through to 2121). SPP2.6 also sets out that planning authorities should assume an increase in mean sea level over that period of 0.9 metres.

SPP2.6 also sets out a hierarchy of coastal adaptation options to be considered in preparing CHRMAPs, as set out in clause 5.5 (iii) -

> *Where risk assessments identify a level of risk that is unacceptable to the affected community or proposed development, adaptation measures need to be prepared to reduce those risks down to acceptable or tolerable levels. Adaptation measures should be sought from the following coastal hazard risk management and adaptation planning hierarchy on a sequential and preferential basis:*
>
> *(1)* ***Avoid*** *the presence of new development within an area identified to be affected by coastal hazards. Determination of the likely consequences of coastal hazards should be done in consideration of local conditions and in accordance with the guidelines provided in Schedule One.*
>
> *(2)* ***Planned*** *or* ***Managed Retreat*** *or the relocation or removal of assets within an area identified as likely to be subject to intolerable risk of damage from coastal hazards over the planning time frame.*
>
> *(3) If sufficient justification can be provided for not avoiding development of land that is at risk from coastal hazards then* ***Accommodation*** *adaptation measures should be provided that suitably address the identified risks. Such measures would involve design and/or management strategies that render the risks from the identified coastal hazards acceptable.*
>
> *(4) Where sufficient justification can be provided for not avoiding the use or development of land that is at risk from coastal hazards and accommodation measures alone cannot adequately address the risks from coastal hazards, then coastal* ***Protection*** *works may be proposed for areas where there is a need to preserve the foreshore reserve, public access and public safety, property and infrastructure that is not expendable.*

SPP2.6 does not set out a particular process for the adoption of a CHRMAP. State planning policies in general, however, must be given due regard in the making of all planning decisions, including applications for development approval, applications for subdivision approval, assessments of structure plans or similar and, most importantly, in the making and amending of town planning schemes. The Western Australian Planning Commission (WAPC) is, for obvious reasons, aware of the coastal adaptation issues in the City, and it is likely that the CHRMAP and its recommendations will be very important to support the City's new town planning scheme, currently under development (and as required by the WAPC). For that reason, officers are recommending that the City's CHRMAP be sent to the WAPC for its formal consideration, ahead of the City's new scheme also being forwarded to the WAPC.

Financial Implications

The financial implications of the implementation of the officer recommendation *per se* are not significant. The financial implications of addressing the issues that the CHRMAP seeks to address, however, will be very significant, especially in the medium to long term. There will also be increased costs in the nearer term, but strategies to meet some of those costs are set out in the CHRMAP itself and/or already identified and met through the City's *Long Term Financial Plan* (LTFP). That includes the allocation of 2.0% of general rate revenue to coastal adaptation in the LTFP. It also includes recommendations of the CHRMAP to work with the State to identify an equitable, efficient and sustainable funding model for coastal adaptation.

Stakeholder Consultation

Consultation and engagement with the community and stakeholders has occurred throughout the CHRMAP project. Early in 2018, the City engaged Advisian to prepare the draft CHRMAP Technical Assessment Report to inform the preparation of the CHRMAP. One of the initial tasks was the preparation of a Community and Stakeholder Engagement Strategy (CSES) in accordance with SPP2.6 Guidelines.

Consultation actions recommended in the CSES and undertaken prior to the four month advertising period for the CHRMAP included: a community coastal values survey (2018) and community information sessions held in Busselton and Dunsborough in March 2019 (focus on coastal hazard risk mapping, assets at risk, options and adaptation pathways to address coastal hazards and manage risk), as well as additional two hour informal 'drop-in' sessions preceding the community meetings.

The Community Coastal Values Survey (2018) sought to –

- Establish how the coastline is used and compare this with the values people espouse for the coastline.
- Establish key values and what people feel should be protected and preserved from future erosion.
- Establish whether the community understands the changes that are occurring on the coastline and the level of awareness of the City's actions to manage coastal erosion.
- Explore who the community feels should pay for the work required to reduce the impact of coastal erosion.

The survey found that the north facing beaches in the City are strongly valued by the community, with over half of those surveyed feeling that uninterrupted stretches of sandy beaches are a vital part of the character of Busselton and our social wellbeing. The most important coastal value cited was handing the coastal area onto our children and grandchildren in the same or better state than it is now. Other important values cited were -

- Knowing that there are places on the coast that feel 'natural'
- Natural vegetation/habitat on foreshore and beach areas
- Uninterrupted stretches of sandy beach to walk along
- Heritage – historical features such as the Pioneer Cemetery or the Busselton Jetty
- Safe swimming beaches

The survey established that a significant proportion of the community use our local beaches. Over 53% of respondents cited walking/jogging on the beach or foreshore at least once a week. Of those, 42% of respondents living in the western part of the City preferred remotely located parts of the beaches (this increased to 54% of respondents who lived in the eastern part of the City). Of all respondents, 22% cited using areas close to the Busselton 'town beach' or Old Dunsborough beach and remote beach areas for walking and/or jogging.

There was a high level of awareness of natural changes in the coastline over the year preceding the survey (62%) and 60% of respondents were aware that the City had taken action to stop or reduce impacts from coastal erosion over the previous five years (e.g. groynes, seawalls, beach nourishment and revegetation).

On the question of who should pay to mitigate coastal erosion impacts, 41% of respondents felt that the taxpayer should bear the cost, with the balance feeling that costs should be borne by all ratepayers in the City (29%) or the private landowners/businesses most affected (30%).

Advertising of the CHRMAP

The CHRMAP was advertised for four months between 21 May and 28 September 2021 and a Schedule of Submissions is provided at Attachment E. Eleven agency and 62 public submissions were received. Long public submissions and/or multiple submissions provided by a landowner are identified by a submission number, with a list of key issues raised, in Attachment E, with a copy of each submission provided in full in Attachment F. The consultation process and general matters raised in submissions are described below, followed by further detail on the substantive issues raised.

The initial consultation period was 21 May – 23 July 2021 during which time a number of staffed displays, presentations (both online and in person), community information sessions and other forms of communication and engagement in regard to the project were coordinated and conducted by the City, as follows –

- Media release and regular social media updates, including the Mayor's Message
- Weekly newspaper notices ('City Connect')
- Two Bay to Bay articles
- Correspondence to community based groups and industry associations
- Direct mail out to registered landowners in Marybrook and Siesta Park
- Static information displays in the City of Busselton Administration Building and the Naturaliste Leisure Centre
- Staffed information displays at the Busselton Central and Dunsborough Centrepoint shopping centres
- Two community information sessions (City of Busselton Administration Building on 27 May 2021 with 21 attendees and John Edwards Pavilion, Dunsborough with 19 attendees) – powerpoint presentation providing overview of the CHRMAP process, findings of the Community Coastal Values Survey, potential legal/liability implications, methods of advocacy, existing coastal management and protection works by City, application of SPP2.6 and adaptation hierarchy, CHRMAP recommendations and Q&A
- 4 online information sessions

Following significant levels of interest and concern expressed to the City by landowners in Marybrook and Siesta Park, the consultation period was extended to 26 August 2021. A community information session specifically for these landowners was convened by the City on 5 August, with approximately 50 persons attending. The format was an overview of the CHRMAP process and then focus on the Marybrook Siesta Park coast (presenting various data, historical trends, images and mapping) along with specific recommendations for the two management units and how/why these differed from the recommendations for most of the coast. General matters/questions raised by attendees were –

1. Proposed funding options:
    - Why should we pay a SAR?
    - Why should we be singled out and burdened?
    - Will other areas be subject to a SAR?
    - Unfair to be treated differently to the rest of the coast
    - A more nuanced approach is needed
2. Integrated design and development response:
    - Why is there a difference in FFL's (3.8m AHD) for our area and 3.0m AHD elsewhere? Is the 3.8m AHD flexible?
    - Uncertainty around submitting development applications until the FFL is certain/is it too late to amend a current DA to go to a higher FFL?
    - Most landowners have private insurance and are comfortable with perceived levels of risk
3. Climate science, sea level rise and coastal process:
    - Data modelling for the CHRMAP is more than 10 years old
    - Scepticism around projected 0.9m sea level rise over 100 years
    - Dynamic coastline, lots of accretion evident – so how can predictions be made over such a long time?

An outcome of this community information session was the request to extend the consultation period to 28 September 2021 to allow for another more science-based session with expert information and advice on the more specialised matters of coastal science, coastal management and engineering and to address related questions/concerns by landowners. The request was prompted by the numerous questions on climate change, sea level rise and coastal mechanics. Co-presenters at the follow up session were specialist coastal consultants Dr Matt Eliot (presentation on climate and coastal science) and Stuart Barr (presentation on coastal protection – engineering and infrastructure – with an emphasis on the City's 10 year coastal management programme).

General and substantive issues raised in submissions

General points raised in submissions (summarised) –

1. Broad recognition of risks associated coastal hazards and the need to address how those risks might be managed as a matter of priority.
2. Development of the CHRMAP viewed as a positive step in response to this important issue for the City.
3. Protect was favoured over managed retreat – less cost to ratepayers and less impact on environmental values.
4. Support to protect and retain a useable beach and foreshore.

5. Support for shared funding, including State contributions, but those at most risk/direct beneficiary should contribute more.
6. Support for minimum finished floor levels for habitable floor space.
7. Climate change/sea level rise scepticism, hazard modelling too conservative/out of date, inherent uncertainty over 100 years to be making decisions today.
8. Inadequate consultation with Marybrook and Siesta Park landowners.
9. Support for the emergency management response for Marybrook and Siesta Park management units.
10. Impacts of new groynes on the beach in front of properties.

Substantive issues raised in submissions -

1. ***Boundaries of MU08 Marybrook and MU09 Siesta Park management units*** – a more nuanced approach to boundary selection in this area is needed to reflect the variation in beach and foreshore reserve widths (and therefore the level of risk to assets to 2040), with refined recommendations/response for each to manage risk.
2. ***Distribution of costs and benefits*** – significant objection to the direction for Marybrook and Siesta Park (option for long term managed retreat) being different to that for the remainder of the coast. The same direction of protect should be set out, equivalent to other management units. Adverse impact on current and future property values, uncertainty over development/capital improvements, insurance premiums and ability to sell properties. Negative impacts of long term retreat on the coastal environment/habitat values.
3. ***Finished floor levels*** - 3.8m AHD for habitable floor space – some support, but a greater level of objection. The applicability of a higher FFL to this part of the coast, but lower elsewhere questioned. Query - scope to reduce the minimum FFL or be treated the same as other management units also raised.
4. ***Planning controls: ceding of land/development approval for all development/time limited development approvals/prohibit private coastal protection structures*** – significant objection relating to point 2 above.
5. ***Infill subdivision/development density*** – some support, but a greater level of objection.
6. ***Integrated approach to erosion protection*** - some support (recognising current piecemeal approach), but a greater level of objection. A number of private seawalls are already in place, at no cost to the City, and landowners are of the view that they have the right to protect private assets.
7. ***Funding*** - Specified Area Rate to fully fund protection to 2040 – some support, but a greater level of objection (unfair, inequitable, should be treated the same as remaining management units).
8. ***Use of beach, access and foreshore areas*** – strong contention that the Marybrook/Siesta Park coast is used by, and accessible to, the general public and is an asset to the broader community.
9. ***Shortening Siesta Park groyne*** – objection to this option being foreshadowed in the CHRMAP.

Consultation after advertising the CHRMAP

- Following advertising, a site meeting was held in Marybrook/Siesta Park with landowners, Councillors and City staff in November 2021.
- The Geographe Bay Coastal Action Group (GBCAG) was formed and represent approximately 60 landowners in the MB/SP area. A working group comprised of five members acting as a committee on behalf of GBCAG, two Councillors and City staff was convened to discuss matters arising from the advertised CHRMAP. The working group met on four occasions to discuss potential changes to the advertised CHRMAP.
- CHRMAP Steering Group was consulted on potential changes – with broad support.
- A public information session was held on 12 May 2022 for Marybrook and Siesta Park landowners on the potential changes to the advertised CHRMAP – broad support indicated for potential changes.
- Final meeting with GBCAG to provide final comments/seek clarification following public information session.
- Separate consultation with the landowners of the Siesta Park Holiday Resort on the proposal for the landholding north of Caves Road to form its own management unit (MU09a), with a tailored planning response recommendation and funding model.
- Potential changes to CHRMAP recommendations provided to GBCAG for final comments.

The GBCAG has indicated that intends to remain active as a community group representing the landowners of Siesta Park and Marybrook into the future and to be involved and consulted on the implementation of the CHRMAP, including coastal protection and future planning policies/scheme amendments that may affect landowners in this area.

Implementation of some of the recommendations of the CHRMAP are likely to require amendments to the local planning scheme and development of local planning policy. There are statutory requirements to advertise and consult with the community as part of the development of those planning actions, and consultation with GBCAG will occur as part of those processes. Engagement and consultation with landowners and the GBCAG will be necessary in relation to implementing an integrated approach to coastal protection, as per the process set out earlier in this report.

Risk Assessment

The City's risk management framework is not suited to assessment of risks associated with a planning document with such a long time horizon (i.e. 100 years), and where the potential financial risks over that period are so significant (i.e. according to the financial model, upwards of $1.6B). The CHRMAP process, however, is inherently a risk identification and assessment process, and has sought to identify the long-term strategy with the lowest overall risk to the City, using a framework and approach tailored to the situation and the key strategic and policy questions requiring consideration.

Options

As an alternative to the proposed recommendation the Council could:

1. Not adopt the CHRMAP for final endorsement; or
2. Require further changes before adopting the CHRMAP for final endorsement.

Officer assessment has not revealed any substantive issue or reasonable grounds that would support either of the above options.

CONCLUSION

It is recommended that the Council adopt the CHRMAP for final endorsement, subject to the recommended changes, and subsequent referral to the WAPC. Adoption of a final CHRMAP will enable the commencement of further work needed to implement recommendations (to be set out by the preparation of an implementation plan) such as changes to the planning framework, grant funding applications (i.e. Coastwest and the Coastal Management Plan Assistance Programme) which would need to commence in the last quarter of this year ahead of funding programmes commencing early next year (which require approved CHRMAPs in order to be eligible), and commencement of work on integrated approaches for erosion protection.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

Should the Council adopt the CHRMAP for final approval, it is envisaged that it could take up to around six to eight weeks to edit the document in accordance with the recommendation of the Council and prepare it to a presentation standard. Referral of the final CHRMAP to the Western Australian Planning Commission would likely occur in September 2022.



Coastal Hazard Risk Management and Adaptation Plan

City of Busselton
Geographe Bay

DRAFT FEBRUARY 2021

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The City of Busselton acknowledges the Traditional Custodians, the Wadandi Bilbulmun People, on whose land we are living and pay our respects to their Elders, past, present and emerging.

City of Busselton
Geographe Bay

1 Introduction



1.0 Introduction

The majority of development in the City of Busselton is focused on the north-facing, sandy coastline of Geographe Bay and in the nodal settlements of Yallingup, Eagle Bay, Bunker Bay and Smiths Beach. The coast (including vegetation/habitat, foreshore reserves and wetlands and estuaries) is highly valued by our community. It underpins the City's identity, prosperity and lifestyle, and accommodates a variety of recreation, conservation, residential, commercial and tourist uses.

Narrow coastal setbacks and low relief topography make the Geographe Bay sandy coastline sensitive to changing environmental conditions, including storm events and seasonal cycles, and has always been subject to the impacts of coastal hazards, such as erosion and inundation. It is expected that this vulnerability will increase in the future due to the projected combined effects of climate change and sea level rise.

This Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) provides a long-term view of coastal hazards for the City, and recommends pathways to adapt to future oceanic and coastal conditions. The CHRMAP aims to ensure that the City is strategically well-placed to contend with those hazards as and when they arise.



The CHRMAP process is designed to be ongoing, with regular updates associated with the emergence and collection of new information to be incorporated. Development of the CHRMAP has followed the requirements of the Western Australian Planning Commission (WAPC) *State Planning Policy No. 2.6 State Coastal Planning Policy* (SPP2.6) and supporting guideline documents.

Community consultation has contributed to the development of the CHRMAP through a Community Coastal Values Survey and several public information sessions. The CHRMAP also aims to respond to the following objective and strategy of the City of Busselton *Strategic Community Plan 2017* (Review 2019):

Key Goal Area 3 - Environment

- **Community objective 3.4** - Climate change risks and impacts are understood, acknowledged and responded to through appropriate planning and community education.
- **Community strategy (d)** - Continue to work with key partners to manage our dynamic coastline, including potential adverse impacts arising from climate change.

A coastal hazard assessment was undertaken to determine the potential extent of coastal erosion over a 100-year planning timeframe. A risk and vulnerability assessment was then applied, with results highlighting the most vulnerable areas assets along the City's coastline, for which a more detailed investigation and evaluation of adaptation options was undertaken.

The majority of residential and commercial development along the City's coastline is generally situated on land that is less than three metres above sea level. The CHRMAP acknowledges the challenges associated with managing risks in a dynamic coastal environment, together with the need to balance environmental, social and economic values to ensure the long-term sustainable use, monitoring and management of the City's unique coastline.

1.0 Introduction



1.1 Purpose

The purpose of the CHRMAP is to identify the current and projected extent of risk to private assets, public infrastructure and environmental/social/cultural values from coastal hazards including those arising from projected sea level rise, and to provide a meaningful framework for responding to those hazards, including financial modelling for recommended adaptation pathways over a 100-year timeframe.

1.2 Objectives

The CHRMAP was prepared with the following overarching objectives in mind:

i. To ensure that the location and development of coastal facilities takes into account projected coastal processes, landform stability, erosion hazards, climate change/sea level rise and biophysical criteria.

ii. To guide the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, commercial and other activities.

iii. To provide for sustainable public coastal foreshore reserves and access to those reserves.

iv. To protect, conserve and enhance coastal zone values, particularly in areas of landscape, biodiversity and ecosystem integrity, and indigenous and cultural significance.

1.3 Study Area

The Study Area includes the north-facing sandy coast from the City's municipal boundary at Forrest Beach, Wonnerup to Curtis Bay, Dunsborough (approximately 37km in length) as well as the coast at the Smiths Beach, Yallingup, Bunker Bay and Eagle Bay settlements. The remainder of the City's west coast, which is mostly within the Leeuwin-Naturaliste National Park, is not in the Study Area, although the findings of the CHRMAP will be shared with the Department of Biodiversity, Conservation and Attractions (DBCA) and could be referenced as part of that Department's future planning and management arrangements.

The Study Area has been divided into nineteen 'Management Units', each defining sections of the coastline sharing similar characteristics. These Management Units have also been identified based on:

- coastal erosion hazard assessments.
- a sediment cell framework developed by the Department of Transport.
- existing coastal infrastructure (such as groynes, drains and seawalls).
- the distribution and types of assets vulnerable to coastal erosion hazards.

The Management Units provide a mechanism for evaluating risk management options, adaptation pathways and future monitoring and management. The Management Units are listed with a description of their characteristics in Table 1.

1.0 Introduction

Table 1 **Management Units**

Management Unit No.	Management Unit Name	Boundaries	Description
MU 01	Smiths Beach	***South:*** start of rocky headland ***North:*** start of secondary headland	The southern portion of a west-facing bay and includes the Gunyulgup Brook mouth. The continuous public foreshore reserve is currently Unallocated Crown Land (UCL) and its northern end is contiguous with the Leeuwin-Naturaliste National Park. There are no current coastal protection structures.
MU 02	Yallingup	***South***: start of rocky headland ***North:*** start of northern rock platform	The southern portion of a west-facing sandy beach with rock platforms. Continuous public foreshore reserve partly within the Leeuwin-Naturaliste National Park with the remainder vested in the City. There are no current coastal protection structures.
MU 03	Bunker Bay	***West:*** rocky headland ***East:*** rocky headland	North-facing sandy bay in the lee of a rock headland. Limited public foreshore reserve and facilities. Flows from Lake Jingi breach the dune barrier and discharge into the ocean. There are no current coastal protection structures.
MU 04	Eagle Bay	***West:*** rock outcrop ***East:*** rock outcrop	Northwest-facing sandy bay in the lee of a rock headland. Includes a series of rock outcrops and the mouth of Jingarmup Brook. Continuous public foreshore reserve contiguous with Meelup Regional Park. There are no current coastal protection structures.
MU 05	Old Dunsborough	***North:*** boundary to Meelup Regional Park ***South***: Beach Road (Tertiary sediment cell boundary)	East-facing mixed sandy/rocky coastline including Point Daking and Point Dalling. Continuous public foreshore reserve but often very narrow. There are no current coastal protection structures.
MU 06	Dunsborough Townsite	***North:*** Beach Road (Tertiary sediment cell boundary) ***South:*** Elmore Road	Northeast-facing sandy beach in the lee of rocky headlands. Includes the Dunn Bay Bar and the mouths of the Dandatup and Dugalup Brooks. Continuous public foreshore reserve (including vegetation and habitat). Coastal protection structures: buried geofabric sand container (GSC) seawall installed in 2012.
MU 07	Quindalup	***West:*** Elmore Road ***East:*** Station Gully Drain	Northeast-facing sandy beach that includes the point of land fall for the Dunn Bay Bar. Continuous public foreshore reserve (with significant vegetation & habitat values). Toby Inlet runs generally parallel to the coast and discharges to the west of Station Gully Drain. Coastal protection structures: stone revetment (1973), timber groynes (1982) and Quindalup Sea Rescue trial groyne (2013).
MU 08	Marybrook	***West:*** Station Gully Drain ***East:*** Lennox River Drain (Tertiary sediment cell boundary)	Northeast-facing sandy beach with the Molloy Drain outlet. Includes the 'Deadwater' which is the easternmost section of Toby Inlet that is dissected by the Station Gully Drain. Public access to the beach becomes increasingly constrained between Birl Elbow and the Lennox River Drain. There is no continuous public foreshore reserve in the eastern section of this Management Unit. There are some private coastal protection structures.
MU 09	Siesta Park	***West:*** Lennox River Drain (Tertiary sediment cell boundary) ***East:*** Locke Swamp Drain	North-facing beach that has been influenced by the construction of the Siesta Park groyne. There is limited public access to the beach and there is no continuous, usable public foreshore reserve. Coastal protection structures: Siesta Park jetty groyne (1950s), East Lennox timber groyne field (1960s) and Siesta Park groyne (1965/67). There are a number of private coastal protection structures.

1.0 Introduction

Management Unit No.	Management Unit Name	Boundaries	Description
MU 10	Locke Estate	*West:* Locke Swamp Drain *East:* Buayanyup River Drain	North-facing beach backed by leasehold land and, further inland, the Locke Nature Reserve. Camp lease sites on the seaward side of Caves Road. Coastal protection structures: Buayanyup River Drain training wall (1985), groyne field (1988-1992 & 2014/15), Locke Estate seawall (1985-1992/2014).
MU 11	Abbey	*West:* Buayanyup River Drain *East:* Holgate Road Groyne (Secondary sediment cell boundary)	North-facing sandy beach with a continuous narrow public foreshore reserve (including vegetation and habitat). Coastal protection structures: boat ramp headland (1978, refurbished 2011 & 2013), groyne field (1990s, 2011 & 2012/13), Abbey West groyne (2012/13).
MU 12	Broadwater	*West:* Holgate Road Groyne (Secondary sediment cell boundary) *East:* Dolphin Road	North-facing sandy beach with a wide continuous public foreshore reserve (including vegetation and habitat). Landfall for the Abbey sand bar. Coastal protection structures: two trial groynes (2011).
MU 13	Busselton West (A)	*West:* Dolphin Road *East:* Vasse River Diversion Drain	North-facing sandy beach with a narrow continuous public foreshore reserve. Coastal protection structures: seawalls (1970s), groynes (1990-1995 & 2016) and Vasse River Diversion Drain outlet training wall (1983).
MU 14	Busselton West (B)	*West:* Vasse River Diversion Drain *East:* Gale Street	Northwest-facing sandy beach with a generally narrow, continuous public foreshore reserve. Coastal protection structures: King Street carpark buried geofabric sand container seawall (2013).
MU 15	Busselton Central	*West:* Gale Street *East:* Ford Road	Northwest-facing sandy beach with a continuous public foreshore reserve that widens to the east. Includes the Busselton Foreshore Precinct and significant heritage assets. Coastal protection structures: Busselton Jetty GSC groynes (2008), seawalls (refurbished 2011, 2015 & 2017), Scout Road groynes (2013).
MU 16	Busselton East	*West:* Ford Road *East:* Freycinet Drive	Northwest-facing beach with continuous public foreshore reserve. Wide beach and foreshore reserve. Land fall for the Busselton Jetty sand bar. No current coastal protection structures.
MU 17	Port Geographe	*West:* Freycinet Drive *East:* Port Geographe breakwater	Port Geographe Marina and canal development. Public foreshore reserve from the inner marina entry wall extending along the seawall. Coastal protection structures: Port Geographe seawall and west breakwater.
MU 18	Wonnerup	*West:* Port Geographe breakwater *East:* Wonnerup Inlet	Northwest-facing sandy beach and low lying coastal barrier backed by the Vasse-Wonnerup Estuary. Includes the mouth of the Wonnerup Inlet. Continuous public foreshore reserve. Coastal protection structures: Wonnerup groyne field (2004-2006), buried seawall and Baudin Reserve GSC groynes (2017). Flood protection structures: Vasse Estuary storm surge barrier.
MU 19	Forrest Beach	*West:* Wonnerup Inlet *East:* LGA boundary with Shire of Capel	Northwest-facing sandy beach and coastal barrier backed by the Vasse-Wonnerup Estuary. Includes the 'Deadwater' wetland and a continuous public foreshore reserve. No current coastal protection structures. Flood protection structures: Wonnerup Estuary storm surge barrier.

Each Management Unit is delineated on an aerial photo, with coastal erosion hazard lines superimposed, in Recommendation 8 of the CHRMAP.

1.0 Introduction

1.4 Coastal Management

Prior to the development of the CHRMAP, the City has undertaken, or been otherwise directly involved in, a number of projects and initiatives that have assisted in setting the future direction for the effective management of our coastline, including:

i. Formation of the Peron-Naturaliste Partnership (PNP), which is a collaboration of the nine coastal local authorities between Point Peron (in the City of Rockingham) and Cape Naturaliste (in the City of Busselton) providing regional direction and leadership in terms of coastal monitoring and management, particularly through the:

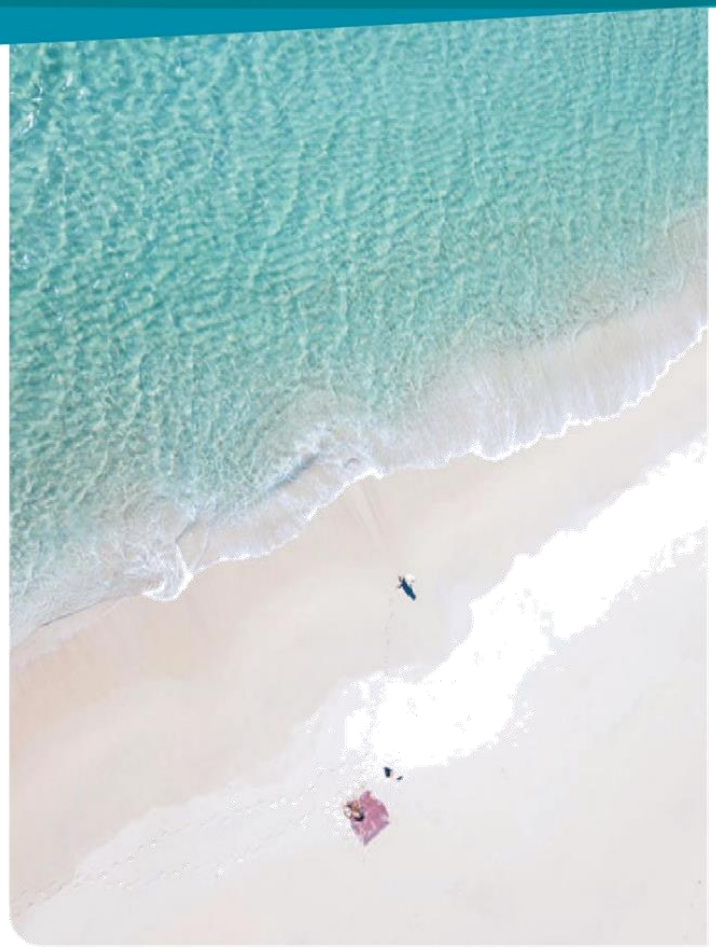
   - Coastal Adaptation Pathways project that delivered an economic analysis of adaptation options at a 'whole of region' scale, and a demonstration of coastal adaptation pathways and options at a scale relevant to partner local governments (ACIL Tasman/Damara 2012).
   - Coastal Community Adaptation Awareness Plan project (2013) that engaged with the City of Busselton community regarding coastal adaptation challenges and options, with the aim that 'lessons learned' could be applied for similar engagement elsewhere within the PNP region and beyond (ACCARNSI 2013).

ii. A number of coastal erosion studies to model the potential impacts of sea level rise on the Geographe Bay coastline, with the most recent of these (Damara 2012) reflecting the direction of the WAPC that coastal planning be undertaken on the basis of a predicted 0.9 metre sea level rise over a time period of 100-years. The Damara study produced interim coastal modelling maps that provided an interpretation of development planning setbacks for coastal erosion under a set of possible climate change scenarios. These are publicly available on the City's website.

iii. A Coastal Vulnerability Assessment for four settlements either side of Cape Naturaliste: Smiths Beach, Yallingup, Bunker Bay and Eagle Bay (Damara 2017).

iv. A rolling *Coastal Management Programme 10 Year Plan (2020-2030)* for the Geographe Bay coastline that provides the basis for a 'whole of coast' approach to managing coastal erosion, through the definition of six coastal management areas based on tertiary sediment cells and local management practices (Shore Coastal 2020). The CMP also sets out planned and costed coastal protection maintenance works, beach width monitoring, investigations (such as sediment and coastal inlet dynamics, coastal stratigraphy, numerical modelling of coastal flooding and review of sand and rock sources) and coastal adaptation works. The CMP has a time horizon, however, that is less than what is needed for long-term coastal adaptation planning. The focus of the CMP is also on reserves and public assets, with little consideration of private land and assets. A previous five-year CMP (2014-2018) has already been implemented.





v. The transition of the City's 'Beach Protection Reserve' to a 'Climate Adaptation Reserve' in 2015/16 to enable the direct allocation of funds towards the preparation of a short term (<25 years) coastal protection plan/long-term coastal adaptation strategy (i.e. the CHRMAP) to be reflected in an integrated way into the City's local planning scheme, as well as the City's long-term infrastructure and financial plans.

vi. Two legal implications related projects to assist coastal local government authorities to identify, manage and mitigate legal risks in an environment of changing climate policy.

vii. A WALGA-led project to obtain qualified legal advice and opinion to assist coastal local government authorities with respect to matters associated with coastal hazard planning issues relating to sea level rise.

1.5 Assets and Values

For the purpose of the CHRMAP 'assets' include:

- Natural features such as beaches, dunes and native vegetation.
- Land, in both public and private ownership.
- Buildings and other structures.
- Infrastructure relating to the provision of drainage, water, sewerage, electricity, communications and gas.
- Roads, car parks and dual use paths/beach access stairs and ramps.
- Structures such as jetties, boat ramps, seawalls and groynes.

The 'value' of an asset can be tangible or intangible, financial or non-financial. Examples of non-tangible assets include ecological functions and coastal views/amenity. The value of an asset also includes consideration of risks and liabilities, and can be deemed positive or negative at different stages of the asset's life. Values in the context of the CHRMAP further encompass the broader economic, social (including heritage) and environmental values of the Study Area.

2

Existing Environment



2.0 Existing Environment

2.1 Climate

The South West of Western Australia has a Mediterranean climate with hot, dry summers and cool, wet winters. Mean maximum temperatures vary from 28.5°C in summer and 16°C in winter. The mean annual rainfall in Busselton is approximately 826mm, with most falling from May through to October.

2.2 Geology and Landform

The Geographe Bay coastline is comprised of low-relief topography and parallel estuaries and wetlands, with openings to the ocean via a man-made drainage network and natural watercourses or inlets/estuary mouths. The coastal dunes are limited in height largely due to offshore prevailing winds, with many landforms in the coastal zone situated less than three metres above sea level.

The coastline around Cape Naturaliste is characterised by steeper relief topography with distinct bays and/or beaches separated by rocky headlands. Coastal dunes there are higher, ranging from around five metres above sea level at Eagle Bay and Bunker Bay to over 20m at Yallingup.

2.3 Hydrology

A number of ephemeral waterways are present in the Geographe Bay catchment. The Lower Vasse, Lower Sabina, Abba and Ludlow rivers feed into the Vasse-Wonnerup Estuary, which discharges into the ocean via the Wonnerup Inlet. A network of man-made drains (including diverted rivers) constructed in the 1920's to ameliorate flooding of agricultural land and urban areas also intersect with the Geographe Bay coastline and discharge into the ocean.

Natural outlets to Geographe Bay occur at the Vasse-Wonnerup estuaries, Toby Inlet, Dugalup Brook (Dunsborough), Dandatup Brook (Dunsborough), Jingarmup Brook (Eagle Bay), Lake Jingi (Bunker Bay) and Gunyulgup Brook (Smiths Beach). Floodgates located on the exit channels of the Vasse-Wonnerup Estuary (originally installed in 1908) essentially control tidal seawater intrusion and winter outflow of freshwater (WAPC 2005).



Groundwater systems in Geographe Bay catchment include:

- **The Superficial Aquifer:** the near-surface unconfined aquifer that is mostly recharged by rainfall and has a general northerly flow towards the coast.
- **The Leederville Aquifer:** underlies the Superficial Aquifer and varies in thickness from 50m to 500m. This confined aquifer flows generally north and discharges into Geographe Bay and provides potable water supplies to both Busselton and Dunsborough. Sea level rise and a drying climate are likely to increase the risk of seawater intrusion into freshwater aquifers and wetlands. The Department of Water and Environmental Regulation has commenced a project to investigate the seawater interface with groundwater along the coast between Dunsborough and Bunbury, through the establishment of a network of new groundwater monitoring bores.
- **The Yarragadee Aquifer:** the oldest and deepest confined aquifer underlying the Superficial and Leederville Aquifers. It ranges in thickness from 600m to 1,600m and also flows towards Geographe Bay.

2.0 Existing Environment

2.4 Coastal Processes

The City's weather is influenced by extra-tropical high pressure ridges and mid-latitude low pressure troughs. Under high pressure conditions, winds have a typical pattern of easterlies in the morning and south-westerlies in the afternoons. Potentially damaging wind speeds/gusts are associated with higher storm frequency, proximity and intensity during the winter months.

Geographe Bay is micro-tidal, with an average daily range of approximately 0.6m and a lowest to highest astronomic range of 1.20m. Sea level variability due to storm surge and high tides can produce a range of more than 2m. Extreme water levels were experienced during Tropical Cyclone Alby (1978) and following the Sumatra tsunamis in 2004 (Damara 2011). The diffraction of wave direction and swell energy around Cape Naturaliste, combined with a northerly aspect, provides Geographe Bay with more protection from westerly and south-westerly storm events. Northerly and north-westerly storms, however, can create high wave events along the Geographe Bay coastline.

While tides cause small, and predictable changes in sea level, storm surge can result in short-term sea level rise associated with strong winds and barometric pressure changes. In particular, strong winds can generate steep waves which can erode higher sections of beach which are not typically vulnerable. The level of beach impact can be substantial, particularly if storm events coincide with a high tide. Overall, the impact on beach profile is dependent on the magnitude, intensity and duration of the associated storm system and tidal cycle (diurnal, spring-neap or bi-annual) at the time of the event.

2.5 Historic Shoreline Changes

Historical aerial photography dating back to November 1941 has been used to map the movement of the coastline of Geographe Bay and to identify areas of accretion and erosion. Generally, the Geographe Bay coastline has been accreting over that time period, however localised variations show that, in an unmanaged state, the coastline can be highly mobile, with most of the shoreline experiencing, at the decadal-scale, periods of both significant net accretion and significant net erosion over the last 70 years.

These changes are natural responses to storm erosion and recovery, and are influenced locally by the installation of coastal protection structures, the construction of a regional drainage network (drains that bisect the coast and influence the trapping and release of sediment) and the large, active sandbars within Geographe Bay itself. The prevailing swell and alongshore tidal and wave currents generate sand feeds, resulting in wider beaches near the tips of sandbars. The largest sandbars have an eastward migratory trend and can influence shoreline beach widths.



3

Why does the City need a Coastal Adaptation Strategy?



3.0 Why does the City need a Coastal Adaptation Strategy?

Mean sea level has risen globally since the 19th century and this is predicted to continue at an increasing rate through the 21st century, significantly altering the WA coastline over the coming decades. Changes to mean sea level over the past century have been observed for the coastline adjacent to the Perth Metropolitan Area. In accordance with SPP2.6, the City is required to address projected a sea level rise of 0.9m over the next 100 years which will have significant impacts on the City's coastal areas in the future.

Because the coastline is mobile and dynamic and has been affected by coastal processes historically, both the City and private landowners have periodically taken steps to manage those affects. It is not a question of if or when the City's coast may be affected by coastal erosion hazards, but the extent to which those affects will continue (and accelerate) over time. Unless strategic actions are taken to protect the coast, not only will private land and development be affected, but so will public beaches, foreshore reserves, environmental assets (vegetation/habitat and wetlands/estuaries), cultural assets and public infrastructure such as roads. Irrespective of whether the projected 0.9m mean sea level rise eventuates (or exceeds), the coastline within the Study Area requires a well-considered and ongoing strategic management approach.

It is worthwhile thinking about this issue in in comparison to the way one thinks about insurance. A person may insure their house for fire, even though it may be overwhelmingly unlikely that the house will ever be damaged or destroyed by fire. A judgement is made about the likelihood and consequences of an adverse event relative to the costs of insurance, even while still hoping and taking care to ensure that the adverse event does not actually occur.

In considering the potential effects of coastal processes generally, coupled with sea level rise, the likelihood of an adverse event is high (and has occurred both historically and very recently), the consequences very significant and the cost of 'insurance' is relatively low, when compared to the likelihood and consequences of the potential harm. The cost is, however, still substantial, and likely to be well beyond the reasonable financial capacity of local government to generate and manage effectively.

Long-term projected increases in mean sea level have the potential to exacerbate existing coastal processes. As such, all levels of government are putting measures in place to try and ensure that communities understand the risks to values and assets along the coastline, and appreciate the importance of being in a position to be able to adapt to these over time.

While the scientific community has established that human-induced climate change is occurring, uncertainty remains about the magnitude and extent of the likely future impacts from these changes. Despite such uncertainty, early consideration of coastal erosion hazards, and the adaptation and management of appropriate planning responses, is essential to ensure economic, environmental and social objectives can be achieved.

National and international coastal planning practices are increasingly adopting a risk management approach to deal with the potential adverse impacts of coastal erosion hazards. These help ensure that such hazards are appropriately factored into strategic decision-making processes for sustainable land use and development in the coastal zone.

3.1 Community and Stakeholder Engagement

Community input will be 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.

3.1.1 Community Coastal Values Survey

The City commissioned Research Solutions to undertake a community survey to determine what people value most about the coastline in the Study Area (Research Solutions, 2018). The methodology and results of the survey can be viewed on the City's website. The survey sample itself was divided into coastal and inland residents and property owners. An important objective behind this approach was to deliver a random and representative sample of the community, including those members of the community who may not typically participate in such consultation due to their residing away from the coastline and Study Area.

3.0 Why does the City need a Coastal Adaptation Strategy?

The survey intended to:

i. Establish how the coastline is used, and then compare this with the values people espouse for the coastline.

ii. Establish key values and what people feel should be protected and preserved from likely future erosion.

iii. Establish whether the community understands the changes that are already occurring along the coastline and the level of awareness of the City's current actions to monitor and manage coastal erosion.

iv. Explore exactly who the community feels should be responsible for payment for the considerable cost of works required to reduce and/or mitigate the impacts of coastal erosion.



The survey found that the north-facing beaches in the City are strongly valued by the community, with over half of those surveyed feeling that uninterrupted stretches of sandy beach are a vital part of the character and social wellbeing of Busselton.

The most important coastal value cited was 'handing the coastal area onto our children and grandchildren in the same or better state than it is now'. Other important values were:

- Knowing that there are places on the coast that feel 'natural'.
- Natural vegetation/habitat on foreshore and beach areas.
- Uninterrupted stretches of sandy beach to walk and recreate along.
- Heritage: historical features such as the Pioneer Cemetery or the Busselton Jetty.
- Safe swimming beaches.

The survey also established that a significant proportion of the community use local beaches in the Study Area. Over 53% of respondents mentioned walking/jogging on the beach or foreshore at least once a week. Of those, 42% of respondents living in the western part of the City preferred remotely located beaches (this increased to 54% of respondents who lived in the eastern part of the City). Of all respondents, 22% cited using both the Busselton 'town beach' or Old Dunsborough beach and more remote beach areas for walking and/or jogging.

There was a high level of awareness of natural changes in the coastline over the year preceding the community survey (62%), and 60% of respondents were aware that the City had taken action to stop or reduce impacts from coastal erosion over the previous five years (e.g. the construction of groynes and seawalls, or the implementation of beach nourishment and revegetation).

On the question of who should be responsible to pay for costs associated with the prevention or mitigation of likely coastal erosion impacts, 41% of respondents felt that the State taxpayer should bear the majority of such necessary costs, with the balance to be borne by all ratepayers in the City (29%) and private landowners/businesses more directly affected (30%).

3.0 Why does the City need a Coastal Adaptation Strategy?



The results of the community coastal values survey have been used to inform the multi-criteria analysis (MCA) of adaptation options for the CHRMAP, as well as a financial model (where all scenarios assume protection and preservation of a continuous beach and foreshore, wherever possible, is the preferred end result).

3.1.2 Community Information Sessions

In March 2019, the City held community information sessions in both Dunsborough and Busselton regarding the development of a CHRMAP for the City's coastline. Information disseminated during those sessions included the findings of the community coastal values survey, the State government's position on coastal management and projected sea level rise, the coastal areas within the City considered to be the most vulnerable to potential coastal erosion hazards in future decades, and options for monitoring and managing the effects of sea level rise and coastal hazards.

3.1.3 Strategic Community Plan 2017 (Review 2019)

In June 2020, the City undertook a 'community scorecard survey' to support a review of the Strategic Community Plan and to assist with identifying community priorities. The survey asked respondents to rank local projects and issues, from the most important to the least important. Of those respondents, 46% ranked the management and protection from coastal erosion of the City's coastline as the most important.

3.1.4 Steering Group

The City engaged with relevant government and external stakeholders in preparation of the CHRMAP through a representative Steering Group and will continue to liaise with relevant peak agencies as required, in order to best ensure that coastal hazard management and strategic adaptation planning is coordinated and implemented within the municipality and across the region. The Steering Group was comprised of representation from:

- Department of Transport
- Department of Planning, Lands and Heritage
- Department of Water and Environmental Regulation
- Department of Biodiversity, Conservation and Attractions
- Water Corporation
- GeoCatch catchment management group based in Busselton

4

What are Coastal Hazards and how are they Identified?

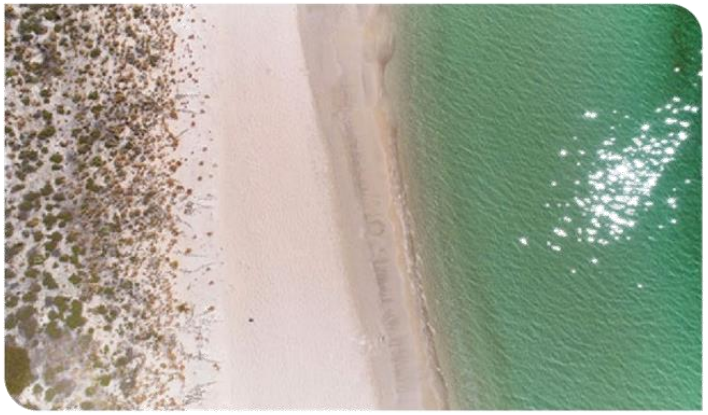


4.0 What are Coastal Hazards and how are they Identified?

4.1 Coastal Hazards

The coast is a relatively narrow dynamic zone characterised by complex interactions between oceanic, terrestrial and atmospheric processes. Ocean temperature, waves, tides, ocean currents and wind all contribute energy to form and shape the coast. These interactions result in natural changes to the coast over a range of timescales, including -

- long-term changes to the coastline as a result of global climatic change and geological processes, including the 120m rise in sea level recorded since the last glacial maximum around 20,000 years ago.
- ongoing processes of coastal sediment transportation, including the supply of sediment from rivers, coastal erosion or offshore sources transported by ocean currents, waves and wind.
- short-term effects of extreme events such as the landfall of a tropical cyclone.



Coastal erosion is a natural, seasonal process that occurs when winds, waves and coastal currents act to shift sediments away from the shoreline, often during storm events. Typically, erosion occurs during the winter months, with recovery and build up (accretion) during the summer months. In most locations, this is a short-term process and beaches gradually regain sediment.

Coastal inundation results from the interaction of a number of elements. During a storm, strong onshore winds can increase water levels close to the coast and low atmospheric pressure raises the level of the ocean. A storm surge can interact with other drivers, including coincident high tides, riverine and drain flooding, to increase the severity of inundation.

4.2 Coastal Hazard Modelling

Coastal hazards are modelled as per the parameters outlined in SPP2.6, which stipulate allowances to be made for erosion as follows:

- **(S1 Erosion) Allowance** for the current risk of erosion.
- **(S2 Erosion) Allowance** for historic shoreline movement trends.
- **(S3 Erosion) Allowance** for erosion caused by future sea level rise.

For sandy coastlines, the allowance should also include a 0.2m per year allowance for 'uncertainty'. An allowance for inundation should be based on:

- **(S4 Inundation) Allowance** for the current risk of storm surge inundation.

Coastal hazards were assessed in the CHRMAP for the planning timeframes of 2040, 2070 and 2115. The planning timeframe of 2115 reflects the timing of the most recent coastal hazard modelling and, given the preparation of the CHRMAP over the past several years, the 100 year planning timeframe would normally be 2120. As there is uncertainty as to the extent of future sea level rise, however, the difference is not considered significant. The CHRMAP will anyway undergo review during all those planning timeframes. In accordance with SPP2.6, therefore, the hazard modelling applied in the CHRMAP considers a sea level rise of 0.9m by 2120.

4.0 What are Coastal Hazards and how are they Identified?



A significant number of coastal studies have already been undertaken in the City but it is considered preferential for the CHRMAP to be based on hazard mapping conforming to the requirements of SPP2.6, in order to ensure the CHRMAP's overall general compliance with extant planning and regulatory requirements.

Practical recommendations on the selection and application of coastal hazard lines for inclusion in the CHRMAP are summarised below. The detailed technical methodology used to inform the preparation of the CHRMAP can be viewed in Part 1 of the CHRMAP Technical Assessment Report (Advisian, 2020a). The coastal hazard lines described below can be viewed on the Management Unit aerial photographs provided in section 7.1 Recommendations of the CHRMAP.

4.2.1 Erosion – Geographe Bay (Old Dunsborough to Forrest Beach)

Damara WA (2012) developed hazard lines for the likelihood of coastal erosion for 2040, 2070 and 2120 for: 0.15m (low), 0.4m (medium) and 0.9m (high) sea level rise projections, respectively. The hazard lines were extrapolated west to the boundary of the Meelup Regional Park to incorporate Old Dunsborough. This is because existing coastal hazard studies have not included this section of the coast and the CHRMAP contains recommendations to further investigate coastal hazard risk for the Old Dunsborough Management Unit. The S1 erosion values in Damara WA (2011) are utilised in this CHRMAP to evaluate the present day risk to assets, which is in accordance with the requirements of SPP2.6.

Existing coastal protection structures, such as the Port Geographe breakwater and seawall, were not factored into the modelling for coastal erosion for the various planning timeframes. That is because it cannot necessarily be assumed that those structures will be maintained or replaced in perpetuity, and no current structures have been designed with a 100-year design life.

Whilst the coastal erosion hazard lines for Geographe Bay are possibly conservative, they have been deemed appropriate for the development of the CHRMAP (Advisian, 2020a).

4.2.2 Erosion – Smiths Beach, Yallingup, Bunker Bay and Eagle Bay (Cape settlements)

Damara WA (2017) erosion hazard maps are generally consistent with SPP2.6, other than not including a 'present day' or short-term (2030) hazard scenario. For the purposes of the CHRMAP the 'Type 1 Application' erosion hazard lines are used for the years 2040, 2070 and 2120. This application uses an estimate for S1 based on beach variability and a 100:1 ratio of coastal response to sea level rise for S3. Progressive erosion allowances for S2 over 100 years are included for Smiths Beach and Yallingup. No S2 allowance is made for Bunker Bay or Eagle Bay due to active sediment supply. Hazard lines provided for 2040, 2070 and 2120 are for sea level rise of 0.15m, 0.4m and 0.9m respectively.

4.2.3 Inundation – Geographe Bay (Old Dunsborough to Forrest Beach)

SPP2.6 recommends the management of inundation risk up to a 1 in 500 year ARI event. However, due to the small number of extreme events in the recorded datasets, it is very difficult to accurately quantify the expected water levels during a 1 in 500 year event.

4.0 What are Coastal Hazards and how are they Identified?



A present day 1 in 500 year ARI event was originally considered comparable to the actual recorded peak water levels during Tropical Cyclone (TC) Alby in 1978 (1.76m AHD in Geographe Bay). However, this peak level is now considered well below more recent estimates of a 1 in 500 year ARI, with current scientific assessments categorising TC Alby as having been around a 1 in 200 year storm event. A study commissioned by the Department of Transport (Seashore Engineering, 2018) identifies 2.9m AHD as a deliberately conservative, upper range estimate of a 1 in 500 year ARI event in Busselton, which would give a 100 year water level in the order of 3.8m AHD, allowing for 0.9m sea level rise.

A 2.9m AHD water level would result in the majority of the Study Area being impacted by inundation, both directly from storm surge and breaches in the dunes, and flooding of existing drainage channels (Advisian, 2020a). There is also the added complexity of the potential combined impacts of flooding due to a rising groundwater table and rainfall surface run-off.

In liaison with the Department of Transport, a targeted inundation study was prepared for the proposed Newport Geographe development at Port Geographe (Baird, 2020). The study makes recommendations for the 1 in 500 ARI coastal water level for the site in accordance with SPP2.6.

The study also refers to TC Alby on a design storm basis for determining a recommended finished floor level of 3.4m AHD to protect urban development against 1 in 500 ARI water levels for buildings along the canal waterways for the planning year of 2120.

For the purpose of assessing the risk of inundation in the development of short-term management actions, and longer-term adaptation pathways, the CHRMAP assumes that:

- **In the short-term (0-10 years)** all areas below 3.0m AHD are at risk from inundation (this represents the majority of land within the Study Area).
- **In the longer-term (up to 100 years)** all areas within the Study Area below 3.8 m AHD are at risk from inundation (Advisian, 2020a).

These findings allow for the broader evaluation of management actions across each Management Unit.

4.2.4 Inundation - Smiths Beach, Yallingup, Bunker Bay and Eagle Bay (Cape settlements)

The physical characteristics of the City's west coast are different to those of generally sandy zone around Geographe Bay. Coastal inundation along the Cape Naturaliste coastline comprises two distinct components (Damara, 2017) –

- For exposed west coast beaches, such as Yallingup and the middle/northern sections of Smiths Beach, coastal inundation caused by wave run-up results from the combined effects of high ocean water levels and onshore wind. This has caused significant dune erosion or 'scarping' in the past. Areas exposed to wave run-up hazard have been included in areas identified as likely to be affected by coastal erosion.
- For low-lying areas of beaches that are more sheltered from wave action (sections of Bunker Bay, Eagle Bay and Smiths Beach in the lee of rocky headlands), localised coastal inundation is caused by ocean water levels and outfall locations associated with drainage/creek lines.

4.0 What are Coastal Hazards and how are they Identified?

Detailed inundation hazard mapping has not been undertaken as part of the CHRMAP for Smiths Beach, Yallingup, Bunker Bay and Eagle Bay. A recommendation of the CHRMAP is to commission targeted inundation investigations and, where necessary, mitigation works once the considered direction on managing coastal erosion hazard has been endorsed.

4.2.5 Evaluating the combined risk of erosion and inundation

Within the Geographe Bay portion of the Study Area (generally north-facing, low-lying sandy beaches) there is a pronounced risk of both erosion and inundation. Although SPP2.6 requires the evaluation of these hazards independently, it is believed the effective assessment of adaptation options will require a more integrated approach. In particular the selection of coastal erosion adaptation options can have a direct influence on options for the management of coastal inundation. For example, a decision to maintain or necessarily 'abandon' a foreshore reserve could directly affect the City's ability to protect or mitigate against inundation.



However, given both the immediate and long-lasting risks from (and outcomes of) coastal erosion, the priority of the CHRMAP has been centred on the evaluation and determination of adaptation options for coastal erosion. These recommended adaptation options for coastal erosion risk will anyway assist in mitigating inundation hazard.

4.3 How are the Risks Assessed?

To provide a transparent and logical basis for determining adaptation planning priorities, a risk assessment was undertaken that aligned with the City of Busselton Risk Management Framework (2017).

Risk was assessed in relation to the –

- Likelihood of a hazard occurring.
- Consequences of the hazard if it was to actually occur.
- Capacity for the management of assets to adapt and address coastal hazards.

The risk assessment has assumed that existing coastal protection structures will not function beyond their current design life. For the purpose of estimating 'worst case scenario' coastal hazards, therefore, it is assumed that no other adaptation intervention will occur. For the steeper, rockier coastline at Old Dunsborough, and further west, there is uncertainty about the local geology and associated erosion hazard mapping. For the purposes of risk assessment and multi-criteria analysis, it is assumed that the estimation of risk is accurate (assuming no introduced coastal erosion controls). As a consequence, the CHRMAP includes a recommendation for an additional study to specifically investigate local geomorphological influences on coastal erosion risk, at those locations previously referred to.

4.0 What are Coastal Hazards and how are they Identified?

4.4 What Could be Affected?

Over the 100-year planning timeframe referenced in the preparation of the CHRMAP, the whole of the coast along Geographe Bay is considered vulnerable to coastal erosion. The severity and extent of potential impacts are also predicted to increase progressively. The risk of coastal inundation along the Geographe Bay coastline is also significant because it is so low-lying. The complexity and levels of risk also increases with the interaction between sea level rise, storm surge, peak tides and flooding associated with rainfall fun-off from rivers, wetlands/estuaries, agricultural drains and drainage lines more generally.

The coastline at Smiths Beach, Yallingup, Bunker Bay and Eagle Bay is also at risk from coastal hazards but these risks can be considered and addressed separately from those along Geographe Bay, due to the more 'contained' influencing elements (e.g. geomorphic 'controls' such as rocky headlands separating sandy beaches, steeper topography and prevailing wave, swell direction and energy).

The total present day value of existing assets potentially at risk from coastal hazards in the Study Area to 2120 is estimated to exceed $5 billion. This figure includes private residential and commercial properties (valued at approximately $4.9 billion) and City of Busselton and State-owned utility assets (valued at approximately $513 million).

Public infrastructure assets in the Study Area include -

- Grassed foreshore areas *(including furniture/BBQs/play equipment/ irrigation infrastructure/fencing).*
- Carparks.
- Dual use paths.
- Jetties and boat ramps.
- Buildings.
- Coastal protection structures.
- Roads and bridges.
- Utilities *(infrastructure for flood protection, stormwater, sewerage, water, power, gas and communications).*



There are also highly valuable and significant assets that are inherently difficult to determine a dollar figure for, such as the Ramsar wetlands in the Vasse-Wonnerup Estuary, recognised habitat areas for the critically endangered Western Ringtail Possum, wetlands, groundwater aquifers (seawater intrusion) and sites of both Aboriginal and European historical, spiritual and cultural significance.

The potential damaging impacts from coastal erosion are typically much more threatening than those of coastal inundation (noting that inundation is different to flooding in the context of the CHRMAP). For example, if a carpark is temporarily inundated with sea water during a storm event, the water will eventually subside and may not result in significant structural damage. If a carpark is undermined during a storm event, however, such erosion is likely to require repair or complete replacement.

In terms of vulnerability, therefore, coastal erosion hazards generally create the highest risk in the short-term, due to their greater capacity to significantly damage assets. The risk of coastal inundation, however, increases substantially over future planning timeframes and extends across large areas of low-lying land in and adjoining the Study Area and, in some cases, a significant distance further inland.

5

What are the Management Options and Considerations for Coastal Hazards?



5.0 What are the Management Options and Considerations for Coastal Hazards?

5.1 Key Concepts

5.1.1 Equity

Equity is a concept central to the purpose of the CHRMAP process. The City's coastline is considered by the community to represent a highly valuable public asset, as well as by a range of stakeholders including individual property owners in coastal areas, ratepayers, taxpayers in general, and environmental/non-human stakeholders.

Responsibility for coastal planning in WA currently lies with both State and local governments and there is a need to ensure that decision-making properly considers equity in terms of:

- Access – e.g. if the foreshore reserve erodes to the point where private houses end up directly fronting the beach, this would restrict or even entirely prevent public access to those areas. The coastline and coastal foreshore reserves represent public assets that should, wherever possible, be protected and preserved future generations to enjoy.
- Enjoyment – e.g. if a seawall is constructed a fisherman may still be able to enjoy the coastal environment by fishing from those rocks, however, the loss of a sandy beach would remove the potential enjoyment of that coastal environment by someone who simply wants to walk along that beach or swim from that beach.



- Beneficiaries - e.g. the construction of coastal protection structures, such as groynes, may create 'beneficiaries' (those who are subsequently protected from hazards), yet potentially disadvantage others. Such protection structures may exacerbate erosion further along the coast by diverting or limiting sediment transport and availability for maintaining and replenishing beaches some distance away from the protected area. Protection structures can also result in significant impacts to coastal ecosystems well beyond the location in which the structures are actually built.
- Intergenerational equity – e.g. in planning for a 100-year timeframe, how will decisions made now affect future generations? Continuing to allow development near the coastline without effective adaptation planning in relation to recognised and/or likely hazards has the clear potential to result in increased risk and expense for future generations.

In light of the above, it is critical that planning and management of coastal hazards is as transparent, effective, strategic and equitable as possible.

5.1.2 Coastal foreshore reservation

The coastal foreshore provides beach access and public spaces for recreation and conservation. It is also an elemental tourist attraction and provides habitat for native flora and fauna. Importantly, it can also provide a buffer to protect built assets, such as buildings and infrastructure, from coastal hazards.

SPP2.6 Schedule One provides guidance for calculating the width of a coastal foreshore reserve required to accommodate coastal processes. This is intended to ensure that, at the end of the planning timeframe, an attractive, accessible and usable coastal foreshore reserve is still present for recreation and/or conservation and is not, instead, exposed to and degraded by the adverse impacts of erosion and inundation. Additional and future development will need to be situated an appropriate distance from the coastal shoreline and foreshore reserve(s) and the City is already actively engaged in monitoring and managing the coastline in the Study Area to best ensure the

5.0 What are the Management Options and Considerations for Coastal Hazards?

retention of these important recreational and environmental resources until the findings and recommendations of the CHRMAP can be properly implemented.

Notwithstanding the above, Schedule One, Clause 7 – Variations, outlines specific instances where certain types of development may need to occur within an area identified to be potentially impacted by coastal hazards within the 100-year planning timeframe. Consideration of development should occur within the context of a CHRMAP and may include, amongst other things, public recreation facilities with a finite lifespan, coastally dependent and easily relocatable buildings and surf lifesaving clubs.

5.1.3 Rights and responsibilities

There is no present law requiring any level of government to provide for the protection of private property from natural hazards, nor compensation when private land is undermined or lost to the sea. There are, however, several laws that permit the intervention of governments to enforce eviction if private property becomes dangerous or uninhabitable. The removal of buildings can also be ordered if those constitute an identified public risk. In the event of coastal erosion causing a privately-owned residential (or other) asset to 'fall into the sea', and the property itself to 'disappear below the high water mark', such losses are to be borne entirely by that owner.

The current legal situation in WA determines, however, that property Title remains even where the land is entirely lost to coastal processes. Nonetheless, the CHRMAP process ultimately intends to minimise risks and maximise opportunities for the sustainable beneficial use of the coast from an economic, social and environmental perspective. For more information on rights and responsibilities, refer to the State Government's WA Coastal Zone Strategy 2017.

5.2 Adaptation Hierarchy

There are four broad categories of potential risk management options for responding to coastal hazard risks for any given section of coastline. The hierarchy of options in SPP2.6 is described as follows:

5.2.1 Avoid

Avoid any further residential or commercial development within areas identified as vulnerable to the impacts of coastal hazards. Avoid is seen as the 'preferred strategy' but is generally only applicable to undeveloped areas of the coast where intensification of development in hazardous areas might otherwise reasonably be proposed. This option is underpinned by the implementation of planning controls which should prevent inappropriate use of land in areas identified as potentially at risk from coastal hazards.

Pros	Cons
Ensures that property and infrastructure will not require costly management in the future.	Not an option for much of the City's coastline, where development already exists in areas recognised as being vulnerable to coastal hazards.

5.2.2 Planned or Managed Retreat

This option provides for the progressive removal of assets ahead of risk becoming manifest from coastal hazards. This would be a significant and problematic undertaking and could potentially involve acquisition of vulnerable private property and the removal and relocation of public infrastructure in order to preserve beach and coastal foreshore assets, public access, recreation, conservation and coastal foreshore management.

Planned or managed retreat for existing development involves relocating or sacrificing infrastructure, both public assets and private property, when the effects of erosion and coastal recession reach agreed trigger points.

Managed retreat is identified as the generally preferred adaptation pathway under SPP2.6. The Planned or Managed Retreat Guidelines (DPLH, 2019) outline mechanisms for securing the

5.0 What are the Management Options and Considerations for Coastal Hazards?

transfer of land from private ownership to the public realm under this approach. Although the State Government generally recommends managed retreat, it has not explained how it proposes to fund such an option at this stage. While there is currently no obligation at any level of government to compensate landholders for the detrimental effects of coastal hazards and sea level rise, there is a pronounced and evident obligation for government to act in accordance with the accepted best interests of a particular community. The community values survey in the City of Busselton strongly supported the retention, wherever possible, of a continuous beach and foreshore, and to achieve this under a managed retreat management option, private properties would need to be purchased, often compulsorily.

This option could be facilitated in a number of ways, including:

- Leaving assets unprotected and repairing or removing them only when they are directly threatened or otherwise affected (e.g. minor park infrastructure).
- Removing or relocating assets before they are directly affected (e.g. larger-scale assets and infrastructure, including commercial/private property and roads).
- Not acting to retreat until other certain trigger points have been reached (e.g. shoreline recedes to a defined point).
- The application of pre-emptive planning controls, such as delineating a Special Control Area over vulnerable areas.
- Reserving land in the local planning scheme to expand existing foreshore reserves, including the acquisition of land through either voluntary or compulsory means.

It is important to note that without the acquisition of private property to expand the foreshore reserve, a managed retreat option may result in a loss of public access to foreshore areas and a loss of amenity as houses become uninhabitable.

Pros	Cons
• Removing assets from hazardous areas eliminates the need to fund ongoing protection. • From an intergenerational equity perspective, failing to retreat when needed could be seen to disadvantage future generations, who would effectively be paying to rectify land mismanagement attributable to previous generations	• Well-defined trigger levels based on long-term datasets are critical to ensure that management responses are entirely appropriate and conducted in a timely way. For example, an arbitrary trigger might be that managed retreat will be implemented once more than 40m of a shoreline/beach is lost. However, if 80m of beach was lost in one storm, it would obviously not allow sufficient time to implement a contingency response. • There is currently no funding mechanism proposed by the State or Federal governments to assist with the estimated likely costs of managed retreat, making it prohibitively expensive for local government to even consider. • Much of the most desirable property would no longer attract investment due to loss of income, economic productivity and investment confidence. • Unless private properties are acquired in a timely way, useable beaches and foreshore reserves will be lost to the broader community. • With the progressive removal of significant infrastructure such as roads, there will be a need to maintain safe and efficient public access to property, including private property. • A managed retreat strategy would result in the blighting and gradual dysfunction of existing residential areas as homes and infrastructure are progressively removed over time.

5.0 What are the Management Options and Considerations for Coastal Hazards?

5.2.3 Accommodate

Accommodate options aim to re-design existing infrastructure to mitigate potential impacts as they occur, and allow for land uses of a lower risk profile (e.g. of a temporary) nature. This option is rarely applicable to areas at risk of coastal erosion but is suitable to some areas prone to coastal inundation, where assets can be elevated to maintain useability in an otherwise hazardous area. The ability for substantial built assets to be redesigned to accommodate coastal erosion hazards, however, is generally far more limited.

Emergency response plans and controls are also considered as a measure to accommodate coastal hazards. This would involve the implementation of plans for assets and areas that are at risk from hazards, with agreed triggers and procedures in place for before, during and after events. It would also identify and designate roles and responsibilities, along with management measures such as signage and barriers to prevent access.

Pros	Cons
Relatively simple to implement through planning controls in undeveloped areas.	• Is not effective for existing developed areas within the City. • Is not effective for areas impacted by coastal erosion. • Retrofitting existing structures to accommodate inundation risk would be challenging and costly. • Where substantial inundation hazard levels are expected, the accommodate option may adversely impact on the character and amenity of the area.



5.2.4 Protect

Protect options will seek to hold the coast (maintain foreshore reserves, public access and safety, property and infrastructure) as best as feasibly possible over a specific timescale. Protect options would include:

- Beach nourishment
- Dune stabilisation
- Groynes
- Vegetated/landscaped bund
- Exposed seawall or revetment
- Buried seawall
- Detached breakwaters

Coastal protection works may be categorised as either 'soft' or 'hard'.

5.0 What are the Management Options and Considerations for Coastal Hazards?

5.2.4.1 Soft protection

Beach nourishment involves placing sand on beaches or dunes following significant erosion events to create an additional buffer to mitigate future storm events. Sand nourishment is regularly undertaken by the City along the Geographe Bay coastline to manage beach erosion. This is an important coastal risk management solution that can be the primary response at some beaches, and at other sites subject to more persistent erosion, providing an interim response prior to the construction of more permanent protective works. Sand nourishment is also undertaken at the time of protective capital works to minimise 'downdrift effects'. The feasibility of this option is influenced and often constrained, however, by the availability of suitable sand supplies. Where suitable land-based sources are not readily available, or are located a considerable distance away, transportation costs can be significantly increased. The coastline within the Study Area is at the edge of the Ngari Capes Marine Park (State) which itself is adjoined by the Geographe Marine Park (Commonwealth). The latter protects ecologically important seagrass meadows, which contribute to natural sediment supply. Offshore sand supply would, therefore, not be permitted.

Dune stabilisation and management involves an ongoing program for revegetation and rehabilitation of the dune system, including fencing, and is usually undertaken in tandem with other protection works.

Pros	Cons
• Lower up front cost compared to other management options. • Does not require significant infrastructure. • Can delay the need for hard protection structures or managed retreat. • Locally stabilises the beach and foreshore reserve. • Can assist with retaining beach amenity and aesthetics. • Maintains access and enjoyment of the beach.	• Only offers interim temporary protection, and may not be a feasible long term option. • Significant and progressively escalating ongoing cost. • Uncertainty of suitable, cost-effective sand supplies to meet future demand.



5.2.4.2 Hard protection

This option involves the construction of engineered structures to protect the coast and/or landward assets from the effects of coastal hazards. There are more than 50 coastal protection structures already in place along the Geographe Bay foreshore. Types of structures include low profile rock groynes, exposed and buried seawalls, timber groynes and granite training walls for regional drain ocean outlets. More recently, geofabric sand container groynes and revetments have been constructed adjacent to the Busselton Jetty. This protection approach has been feasible to date due to an ongoing net supply of sand from west to east along Geographe Bay over recent decades.

It should be noted that no protection option is considered permanent, and all have associated expenses to implement, maintain, remove and potentially replace. Hard protection options also have the potential to divert coastal erosion hazards, increasing risk for adjacent areas or assets and potentially creating public liabilities for those responsible for the construction of these structures. Seawalls can be either exposed or buried structures built in front of identified assets along the coast.

5.0 What are the Management Options and Considerations for Coastal Hazards?

FIGURE 1

Existing Busselton Foreshore Seawall
EXPOSED GRANITE



5.0 What are the Management Options and Considerations for Coastal Hazards?

FIGURE 2

Existing Dunsborough Foreshore Reserve
EXISTING BURIED GEOFABRIC SAND CONTAINER SEAWALL



5.0 What are the Management Options and Considerations for Coastal Hazards?

> **Figure 1** illustrates a 'cutaway' section of the existing coastal protection structures at the Busselton Foreshore, to the west of the Busselton Jetty. This section includes the granite seawall and geofabric sand container groynes, supplemented with sand nourishment as needed.

> **Figure 2** illustrates a 'cutaway' section of the existing coastal protection structure at the Dunsborough Foreshore. In 2012, the rock seawall and carpark was replaced by a buried seawall (constructed from geofabric sand containers), which lies at the seaward edge of the foreshore and is overlain with sand and planted with coastal vegetation.

The rate of erosion in front of an exposed seawall can increase due to wave refraction, resulting in the loss of a useable beach over time. Beach nourishment is therefore usually required to further assist with maintaining beach and shoreline attributes.

The potential to degrade beach amenity is likely to lower the deemed acceptability of exposed seawalls to the broader community, unless these can also perform the dual function of protecting assets and/or broader areas from intermittent coastal inundation. Therefore, exposed seawalls are not considered to be a best option for areas that are solely at risk from coastal erosion. A buried seawall is rock or geofabric sand container protection buried under the beach or foreshore reserve. It can be covered with sand, vegetated and landscaped to form an attractive and unintrusive protective bund.

> **Figure 3** and **Figure 4** illustrate 'cutaway' sections of a buried seawall, constructed from geofabric sand containers, overlain with sand to create a 'bund' or artificial dune and landscaped with coastal vegetation within a wide foreshore reserve and a narrow foreshore reserve respectively. Groynes and beach nourishment would most likely be required to further assist with maintaining the beach and foreshore.

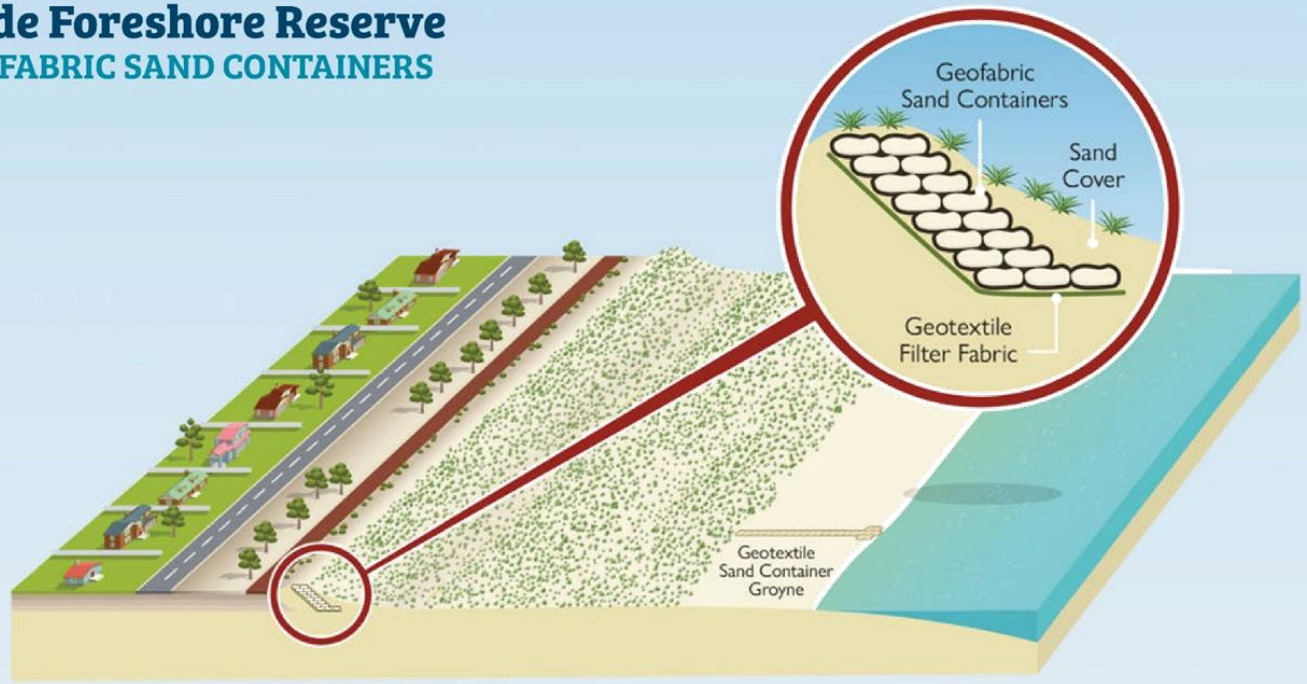
Groynes are structures constructed of timber, rock or geofabric and are situated perpendicular to a beach. Usually constructed in groups, groynes restrict or stop longshore sand movement and stabilise beaches locally. This form of stabilisation is usually supplemented with beach nourishment as localised erosion down-drift can often occur.

A detached breakwater is a structure, normally made of rock or geofabric and constructed parallel to the coastline. Detached breakwaters reduce wave-induced longshore currents/sand transport and stabilise beaches locally.



FIGURE 3

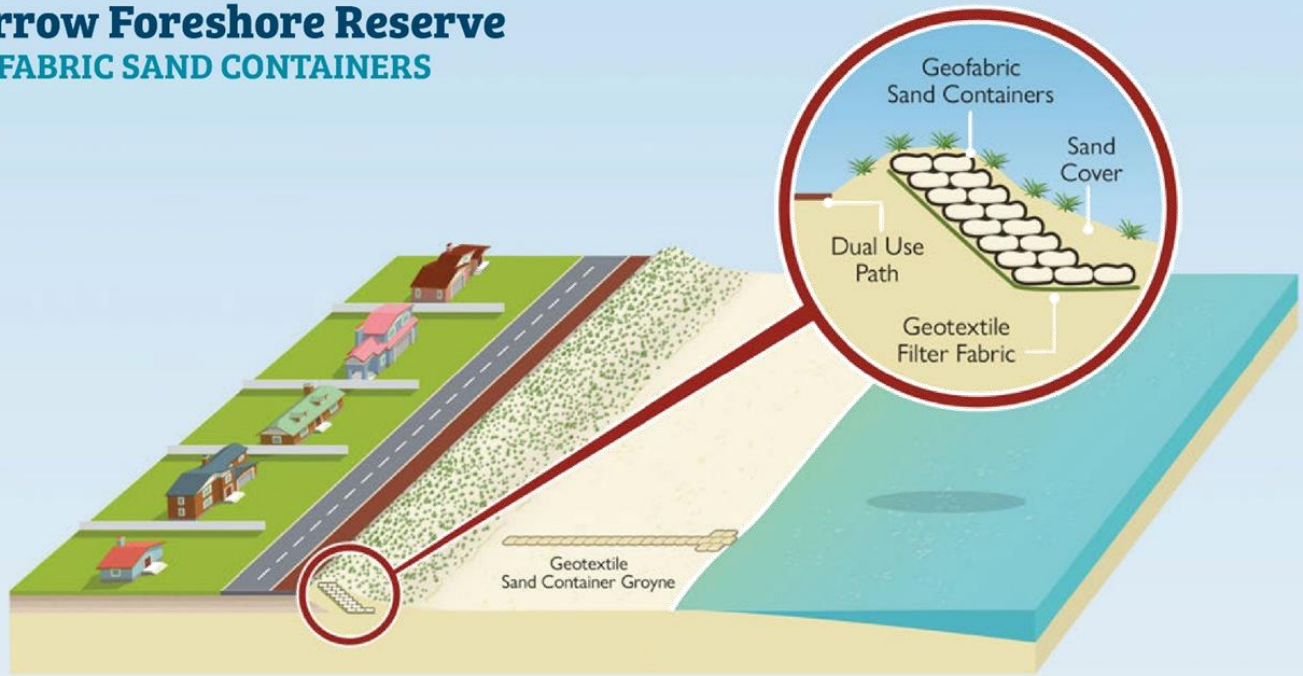
Wide Foreshore Reserve
GEOFABRIC SAND CONTAINERS



5.0 What are the Management Options and Considerations for Coastal Hazards?

FIGURE 4

Narrow Foreshore Reserve
GEOFABRIC SAND CONTAINERS



5.0 What are the Management Options and Considerations for Coastal Hazards?

Pros	Cons
Exposed Seawall	
• Provides interim protection against coastal hazards for the assets and private properties behind the seawall. • Locally stabilises beach and foreshore reserve areas.	• Hard protection structures generally divert erosion issues elsewhere, such as to beaches either side of, and directly in front of, a seawall. • Require a significant up-front capital cost and long-term maintenance. • May eventually result in complete loss of a beach. • Over time, may require beach stabilisation through sand nourishment. This may not be sustainable in the long term due to cost and limited sand supply relative to increasing demand.
Buried Seawall	
• Unobtrusive and can be landscaped with vegetation and managed to resemble a natural dune. • Provides interim protection against coastal hazards for landward assets. • Locally stabilises the beach and foreshore reserve. • Would not impede longshore sand movement. • Can be reinstated relatively quickly if eroded by a storm event.	• May result in down-drift erosion if exposed during a storm event. • May require supplementary beach nourishment, particularly after a storm event. • May be difficult to implement where the beach and foreshore reserve are narrow and/or lot boundaries extend to the high water mark.

Pros	Cons
Groynes	
• Sand trapped on the up-drift side of groynes may act as a buffer to absorb storm erosion. • Correctly designed, groynes can allow both longshore sand movement and sediment retention. • Locally stabilises the beach and foreshore reserve. • Most effective where there is predominant longshore sand movement.	• Usually requires supplementary beach nourishment. • May result in down-drift erosion if poorly designed.
Detached breakwater	
• Locally stabilises the beach and foreshore reserve. • Shelter the beach from waves and reduces longshore currents and sand movement. • Over time a tombolo, or sand connection between the breakwater and the beach, can form.	• The Geographe Bay coastline is adjacent to the Ngari Capes Marine Park which contains ecologically important seagrass beds. Construction of detached breakwaters within the Marine Park may not be feasible, or permitted. • Provide limited protection against sudden, short-term events such as a severe storm. • Usually requires supplementary beach nourishment. • Can change the nature and appearance of a coastline.

5.0 What are the Management Options and Considerations for Coastal Hazards?

5.3 Multi-Criteria Analysis

Risk management options have been considered for each Management Unit. As recommended in the *CHRMAP Guidelines* (WAPC, 2014a) a multi-criteria analysis (MCA) has been used as a preliminary step to identify potentially suitable risk management options for each Management Unit, as well to identify those that are considered to be 'fatally flawed' (and can therefore be objectively discounted).

The MCA was guided by assessment of the following criteria:

i. Acceptability Criteria

> **Social Impact** (property & infrastructure)

Loss or damage to private property or privately operated leasehold land, reticulated services, roads etc.

> **Social Impact** (community use)

Ability to use a beach and foreshore/public recreational infrastructure (e.g. dual use path).

• **Environmental Impact**

Possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage assets.

ii. Feasibility Criteria

> **Effectiveness in risk reduction**

How effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective.

> **Practicability**

Can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?).

> **Reversibility/adaptability**

Can it be reversed or adapted.

iii. Financial Criteria

> **Cost** (implementation)

Cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs).

> **Ongoing cost** (maintenance)

Cost to keep maintaining a risk management option.

> **Ongoing cost** (lost revenue)

How much revenue (specifically rates) would be lost due to a particular risk management option.

The risk management options were scored based on assessment against each of the above criteria, with a score of 1 having the least impact and 4 having the highest impact:

- Socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost.
- Minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost.
- Significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost.
- Unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.

Additionally, each criteria was weighted, which was necessary because not all criteria could be considered to have equal relevance of importance dependent on the attributes of each Management Unit.

5.0 What are the Management Options and Considerations for Coastal Hazards?

The MCA outcomes for coastal erosion hazard are based on the following assumptions for the risk management options:

Avoid – fatally flawed where hazard lines intersect infrastructure and/or property (i.e. cannot avoid because assets/development already exists).

Managed Retreat – assumes that all existing protection structures are removed, no new structures are installed, and the coast is allowed to naturally retreat. A Managed Retreat response would require property acquisition (compulsorily, if necessary) and planning controls to prevent further development in the interim period. Other risk management options could include a 'Special Control Area' requirement in the local planning scheme and notifications on Title. A key consideration would be maintaining public access to a safe and useable beach and foreshore reserve.

Accommodate – fatally flawed where hazard lines intersect infrastructure and/or property. In some areas, Accommodate for inundation could be considered in conjunction with Protect (but this option has not been specifically assessed as part of the current CHRMAP process). As a 'stand-alone' option it is considered to be fatally flawed, like Avoid, where hazard lines intersect property and/or infrastructure).

Protect – to maintain a useable beach & foreshore using beach nourishment, or a combination of coastal protection structures and beach nourishment. Nourishment alone will not effectively address inundation hazard to any significant degree.

The MCA recognised the importance of retaining coastal amenity (useable beach and foreshore) as a key outcome of the community coastal values survey. Refer to Appendix A of the CHRMAP for the MCA results tables. Based on the MCA, the risk management options considered most appropriate for each of the Management Units are summarised in Table 2. Note: Protect is not being recommended as per the MCA in all cases.

Table 2 **Summary of MCA of coastal erosion hazard management options**

Management Unit	2040	2070	2120
MU 01 Smiths Beach	P	P	P
MU 02 Yallingup	P	P	P
MU 03 Bunker Bay	P M	P	P
MU 04 Eagle Bay	P	P	P
MU 05 Old Dunsborough	P	P	P
MU 06 Dunsborough Townsite*	P	P	P
MU 07 Quindalup	P	P	P
MU 08 Marybrook	P	P	P
MU 09 Siesta Park*	P	P	P
MU 10 Locke Estate*	P	P	P
MU 11 Abbey*	P	P	P
MU 12 Broadwater*	P	P	P
MU 13 Busselton West (A)*	P	P	P
MU 14 Busselton West (B)*	P	P	P
MU 15 Busselton Central*	P	P	P
MU 16 Busselton East	P	P	P
MU 17 Port Geographe*	P	P	P
MU 18 Wonnerup*	P	P	P
MU 19 Forrest Beach	P M	P	P

* *Management Unit already has City of Busselton or Department of Transport managed protection but not for the whole planning period, and not necessarily for the whole of the Management Unit*

5.0 What are the Management Options and Considerations for Coastal Hazards?

The following tables identify key assets recognised within each Management Unit and provide a snapshot of MCA considerations:

MU 01 Smiths Beach

Assets	*Beach, continuous public foreshore reserve (including dunes & vegetation), recreational facilities/carparks/beach access, tourist accommodation/facilities, Smiths Beach Road, utilities*
X	• Existing assets in hazard areas preclude this option
M	• Continuous public foreshore reserve (including vegetation/habitat) and beach access increasingly constrained by existing land tenure. • Opportunities to locate new facilities and/or relocate existing recreational and public assets increasingly constrained. • Progressive removal of Smiths Beach Road/car parking/utilities. • Removal of existing tourist accommodation and associated facilities. Opportunities to relocate and/or build new accommodation units within already developed Tourist zoned land constrained.
P	• Retain continuous public foreshore reserve and beach access. • Retain opportunities to locate additional public recreational assets such as a surf lifesaving club facility. • Retain road access, foreshore carparks and utilities. • Retain tourist accommodation and associated facilities.

MU 02 Yallingup

Assets	*Beach, continuous foreshore reserve, beach access, carparks, public ablutions, playground, Yallingup Beach Road/other local roads, tourist accommodation/ commercial/residential properties, utilities*
X	• Existing assets in hazard areas preclude this option
M	• Continuous public foreshore reserve (including vegetation/habitat contiguous with the Leeuwin Naturaliste National Park) and beach access increasingly constrained by land tenure. • Opportunities to locate new facilities and/or relocate existing recreational and public assets increasingly constrained. • Progressive removal of Yallingup Beach Road, Dawson Drive and other local roads and options for relocation/alternative routes constrained by surrounding land tenure, existing development and environmental considerations. • Removal of existing tourist accommodation (especially Yallingup Beach Holiday Park) and associated facilities. Opportunities to relocate and/or build new accommodation units within already developed Tourist zoned land increasingly constrained. • Removal of residential properties.
P	• Retain continuous public foreshore reserve and beach access. • Retain opportunities to locate additional/or upgrade existing public recreational assets. • Retain road access, foreshore carparks and utilities. • Retain tourist accommodation and associated facilities. • Retain residential properties.

5.0 What are the Management Options and Considerations for Coastal Hazards?

MU 03 Bunker Bay

Assets *Beach, continuous foreshore reserve, beach access, carpark, public ablutions, tourist/commercial/residential properties, utilities, Lake Jingi*

X
- Existing assets in hazard areas preclude this option

M
- Continuous public foreshore reserve (including vegetation/habitat) and beach access increasingly constrained by adjoining land tenure.
- Opportunities to locate new facilities and/or relocate existing recreational and public assets increasingly constrained.
- Removal of existing tourist accommodation and associated facilities. Opportunities to relocate and/or build new accommodation units within already developed Tourist zoned land constrained.
- Removal of residential properties.
- Environmental and possibly Aboriginal cultural heritage implications for Lake Jingi.

P
- Preserve continuous public foreshore reserve and beach access.
- Retain foreshore carpark and associated facilities/utilities.
- Retain tourist accommodation and associated facilities.
- Retain residential properties.
- Retain Lake Jingi.

MU 04 Eagle Bay

Assets *Beach, continuous foreshore reserve (including vegetation/habitat), beach access and foreshore carparks, Eagle Bay-Meelup Road and other local roads, community centre and fire station, residential properties, utilities*

X
- Existing assets in hazard areas preclude this option

M
- Continuous public foreshore reserve (including vegetation and habitat contiguous with Meelup Regional Park) and beach access increasingly constrained.
- Opportunities to locate new facilities and/or relocate existing recreational and public assets increasingly constrained.
- Removal of residential properties.

P
- Retain continuous public foreshore reserve and beach access.
- Retain foreshore carparks and associated facilities/utilities.
- Retain residential properties.

5.0 What are the Management Options and Considerations for Coastal Hazards?

MU 05 Old Dunsborough

Assets *Beach, continuous foreshore reserve (including dual use path), beach access, boat ramp/jetty, foreshore carparks and public ablutions, Hurford Street and Bay View Crescent, residential properties, utilities*

X
- Existing assets in hazard areas preclude this option

M
- Continuous public foreshore reserve and beach access increasingly constrained.
- Opportunities to locate new facilities and/or relocate existing recreational and public assets increasingly constrained.
- Removal of residential properties.

P
- Retain continuous public foreshore reserve and beach access.
- Retain foreshore carparks and associated facilities/utilities.
- Retain residential properties.

MU 06 Dunsborough Town Site

Assets *Beach, continuous foreshore reserve (including dual use path), beach access and foreshore carparks, public ablutions, Geographe Bay Road and other local roads, tourist accommodation/commercial/residential properties, utilities*

X
- Existing assets in hazard areas preclude this option

M
- Continuous public foreshore reserve (including vegetation/habitat) and beach access increasingly constrained.
- Opportunities to locate new facilities and/or relocate existing recreational and public assets increasingly constrained.
- Removal of tourist accommodation and associated facilities.
- Removal of residential properties.

P
- Retain continuous public foreshore reserve and beach access.
- Retain Geographe Bay Road and other local roads/utilities.
- Retain foreshore carparks and associated facilities.
- Retain residential properties.

5.0 What are the Management Options and Considerations for Coastal Hazards?

MU 07 Quindalup Beach

Assets

Beach, continuous foreshore reserve (including vegetation/habitat), beach access and foreshore carparks, Toby Inlet, Dunsborough Bay Yacht Club, Naturaliste Volunteer Marine Rescue/jetty, public ablutions, Geographe Bay Road/Caves Road and other local roads, tourist accommodation, residential properties, utilities

X

- Existing assets in hazard areas preclude this option

M

- Continuous public foreshore reserve and beach access increasingly constrained.
- Implications for vegetation and habitat values.
- Opportunities to locate new facilities and/or relocate existing recreational and public assets increasingly constrained.
- Removal of tourist accommodation and associated facilities.
- Removal of residential properties.
- Implications for Toby Inlet and management of the inlet/ocean mouth in terms of inland flood risk if left unmanaged.
- Potential environmental issues associated with seawater intrusion into groundwater and wetlands.

P

- Retain continuous public foreshore reserve (including important vegetation and habitat values) and beach access.
- Retain Geographe Bay Road and other local roads/utilities.
- Retain foreshore carparks and associated facilities.
- Retain opportunities to locate new recreational facilities and public assets.
- Retain residential properties.
- Management of Toby Inlet mouth and Station Gully Drain outlet would require investigation.
- Environmental issues associated with seawater intrusion into groundwater and wetlands may require monitoring and/or investigation within planning timeframes.

MU 08 Marybrook

Assets

Beach, foreshore reserve (including dual use path between Caves Road & Birl Elbow), tourist accommodation, residential properties, Caves Road/bridges and other local roads, utilities

X

- Existing assets in hazard areas preclude this option

M

- Continuous public foreshore reserve and beach access increasingly constrained.
- Implications for vegetation and habitat values within the foreshore reserve and south of Caves Road.
- Removal of tourist accommodation and associated facilities.
- Removal of residential properties.
- Implications for the management of agricultural drain outlets in terms of inland flood risk, if left unmanaged.
- Potential environmental issues associated with seawater intrusion into groundwater and wetlands.

P

- Retain public foreshore reserve (including vegetation/habitat values), dual use path and beach access in western part of the Management Unit.
- Retain Caves Road and other local roads/utilities.
- Retain residential properties.
- Management of agricultural drain outlets would need further investigation in conjunction with a Protect strategy.
- Environmental issues associated with seawater intrusion into groundwater and wetlands may require monitoring and/or investigation within planning timeframes.

5.0 What are the Management Options and Considerations for Coastal Hazards?

MU 09 Siesta Park

Assets *Beach, fragmented foreshore reserve, tourist accommodation, residential properties, Caves Road/other local roads, utilities*

X
- Existing assets in hazard areas preclude this option

M
- Fragmented foreshore reserve increasingly constrained.
- Implications for vegetation and habitat values west of the Siesta Park groyne and south of Caves Road.
- Removal of tourist accommodation and associated facilities.
- Removal of residential properties.
- Implications for the management of agricultural drain outlets in terms of inland flood risk, if left unmanaged.
- Environmental issues associated with seawater intrusion into groundwater and wetlands.

P
- Retain existing (fragmented) foreshore reserve.
- Retain Caves Road and other local roads/utilities.
- Retain residential properties.
- Management of agricultural drain outlets would need further investigation.
- Environmental issues associated with seawater intrusion into groundwater and wetlands may require monitoring and/or investigation within planning timeframes.

MU 10 Locke Estate

Assets *Beach, continuous public foreshore reserve, leasehold holiday accommodation, Caves Road, utilities, Locke Nature Reserve*

X
- Existing assets in hazard areas preclude this option

M
- Continuous public foreshore reserve increasingly constrained.
- Implications for the environmental values of Locke Nature Reserve.
- Removal of holiday accommodation and associated facilities.
- Implications for the management of agricultural drain outlets in terms of inland flood risk, if left unmanaged.
- Potential environmental issues associated with seawater intrusion into groundwater and wetlands.

P
- Retain continuous public foreshore reserve.
- Retain Caves Road and associated infrastructure/utilities.
- Retain holiday accommodation and associated facilities.
- Management of agricultural drain outlets would need further investigation.
- Environmental issues associated with seawater intrusion into groundwater and wetlands may require monitoring and/or investigation within planning timeframes.

5.0 What are the Management Options and Considerations for Coastal Hazards?

MU 11 Abbey

Assets

Beach, continuous public foreshore reserve (including vegetation and habitat/ dual use path), boat ramp/jetty/carpark, public ablutions, tourist accommodation (resorts & infrastructure), residential and commercial properties, local shopping centre, aged care facility, Bussell Highway, Caves Road and Geographe Bay Road/ other local roads, Buayanyup River Drain, utilities

X

- Existing assets in hazard areas preclude this option

M

- Continuous public foreshore reserve increasingly constrained.
- Removal of recreational assets.
- Removal of tourist accommodation and associated facilities.
- Removal of residential properties and aged care facility.
- Removal of local shopping centre.
- Implications for the management of agricultural drain outlets in terms of inland flood risk, if left unmanaged.

P

- Retain continuous public foreshore reserve and existing recreational facilities.
- Retain tourist accommodation and associated facilities, residential properties, aged care facility and the local shopping centre.
- Retain Bussell Highway, Caves Road, Geographe Bay Road and other local roads and utilities.
- Management of agricultural drain outlets will need further investigation in conjunction with a Protect strategy.

MU 12 Broadwater

Assets

Beach, continuous wide public foreshore reserve (including vegetation and habitat/ dual use path), boat ramp/carpark, public ablutions, tourist accommodation (resorts & infrastructure), residential properties, Bussell Highway/Geographe Bay Road/other local roads, utilities

X

- Existing assets in hazard areas preclude this option

M

- Continuous public foreshore reserve increasingly constrained.
- Removal of recreational assets.
- Implications for vegetation and habitat values.
- Removal of tourist accommodation and associated facilities.
- Removal of residential properties.
- Progressive removal of Bussell Highway, Geographe Bay Road and other local roads/utilities and options for relocation/alternative routes constrained.

P

- Retain continuous public foreshore reserve, vegetation/habitat and existing recreational facilities.
- Retain tourist accommodation and associated facilities.
- Retain residential properties.
- Retain Bussell Highway, Geographe Bay Road and other local roads and utilities.

5.0 What are the Management Options and Considerations for Coastal Hazards?

MU 13 Busselton West (A)

Assets

Beach, continuous but narrow public foreshore reserve (including dual use path), vegetation and habitat, tourist accommodation (resorts & infrastructure), residential and commercial properties, primary school, hospital, local centre, Bussell Highway/Geographe Bay Road/other local roads, utilities, Vasse River Diversion Drain

X

- Existing assets in hazard areas preclude this option

M

- Continuous public foreshore reserve increasingly constrained.
- Removal of recreational assets.
- Removal of tourist accommodation and associated facilities.
- Removal of residential properties.
- Progressive removal of Bussell Highway, Geographe Bay Road and other local roads/utilities and options for relocation/alternative routes constrained.
- Implications for the management of the Vasse diversion Drain outlet in terms of inland flood risk, if left unmanaged.

P

- Retain continuous public foreshore reserve.
- Retain tourist accommodation and associated facilities.
- Retain residential and commercial properties.
- Retain hospital, primary school and local centre.
- Retain Bussell Highway, Geographe Bay Road and other local roads and utilities.
- Management of Vasse Diversion Drain outlet will need further investigation in conjunction with a Protect strategy.

MU 14 Busselton West (B)

Assets

Beach, continuous but narrow public foreshore reserve, Geographe Bay Yacht Club/ boat ramp, fitness club, foreshore carpark and public ablutions, residential and commercial properties, Bussell Highway/Geographe Bay Road/other local roads and utilities

X

- Existing assets in hazard areas preclude this option

M

- Existing assets in hazard areas preclude this option.
- Continuous public foreshore reserve increasingly constrained.
- Removal of recreational assets.
- Removal of residential properties.
- Progressive removal of Bussell Highway, Geographe Bay Road and other local roads/utilities and options for relocation/alternative routes constrained.

P

- Retain continuous public foreshore reserve.
- Retain residential and commercial properties.
- Retain Bussell Highway, Geographe Bay Road and other local roads and utilities.

5.0 What are the Management Options and Considerations for Coastal Hazards?

MU 15 Busselton Central

Assets

Beach, continuous public foreshore reserve, recreational/sporting/tourist/visitor infrastructure and commercial properties within the Busselton Foreshore Precinct, Busselton Jetty, Busselton Volunteer Marine Rescue/boat ramp, Pioneer Cemetery, heritage buildings, Busselton City Centre commercial and residential properties, tourist accommodation, Churchill Park, vegetation and habitat for the Western Ringtail Possum, Geographe Bay Road/other local roads, utilities

X

- Existing assets in hazard areas preclude this option

M

- Continuous public foreshore reserve increasingly constrained.
- Removal of recreational/sporting/tourist/visitor infrastructure and commercial properties within the Busselton Foreshore Precinct.
- Removal of heritage and recreational assets.
- Removal of residential, tourist and commercial properties within, and adjacent to, the Busselton City Centre.
- Remove Geographe Bay Road/foreshore carparks and other local roads/utilities.
- Implications for the management of the Vasse Diversion Drain outlet in terms of inland flood risk, if left unmanaged.

P

- Retain continuous public foreshore reserve.
- Retain recreational/tourist/visitor infrastructure and commercial properties within the Busselton Foreshore Precinct.
- Retain heritage and recreational assets.
- Retain residential, tourist and commercial properties within, and adjacent to, the Busselton City Centre.
- Retain Geographe Bay Road and other local roads/utilities.
- Management of Vasse Diversion Drain outlet will need further investigation in conjunction with a Protect strategy.

MU 16 Busselton East

Assets

Beach, continuous wide public foreshore reserve (including dual use path), Geographe Bay residential properties, tourist accommodation, vegetation and habitat for the Western Ringtail Possum, primary school, local centre, Geographe Bay Road/other local roads, utilities

X

- Existing assets in hazard areas preclude this option

M

- Continuous public foreshore reserve increasingly constrained.
- Removal of residential, tourist and commercial properties.
- Progressive removal of Geographe Bay Road, Marine Terrace and other local roads/utilities.
- Implications for vegetation and habitat linkages for the Western Ringtail Possum.

P

- Retain continuous public foreshore reserve.
- Retain recreational assets.
- Retain residential, tourist and commercial properties.
- Retain Geographe Bay Beach Road and other local roads/utilities.
- Retain vegetation and habitat linkages for the Western Ringtail Possum.

5.0 What are the Management Options and Considerations for Coastal Hazards?

MU 17 Port Geographe

Assets *Beach (within breakwaters), public foreshore reserve (including dual use path), marina/boat ramp, residential properties, tourist accommodation, commercial properties, Layman Road/other local roads, utilities*

X
- Existing assets in hazard areas preclude this option

M
- Public foreshore reserve increasingly constrained.
- Removal of residential, tourist and commercial properties.
- Progressive removal of marina infrastructure.
- Progressive removal of Layman Road and other local roads/utilities.

P
- Retain public foreshore reserve and recreational assets.
- Retain residential, tourist and commercial properties.
- Retain viable marina infrastructure.
- Retain Layman Road and other local roads/utilities.

MU 18 Wonnerup

Assets *Beach, continuous public foreshore reserve, residential properties, Layman Road/ other local roads, utilities, Vasse-Wonnerup Estuary, flood barrier, vegetation and habitat for Western Ringtail Possum*

X
- Existing assets in hazard areas preclude this option

M
- Continuous public foreshore reserve increasingly constrained.
- Removal of residential, tourist and commercial properties.
- Progressive removal of Layman Road and other local roads/utilities.
- Environmental implications for Vasse-Wonnerup Estuary transforming over time from a freshwater estuary to a saltwater inlet.
- Implications for the management of the Vasse-Wonnerup Estuary inlet in terms of inland flood risk, if left unmanaged.

P
- Retain continuous public foreshore reserve.
- Retain recreational assets.
- Retain residential, tourist and commercial properties.
- Retain Layman Road and other local roads/utilities.
- Retain environmental values of Vasse-Wonnerup Estuary.
- Ongoing management of Vasse-Wonnerup Estuary inlet will need further investigation in conjunction with a Protect strategy.

5.0 What are the Management Options and Considerations for Coastal Hazards?

MU 19 Forrest Beach

Assets *Beach, continuous public foreshore reserve, residential properties, Forrest Beach Road, utilities, Vasse-Wonnerup Estuary, flood barrier, vegetation and habitat for Western Ringtail Possum*

X

- Existing assets in hazard areas preclude this option

M

- Continuous public foreshore reserve increasingly constrained.
- Removal of residential properties.
- Progressive removal of Forrest Beach Road and utilities.
- Potential environmental implications for Vasse-Wonnerup. Estuary transforming over time from a freshwater estuary to a saltwater inlet.
- Implications for the management of the Vasse-Wonnerup Estuary inlet in terms of inland flood risk, if left unmanaged.

P

- Retain continuous public foreshore reserve.
- Retain residential properties.
- Retain Forrest Beach Road and utilities.
- Potentially retain environmental values of the Vasse-Wonnerup Estuary.
- Management of Vasse-Wonnerup Estuary inlet will need further investigation in conjunction with a Protect strategy.
- Retain vegetation and habitat areas and linkages for the Western Ringtail Possum.

5.4 Triggers

Adaptation pathways comprise a sequence of risk management options and tipping points triggered by the impact of coastal hazards over defined planning timeframes. The approach taken in the preparation of the CHRMAP seeks to establish a degree of flexibility in keeping options open and to avoid 'path dependency'. There has also been an intention to apply an appropriate sequence of actions in the short term, followed by a longer term pathway.

Triggers for the implementation of risk management options are events or situations that occur as a direct result of natural coastal processes (e.g. a severe storm combined with a high tide that causes significant coastal erosion). Trigger points are identified to flag predetermined levels of change where decisions on agreed risk management measures must be implemented in order to reduce risk to acceptable levels. This CHRMAP will set the direction and timeframes for acceptable risk management. Appropriate triggers will be assessed and determined, on an ongoing basis, through the City's rolling *Coastal Management Programme 10 Year Plan* (2020 – 2030).



6

Financial considerations



6.0 Financial considerations

Potential financial implications for the City arising from decisions made about coastal adaptation are likely to be very significant and will generally fall into one of four categories:

1. Costs associated with researching and understanding the relevant issues, and determining future direction (e.g. the detailed assessment of coastal hazards and the preparation of the CHRMAP).
2. Costs associated with current and potential future coastal protection measures (e.g. beach nourishment, maintenance/construction of groynes and/or seawalls, dune stabilisation/ revegetation, regulation of private coastal protection initiatives through the planning system).



3. Costs associated with managed retreat (e.g. enforcement of planning controls in areas where such may be recommended, relocation/removal of public buildings and infrastructure, land acquisition to create or maintain coastal foreshore reserves and beach amenity).
4. Costs associated with claims against the City where land, buildings and/or infrastructure are affected by coastal processes into the future – and where there are potential costs for the City of Busselton associated with both successful and unsuccessful claims.

It should be noted that there are also significant economic costs associated with coastal adaptation decisions which may not have any direct financial implications for the City of Busselton, but which will nevertheless have an impact on investment decisions in both the private and public sector, and hence on the location and overall rate of economic growth (or contraction), which will influence feelings of community wellbeing more broadly.

Most of the costs that have been borne by the City to date are in the second category above – coastal protection. The total cost to the City of managing coastal hazards over the last five years exceeded $3 million. The City's endorsed *Coastal Management Programme 10 Year Plan (2020 – 2030)* estimates that expenditure will increase to be in the vicinity of $5.97 million.

In the 2006/07 financial year the City established a 'Beach Protection Reserve' for the purpose of budgeting and funding measures necessary to protect both beach and land-based assets, as well as specific capital projects designed to help protect the coastline, such as the construction of seawalls. Since its inception, the Beach Protection Reserve has been allocated budgeted yearly funding of 1% of general rates revenue. Council subsequently made a decision to change the name and purpose of the Reserve in the 2015/16 financial year, to a 'Climate Adaptation Reserve'. This was to ensure that funds could be effectively utilised for matters other than specific coastal protection works, such as coastal hazard modelling, the preparation of a CHRMAP and other issues associated with climate change, sea level rise and risk management. This CHRMAP recommends the establishment of a separate 'Coastal Adaptation Reserve'.

6.0 Financial considerations

A significant amount of work has been previously done to identify what sections of the City's coast may be most vulnerable to coastal hazards, especially erosion, over coming decades and beyond. This has helped to instruct and inform the CHRMAP process. Much of the coastline in the Study Area has been affected by coastal processes historically, and, especially in the last ten years, as they have related to an upsurge in El Nino and (more significantly in terms of the severity of coastal erosion) La Nina events. Both the City and (more problematically) private landowners have been taking active steps to try to manage those impacts. In terms of detailed decision-making on potential adaptation options for the coastline within the Study Area for the CHRMAP, it is therefore crucial that the City and the community has a better understanding of what those costs are likely to be and how they are, realistically, best able to be met.

6.1 Financial model

A financial model developed as part of the CHRMAP process seeks to identify the potential long-term implications associated with different adaptation strategies (set out below), both generally and for particular sections of the coast, over the 100-year planning timeframe. There are three key scenarios modelled:

1. Protect the whole of the coast in the Study Area through beach nourishment to maintain beach amenity and environmental values (this would address coastal erosion hazard only).
2. Protect the whole of that coast through structures (buried seawall/bund and/or groynes) supplemented by beach nourishment, to maintain beach amenity and environmental values (this would address both coastal erosion and inundation hazard).
3. Managed retreat of the whole of that coast by removal or relocation of public assets and property acquisition at unaffected market value (this would address coastal erosion hazard only).

The model identifies all privately-owned, City-owned and State-/utility owned assets within the mapped 100-year coastal hazard area and assesses likely impacts to those assets at 2040, 2070 and 2120. The model allows for the indexation of costs at 2.5%, except for sand to be used for beach nourishment which, beyond 2023, is indexed at 5% (sand supply and availability is likely to become limited and more costly over time). Likely costs include: maintenance of beach and foreshore facilities; ongoing cost of sand replacement; capital for, maintenance and replacement of protection infrastructure; demolition, relocation and/or replacement of public infrastructure; private property (land) acquisition; and private property (premises) demolition.

The model also incorporates financial benefits that would be likely to be delivered by each of the three scenarios. For protection of private and public assets by coastal structures, for example, the public financial benefit would be the value of the avoided loss of public infrastructure and Rates revenue. For managed retreat, for example, private financial benefit would be the value of compensation through property acquisition.

The model enables a comparison of costs derived from the application of a single scenario for all, and each, Management Units i.e. protection by beach nourishment, protection by coastal structures or a managed retreat. It also provides cost comparisons to the single scenario by 'tailored' adaptation pathways, whereby risk management options can be applied for individual Management Units at specified intervals over the 100-year planning timeframe.

The model, like all such models, has its limitations, but is considered to provide a reasonable basis for high level direction setting. In terms of some of the limitations of the model, it is incomplete in some respects. For instance, it does not identify:

- costs associated with coastal inundation protection at places like the Port Geographe Marina entry channel.
- the legal and other administrative costs that may be associated with land acquisition as part of retreat scenarios, or costs of land acquisition where property is rated on the basis of unimproved value.

6.0 Financial considerations

Another limitation reflects the fact that the model is a tool which has been designed to calculate potential costs at decadal time scales. It has not been set up to provide a realistic guide to expenditures in any given year, or over shorter time periods.

The model is not a 'cost-benefit analysis' in the usual sense of that term, as it does not seek to identify the value of non-financial costs or benefits. There are three key reasons for that. Firstly, all of the modelled scenarios, reflecting the outcomes of coastal values work undertaken (see section 3.1 Community and Stakeholder Consultation), assume the retention of a continuous beach and foreshore reserve along the whole of the coast, wherever possible, essentially giving that benefit an infinite value. Secondly, ascribing equivalent dollar values to non-financial costs or benefits is fraught with difficulty. For instance, what is the value of a beach? Is it to be valued on a per-linear metre or a per-square metre basis? How is that value to be derived? There are means of doing so, one of which is a set of techniques sometimes known as 'hedonic pricing', but it is not clear what such an approach would add, when it comes to real world decision-making. Finally, in this particular case, to secure many of the non-financial benefits, financial costs would be involved, and money is required for that. Including non-financial costs and benefits in the model would have meant that it was a less useful tool to isolate and identify what funds may be required and when.

The model does, however, identify that, for most sections of the City's coastline in the Study Area, once reasonable assumptions about property values are made for the purposes of retreat, a protect strategy would be significantly less costly than a retreat strategy. Over the 100-year planning time horizon and on the basis of a 'best estimate' scenario, the cost of retreat is estimated at approximately $8.3B in today's dollars, whereas the least expensive of the protect scenarios modelled is estimated to cost approximately $1.6B in today's dollars. Even that protect scenario represents a very significant cost, equivalent to an average of $16M per annum over the 100 year period. Average annual costs for the next few decades, however, are substantially lower than that, and higher in later decades. It also needs to be noted that, in some Management Units, the relative costs of different scenarios vary somewhat.

Set out below are the estimated long-term (100 year) costs and benefits, in today's dollars, of several different adaptation scenarios, derived from the financial model:

	Financial cost	Public financial benefit	Private financial benefit	Net financial benefit (cost)
1. Tailored (mostly protection for erosion through groynes, seawalls and nourishment, protection for inundation in main urban areas vulnerable to erosion, accommodate elsewhere, with some densification)	$1,601,271,518	$277,762,764	$11,670,524,258	$10,347,015,503
2. Retreat, with some densification and unaffected value land acquisition (requires accommodation for inundation)	$8,297,425,778	$214,787,607	$7,484,391,656	($598,246,515)
3. Retreat, without densification, but with unaffected value land acquisition (requires accommodation for inundation)	$5,605,555,122	$214,787,607	$4,792,521,000	($598,246,515)
4. Retreat, without land acquisition (requires accommodation for inundation)	$813,034,122	$214,787,607 (probably overvalued – model not set up with this option in mind, as it doesn't preserve public beach / foreshore)	Nil	($598,246,515)

It is highly likely those costs will not be able to be met through the City of Busselton's resources alone. It is also unreasonable to expect that would occur. The City of Busselton already allocates 1.0% of total rates revenue to a 'Coastal Adaptation Reserve' each year, drawing on the balance as required to support coastal management. The City of Busselton's Long Term Financial Plan also provides for that to increase to 2.0% of total rates revenue in coming years. The CHRMAP

6.0 Financial considerations

also recommends that consideration be given to applying a higher differential rate to properties in the areas identified as vulnerable, and which would therefore be disproportionate beneficiaries of coastal management spend. It is clear, however, that will be insufficient over the longer term, if it is to be the only source of funding for coastal adaptation.

In a practical/physical sense this may be an issue that can be addressed at a local government scale by the City of Busselton. That is not the case, certainly not to the same degree, in the Greater Bunbury, Peel or Perth regions. It does seem that a more pro-active role will need to be taken by the State in the future, in relation to planning, coordinating and funding coastal adaptation. The State has recently increased the funding it provides to support coastal adaptation work, but it is clear that it is still insufficient to meet current demands, let alone the larger demands expected in the future.

At some stage, that may best be supported by the introduction of a levy or similar by the State that would provide an equitable, sustainable and efficient basis for addressing this significant risk. The Emergency Services Levy (ESL) is one example of where that kind of thing has been implemented, but there are many others from around the country and elsewhere in the world. Whatever funding approach is taken, it may be sensible for it to support both coastal protection, where appropriate, but also managed retreat, in contexts where that may be appropriate. These are not, however, matters that will be simply or easily resolved – and it is likely that whatever approaches are adopted from time to time, the approach will evolve over time.

There are a number of other reasons why the costs of coastal adaptation should not be met by local government ratepayers alone. State government and utilities own very significant assets that are potentially vulnerable to coastal risks and the owners of those assets would benefit from coastal protection. There are also very significant environmental assets at potential risk, including the Ramsar-listed Vasse-Wonnerup Wetlands (which are internationally important waterbird habitat), and significant habitat for the Critically Endangered Western Ringtail Possum, which is located in coastal areas in both Busselton and Dunsborough.

The financial challenge is also potentially less significant when looked at in the context of the economy of the City of Busselton as a whole, rather than from the perspective of the local government rate-base alone. Projecting what the City's rate-base may be over such a long period of time is obviously very difficult and highly uncertain. But, on the basis of a scenario which assumes continued rate-base growth, and continued economic growth, at rates somewhat lower than what has occurred over recent decades, costs of the tailored scenario calculated through the financial model would be around 9.0% of total rates revenue over the 100 year period, but less than 0.2% of gross regional product (i.e. crudely, for every $100 spent in the City in a year, 20c would need to be spent on coastal management).

It does need to be very strongly emphasised, though, that is merely one, fairly crude scenario, and over such a long period, small adjustments in underlying assumptions can have a very significant impact on those figures. For instance, if growth in the rate-base and economy ceased at the end of the ten year period of the City of Busselton's current Long-Term Financial Plan, but other assumptions remained the same, costs of the tailored scenario calculated through the financial model might be as high as 33.6% of total rates revenue over the 100 year period, and more than 0.6% of gross regional product (i.e. crudely, for every $100 spent in the City in a year, 60c would need to be spent on coastal management).

It is for the reasons set out above that the CHRMAP does not make specific recommendations about long-term funding arrangements. Rather, there is a focus on advocacy and working with partners to resolve those issues over time. The key partner being the State Government, although the Federal Government is also identified in the recommendations.

As well as needing to address these long-term funding issues, it should be noted that the CHRMAP recommendations involve extensive further work to better define the approach and associated costs. Grant funding, or other support from partners may be able to assist with those tasks, but there will be a need for City funds to be allocated to that work as well in coming years. Those costs are not captured in the financial model.

6.0 Financial considerations

Refer to Part 4 Financial Modelling of the CHRMAP Technical Assessment Report (Advisian, 2020a) and the CHRMAP Financial Model Instruction Manual (Advisian, 2020b) for detailed further information.

6.2 Funding options

Currently, the City of Busselton places 1% (approximately $475,000 in 2020/21) per annum of the total Rates revenue in its 'Climate Adaptation Reserve', however not all of those accumulated funds are available for coastal management. The cost for future coastal management will be considerably greater than the City's current forecast expenditure based on the City's *Coastal Management Programme 10 Year Plan (2020–2030)*. Additional funding will be essential to implement the responses to managing coastal risks arising from climate change and predicted sea level rise recommended by this CHRMAP.

A key principle in considering potential funding options is that the responsibility for paying for coastal adaptation should rest with the beneficiaries of those actions. These include land and asset owners that benefit from protection strategies, and coastal users that benefit from coastal management approaches. Where public funds are used for coastal adaptation works there should be a direct public benefit as a result of that investment. Ongoing cooperation between Local and State government and key asset owners will be required to consider and address these funding issues and responsibilities.

There is no legal obligation on State or Local Governments to either protect public and private assets within coastal hazard areas, or to compensate for any damage or losses incurred to those assets due to coastal hazards. Some options for managing and covering the costs of coastal adaptation options include:

1. Funding from State Government (noting that this source cannot be fully relied upon as there is no certainty around securing such funding and the amount of contribution funding available from a limited funding 'pool' for all relevant local government areas would be significantly less than that required in reality). State funding is presently provided through grant applications to:
   - Coastal Adaptation and Protection (CAP) grants through the Department of Transport
   - Coastal Management Plan Assistance Programme (CMPAP) through the Western Australian Planning Commission.
2. Funding through the City's rates revenue –
   - Application of a 'Flat Rate' (as is currently the case).
   - Application of 'Specified Area Rates' and/or 'Differential Rating' within the identified coastal hazard risk areas and Management Units. There are limitations to the usefulness of these approaches under current legislation.
3. Advocate for State and Federal Government leadership and assistance to support coastal adaptation measures and initiatives, including the bipartisan development of an equitable and sustainable funding framework.

The appropriate funding sources for coastal adaptation options should recognise the likely beneficiaries of the measures proposed to be taken, and the values being protected as a consequence. Direct beneficiaries should directly contribute to coastal management and adaptation costs. Indirect beneficiaries can more equitably contribute by public funding investment, through rates and taxes, into public funds.

The Community Coastal Values Survey included a question on who should pay for the substantial likely costs of managing/mitigating damage attributable to coastal erosion hazard. The response from 41% of respondents was that the State Government taxpayer should bear the majority of costs, with the balance borne by those private landowners/businesses directly affected (30%) and by all registered ratepayers in the City (29%).

7

Recommendations and adaptation pathways



7.0 Recommendations and adaptation pathways

Given the CHRMAP is required to consider and address potential adaptation pathways across a 100-year planning timeframe (at 2040, 2070 and 2120), recommendations are presented in section 7.1 as:

- Recommendations to guide future coastal adaptation following the formal adoption of the CHRMAP (see Recommendations 1 – 7).
- Recommended coastal adaptation pathways for sequential planning timeframes as at 2040, 2070 and 2120 for each of the nineteen identified Management Units (see Recommendation 8).

In conjunction with the recommended adaptation pathways set out in Recommendation 8, an aerial photograph of each Management Unit is shown superimposed with coastal erosion hazard lines derived from Damara WA (2011), Damara WA (2012) and Damara WA (2017), along with an indication of the various assets at risk.

In viewing the Management Unit coastal erosion hazard maps, it should be noted that:

- The erosion hazard lines are based on a suite of assumptions that have varying degrees of uncertainty, any of which may influence the likelihood of affects being realised at each planning horizon.
- In order to account for the uncertainty associated with dynamic natural environments and the lack of long term datasets, the hazard lines are designed to be 'conservative'.
- They will be revised periodically (as part of formally scheduled CHRMAP reviews) to take into account new information as it emerges.

7.1 Recommendations

The City of Busselton adopts the following recommendations to guide future coastal adaptation:

RECOMMENDATION 1

That the coastal erosion hazard lines shown on the maps for each of the identified Management Units in Recommendation 8 be adopted as a guide for future planning.

Key Rationale:

The most pervasive hazard for most of the City's coastline in the Study Area, especially over the short to medium term, is coastal erosion. Unless and until direction is set regarding how that hazard is to be addressed, it is difficult to develop clear direction on the other key hazard; coastal inundation. There are also a range of other recommendations that require the identification of an area that may be subject to coastal erosion hazard, if the coast is not protected from that hazard. Given that some sections of the coast already benefit from coastal erosion protection, and especially because those protections do not have a 100 year design life, in adopting coastal erosion hazard lines for those purposes, it is seen as appropriate to assume that existing protections are not in place, even though it is clear that, unless those structures were deliberately removed, they would provide some coastal erosion protection.

7.0 Recommendations and adaptation pathways



RECOMMENDATION 2

That the adaptation pathways for the identified Management Units are generally as set out in Recommendation 8.

Key Rationale:
This identifies the key role that the Management Unit specific recommendations play in setting the overall strategic direction.

RECOMMENDATION 3

That, in addition, to the financial responses set out in Recommendation 8, the City:

a. Allocates, through a phased increase from 1% (as applies currently, a minimum of 2.0% of total rates revenue to the 'Coastal Adaptation Reserve' within the City's next 10-year Long Term Financial Plan;

b. Advocates and make application for State and/or Federal Government grants funding to support coastal adaptation measures and initiatives as these become available and necessary;

c. Advocates at State and Federal Government level for the identification and implementation of a sustainable, equitable and efficient framework for the funding of coastal adaptation; and

d. Advocates at State Government level to identify and secure strategic sand supplies for beach nourishment, including a coordinated regional approach to the delivery of such supplies.

Key rationale:
Part (a) reflects a decision that the Council has already made in adopting the City's latest Long-Term Financial Plan, and is prudent given the potential risks and costs faced by the City and the community. It is also a demonstration that, whilst the City sees a clear case and need for support from higher levels of government, the City is also prepared to make a significant financial commitment itself.

Parts (b) and (c) reflect the fact that support from higher levels of government will be required, but the City obviously cannot make decisions on their behalf – the focus needs to be on advocacy.

Part (d) reflects the vital importance of sand supplies, and that the issue would be best addressed at a regional or State level.

7.0 Recommendations and adaptation pathways

RECOMMENDATION 4

That the City undertake or support, subject to appropriate assistance from the State and/or Federal Government, the following associated but additional work:

a. A cost-benefit and/or benefit distribution analysis and/or systemic financial and economic system risk analysis of the identified adaptation pathways.

b. Coastal erosion modelling, following specific geotechnical investigations (possibly in partnership with landowners), for the following Management Units:
   i. Smiths Beach;
   ii. Yallingup;
   iii. Bunker Bay;
   iv. Eagle Bay; and
   v. Old Dunsborough.

c. Given the identified pathways for coastal erosion hazard management in the CHRMAP, further coastal inundation hazard modelling including for both Geographe Bay and west coast settlements (Yallingup and Smiths Beach).

d. Preliminary design and costings associated with storm surge events (coastal inundation hazard) protection at:
   i. Toby Inlet mouth.
   ii. The mouths of all agricultural drains.
   iii. The eastern bank of the Buayanyup River Drain.
   iv. Vasse Diversion Drain mouth and Vasse-Wonnerup Estuary storm surge barrier.
   v. Port Geographe Marina entry channel and seawall.
   vi. Vasse-Wonnerup Estuary Channel.
   vii. Layman Road, from a point just to the north of the Vasse-Wonnerup Estuary Channel to a point somewhat to the north of Tuart Drive.
   viii. Urban stormwater outlets.

Key rationale:

Part (a) reflects the fact that in advocating for or otherwise pursuing appropriate funding options, and refining the adopted adaptation pathways, further economic or financial assessments of that kind may be appropriate and useful.

Part (b) recognises that existing coastal erosion hazard assessments in those areas are not informed by detailed geotechnical information, and more detailed assessments would be appropriate to get a better sense of the potential risks.

Part (c) recognises that the response to coastal erosion hazard can have profound impacts on coastal inundation hazard, and that little work has been done to assess inundation hazard on the west coast (although the risk are thought to be relatively low).

Part (d) reflects the fact that there are a number of locations where there needs to be connection between inland waterways/drainage infrastructure and the ocean, and that means of preventing coastal inundation in those locations have not been scoped or costed yet, but do need to be at some stage.

7.0 Recommendations and adaptation pathways

RECOMMENDATION 5

That the above recommendations are all incorporated into the City's:

a. Community Strategic Plan;
b. Corporate Business Plan;
c. Long-Term Financial Plan;
d. Rolling, ten-year Coastal Management Programme;
e. Local Emergency Management Arrangements; and
f. Local Planning Scheme.

Key rationale:
This reflects the fact the CHRMAP, in and of itself, does not set the direction for the City. Rather, the direction set out in the CHRMAP needs to be reflected in a suite of other documents. The City's town planning scheme is listed last because, in many respects, given the proposed strategic direction, it is the least important of those documents. It also reflects a view that coastal adaptation planning has been too narrowly focused on and driven by town planning considerations to date, rather than from the 'whole-of-government' perspective that is required.

RECOMMENDATION 6

That the City provide an annual update to the community and other relevant stakeholders on progress towards implementation of the findings and recommendations of the CHRMAP.

Key rationale:
This reflects the fact this is a very significant issue for the community, and that annual updates to the community would be appropriate, and a useful tool to keep the community engaged and informed.

RECOMMENDATION 7

That the CHRMAP is the subject of scheduled periodic review, at least once every ten years.

Key rationale:
This reflects the fact that periodic review is likely to be appropriate, as further information becomes available. Also, community values and aspirations may change over time.

RECOMMENDATION 8

Management Unit Specific Adaptation Pathways

Recommendation 8 sets out the direction for each of the 19 Management Units. It sets out the adaptation pathways for three time periods: short-term (through to 2040); medium-term (2040-2070); and long-term (2070-2120) – noting that the latter date will require adjustment as the project progresses, to ensure the CHRMAP time horizon extends to 100 years. In some cases, the fundamental adaptation pathway differs between the two key coastal hazards of erosion and inundation.

Four sets of adaptation responses are also identified:

- planning
- infrastructure/coastal management
- emergency management; and
- financial.

MU 01 Smiths Beach

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

X Inundation Hazard **AVOID**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than access, parking or landscaping works) on the seaward side of the 2040 erosion hazard line.
3. As a condition of approval of any development or subdivision of vacant sites, ceding of a foreshore reserve of a minimum width of approximately 40 metres, on the inland side of the 2040 erosion hazard line.

Infrastructure / coastal management response

1. To protect the beach, beach amenity, fore dune, infrastructure and buildings, maintain existing fore dune and beach as much as possible, and install coastal protection structures, such as seawalls or groynes, as necessary.
2. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Note: Management unit should not be vulnerable to coastal inundation events during this period..

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Smiths Beach

- West-facing sandy beach situated between rocky headlands.
- Dunes within westernmost section of the foreshore reserve up to 10m AHD.
- Includes Gunyulgup Brook mouth.
- The continuous public foreshore reserve is currently unallocated Crown land and its northern end is contiguous with the Leeuwin-Naturaliste National Park.
- There are no current coastal protection structures.

* *Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT

X Inundation Hazard
AVOID

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, construct a buried seawall from the western end of the beach to a point between the most eastward beach access path and Gunyulgup Brook.
2. To protect the beach and beach amenity, construct one or more groynes between the western end of the beach to a point between the most eastward beach access path and Gunyulgup Brook.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

As per 'Current - 2040'.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

P Erosion Hazard
PROTECT

X Inundation Hazard
AVOID

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

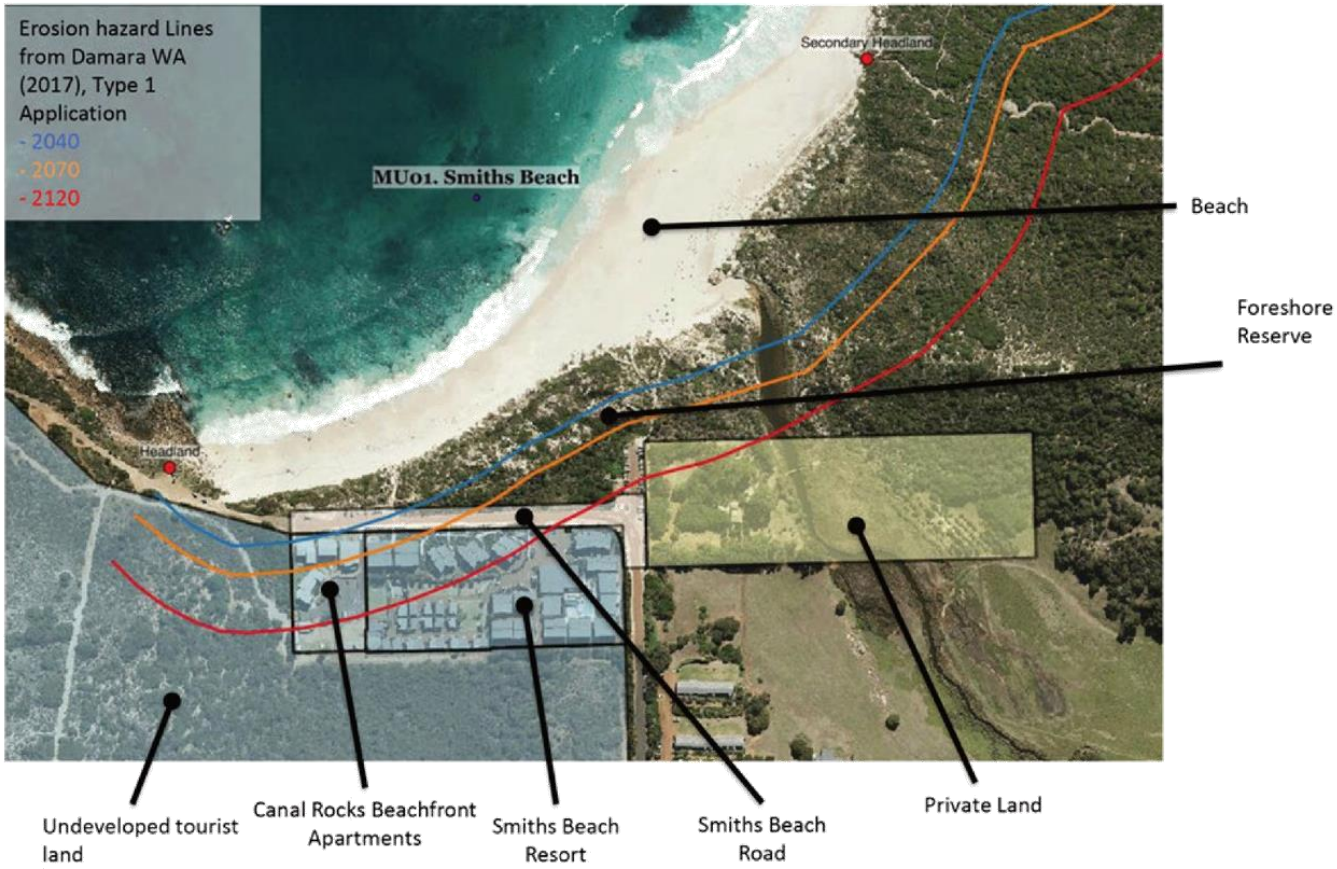
Key Issues

- Public foreshore reserves, tourist and recreational assets are vulnerable to coastal erosion risk.
- Limited public access to the beach.
- Strategic tourism node on west coast (one of two outside the Leeuwin-Naturaliste National Park).

Key Rationale

- The public foreshore reserve is vulnerable to erosion and one of only a few places where there is easy public access to the beach on, or near the City's west coast, not in National Park.
- Coastal inundation risk can be avoided.
- Further work would be required to determine the most appropriate approach to erosion protection due to high energy nature of coast.

MU 01 Smiths Beach





Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

X Inundation Hazard **AVOID**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit development on the seaward side of the 2040 erosion hazard line (note: there is no private land on the seaward side of that line).

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, construct a buried seawall and/or bank stabilisation structure from a point just to the north of Yallingup Brook to a point between the Dawson Drive and Rabbits Hill beach access paths.
2. To protect the beach and beach amenity, construct one or more groynes from a point just to the north of Yallingup Brook to a point between the Dawson Drive and Rabbits Hill beach access paths.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Note: Management unit should not be vulnerable to coastal inundation events during this period.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Yallingup

- Southern section of a west-facing sandy beach situated between a rocky headland and a rock platform.
- Continuous public foreshore reserve partly within the Leeuwin-Naturaliste National Park with the remainder vested in the City.
- There are no current coastal protection structures. Dunes within the foreshore reserve range from 5m AHD to 20m AHD.

** Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT

X Inundation Hazard
AVOID

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Emergency management response

As per 'Current - 2040'.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

P Erosion Hazard
PROTECT

X Inundation Hazard
AVOID

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

Key Issues

- Public foreshore reserves, tourist, recreational and private assets are vulnerable to coastal erosion risk. Yallingup Beach Road may also be vulnerable.
- Limited public access to the beach.
- Strategic tourism node on west coast (one of only two outside the Leeuwin-Naturaliste National Park).

Key Rationale

- The public foreshore reserve is vulnerable to erosion and one of only a few places where there is easy public access to the beach on, or near the City's west coast, not in National Park.
- Coastal inundation risk can be avoided.
- Further work would be required to determine the most appropriate approach to erosion protection due to high energy nature of coast.

MU 02 Yallingup



MU 03 Bunker Bay

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

X Inundation Hazard **AVOID**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of the 2040 erosion hazard line.
3. As a condition of approval of any development or subdivision of what is currently Lots 50 and 203 require, on the southern side of the vegetated dunes, a public foreshore reserve, configured such that the western section is approximately 1.5ha and able to be developed for a car park and facilities similar to those at Meelup Beach.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property ground and floor levels are already above 3.8m AHD, with very limited exceptions).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).

Infrastructure / coastal management response

To protect the beach, beach amenity, fore dune, infrastructure and buildings, maintain existing fore dune and beach as much as possible, without installing coastal protection structures, such as seawalls or groynes.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Note: Management unit should not be vulnerable to coastal inundation events during this period.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Bunker Bay

- North-facing sandy beach situated between rocky headlands. Dunes within the foreshore reserve range from 5m AHD to 10m AHD.
- Limited public foreshore reserve and facilities.
- Flows from Lake Jingi breach the dune barrier and discharge into the ocean.
- There are no current coastal protection structures.

* *Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT

X Inundation Hazard
AVOID

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, construct a buried seawall from the northern end of the beach to a point to the east of the eastern end of Lake Jingi, with a gap to allow continued water flow from Lake Jingi into the ocean.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

As per 'Current - 2040'.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

P Erosion Hazard
PROTECT

X Inundation Hazard
AVOID

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

Key Issues

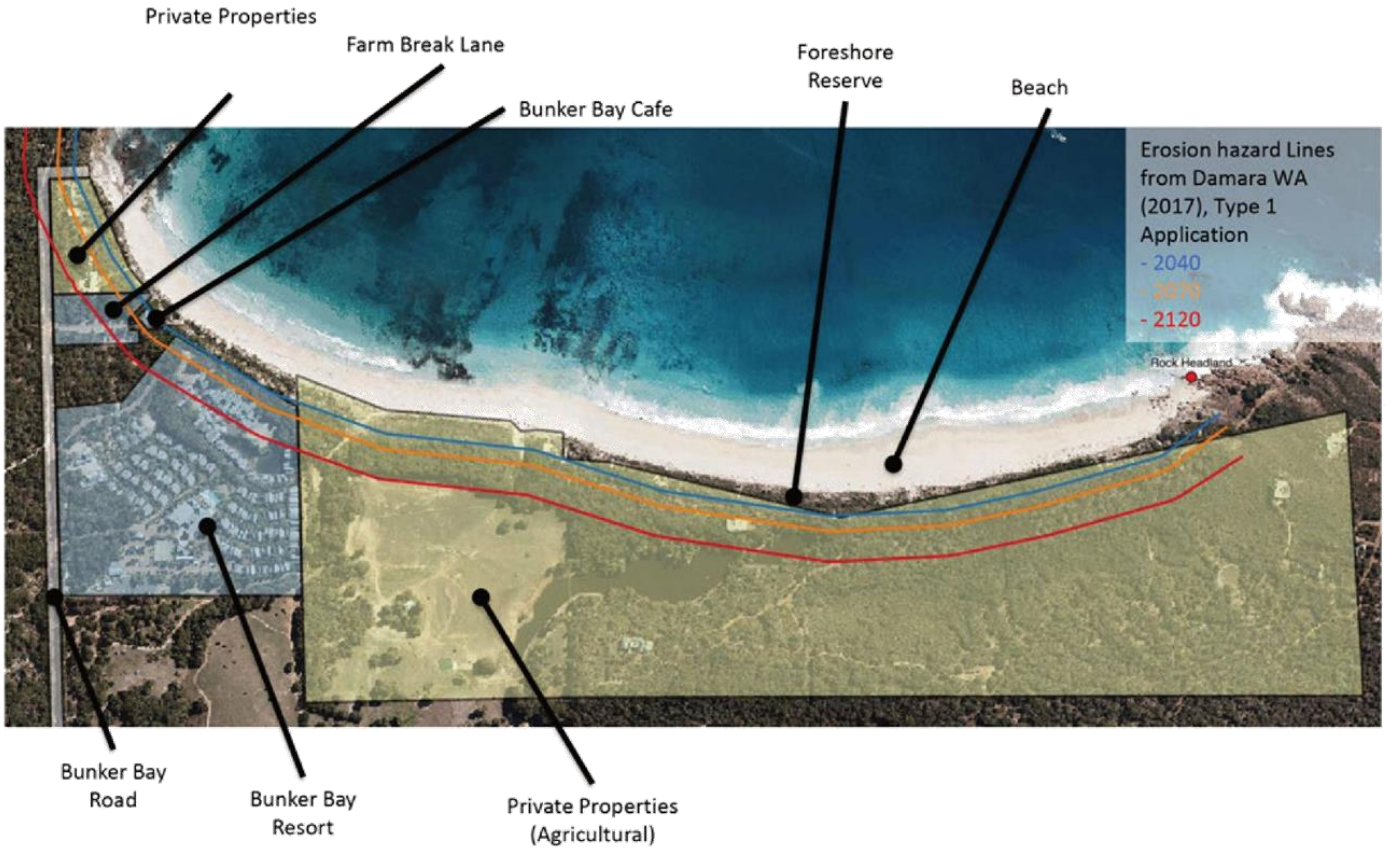
- Public foreshore reserve, tourist, recreational and private assets are vulnerable to coastal erosion risk.
- Public access to the beach is limited and there are currently no opportunities to provide additional access or facilities.
- There is no continuous public foreshore reserve east of the 'Pullman' tourist site.

Key Rationale

- The public foreshore reserve is vulnerable to coastal erosion.
- Coastal inundation risk can be avoided.
- Through potential development of the 'Farmbreak' site of the east to the 'Pullman' tourist site at Bunker Bay, there is also an opportunity to provide a second public foreshore area, in an area where opportunities to provide additional access or facilities are highly constrained.

MU 03

Bunker Bay



MU 04 Eagle Bay

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of the 2040 erosion hazard line, or on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development', whichever is located further from the coast.
3. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property ground and floor levels are already above 3.8m AHD, with very limited exceptions).
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, construct a buried seawall from a point somewhat to the north of the northern extent of the town site to a point somewhat to the south-east of the south-eastern extent of the town site, with a gap to allow continued water flow from Jingarmup Brook into the ocean.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Note: Management unit should not be vulnerable to coastal inundation events during this period.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Eagle Bay

- Northwest-facing sandy beach with a series of rock platforms and outcrops. Includes the Jingarmup Brook outlet.
- Continuous public foreshore reserve contiguous with Meelup Regional Park.
- There are no current coastal protection structures.

* *Denotes management units where there are existing coastal protection structures*

MU 04 Eagle Bay

Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT

A Inundation Hazard
ACCOMMODATE

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Emergency management response

As per 'Current - 2040'.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

P Erosion Hazard
PROTECT

A Inundation Hazard
ACCOMMODATE

Responses

Planning Response

As per '2040 - 2070'..

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

Key Issues

- Narrow public foreshore reserves, recreational and private assets are vulnerable to coastal erosion.

Key Rationale

- Should the foreshore reserves be lost to coastal erosion, it would not be possible to provide replacement access to the beach or facilities without private land acquisition, or further development of facilities in highly sensitive and valuable areas in Meelup Regional Park.
- Coastal inundation risk is limited to small pockets very close to the coast and, in the case of new development can be accommodated through the setting of minimum floor levels.

MU 04 Eagle Bay



MU 05 Old Dunsborough

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of the 2040 erosion hazard line, or on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development', whichever is located further from the coast.
3. Establish minimum FFL for habitable floor space at 3.8m AHD.
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, construct a seawall from a point somewhat to the north of the northern extent of the town site to the southern boundary of the management unit, other than where natural rock formations already provide protection.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Old Dunsborough

- East-facing mixed sandy/rocky coastline, including Point Daking and Point Dalling, with rock platforms.
- Continuous public foreshore reserve but often very narrow.
- There are no current coastal protection structures.
- The foreshore reserve lies generally at 5.0m AHD, with some sections lower.

** Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT

A Inundation Hazard
ACCOMMODATE

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection at urban stormwater outlets will be required and is a recommendation of the CHRMAP.

Emergency management response

As per 'Current - 2040'.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

P Erosion Hazard
PROTECT

A Inundation Hazard
ACCOMMODATE

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

Key Issues

- Narrow public foreshore reserves, recreational and private assets are vulnerable to coastal erosion.

Key Rationale

- Should the foreshore reserves be lost to coastal erosion, it would not be possible to provide replacement access to the beach or facilities without private land acquisition, or further development of facilities in highly sensitive and valuable areas in Meelup Regional Park.
- Coastal inundation risk is limited to small pockets very close to the coast and, in the case of new development, can be accommodated through the setting of minimum floor levels.

MU 05

Old Dunsborough



MU 06 Dunsborough Townsite

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works or development for public recreation purposes pursuant to part 7.1 of SPP2.6) on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0m AHD.
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0m AHD (or higher, if natural ground level is higher than 3.0m AHD).

Note: Inundation risk potentially extends much further inland than erosion risk and minimum FFLs will need to be set for land inland of the coastal erosion hazard lines proposed to be adopted for planning purposes in Recommendation 1 of the CHRMAP.

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, construct a buried seawall/bund from a point somewhat to the north of the northern extent of the town site to the southern boundary of the management unit.
2. To protect the beach and beach amenity, maintain, upgrade and supplement as necessary the existing groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Dunsborough Townsite

- Northeast- facing sandy beach in the lee of a rocky headland. Includes the Dunn Bay Bar and the mouths of the Dandatup and Dugalup Brooks.
- The foreshore reserve generally lies below 5.0m AHD.
- Continuous public foreshore reserve (including vegetation and habitat).
- Coastal protection structures: buried geofabric sand container (GSC) seawall installed in 2012.

** Denotes management units where there are existing coastal protection structures*

MU 06 Dunsborough Townsite

Adaptation Pathway

2040 - 2070

- Erosion Hazard — **PROTECT**
- Inundation Hazard — **PROTECT**

Responses

Planning Response
As per 'Current - 2040'.

Infrastructure / coastal management response
Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/ bund to a minimum height of 3.5 -3.8m AHD.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection at urban stormwater outlets will be required and is a recommendation of the CHRMAP.

Emergency management response
As above.

Note: If the buried seawall/bund has been constructed to a minimum height of 3.5 - 3.8m AHD, the management unit should not be vulnerable to coastal inundation events during this period.

Financial response
To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

- Erosion Hazard — **PROTECT**
- Inundation Hazard — **PROTECT**

Responses

Planning Response
As per '2040 - 2070'.

Infrastructure / coastal management response
As per '2040 - 2070'.

Emergency management response
As per '2040 - 2070'.

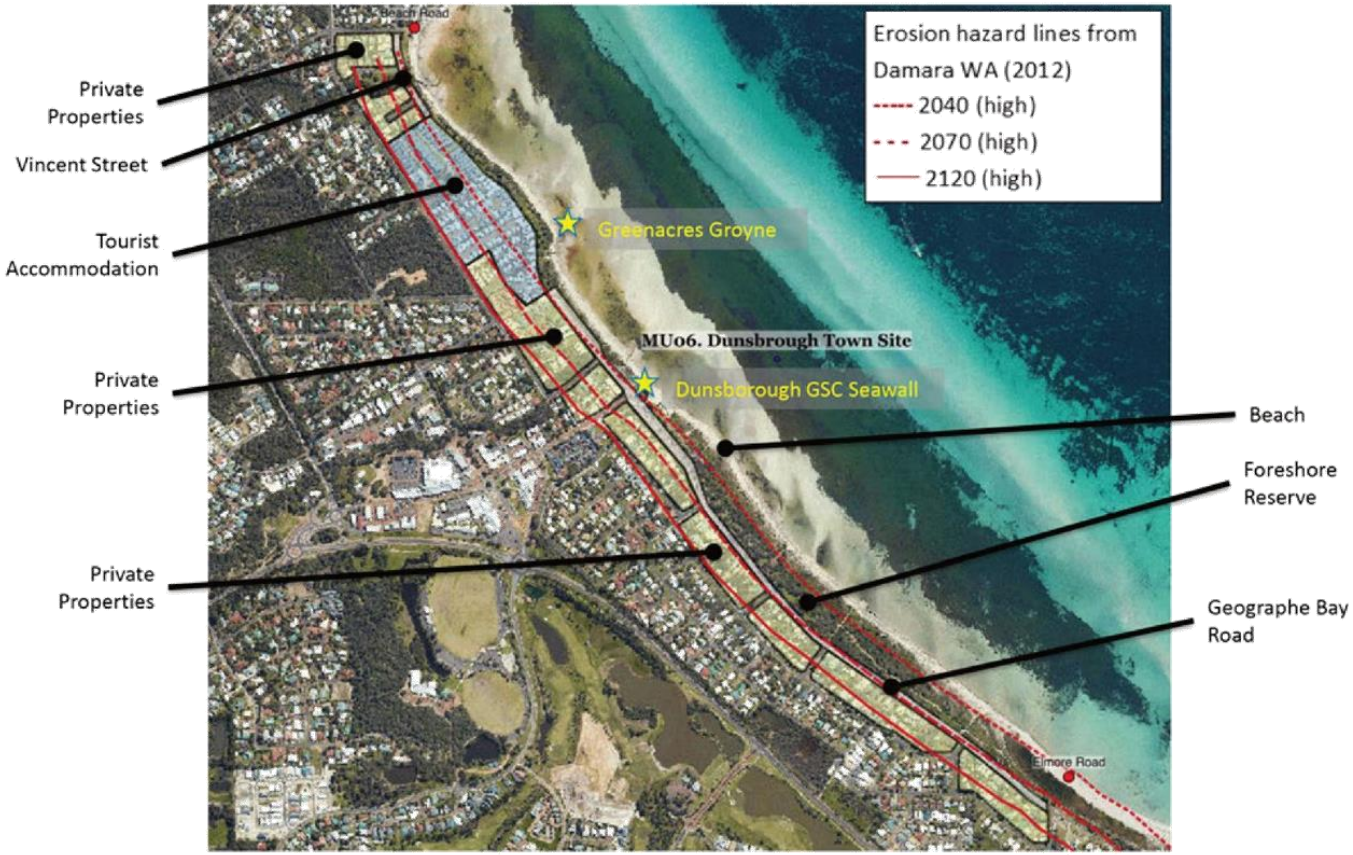
Financial response
As per '2040 - 2070'.

Key Issues
- Urban area that is vulnerable to coastal erosion and coastal inundation. .

Key Rationale
- A minimum FFL of 3.0m AHD could accommodate the potential coastal inundation impact of a 1 in 500 year storm event resulting in a storm surge as high as 2.9m AHD in around 2040, given projected sea level rise by that time, and noting that movement towards an integrated inundation protection solution after that time is proposed.
- A minimum FFL of 3.0m AHD could be widely applied without resulting in houses needing to be built in some cases in excess of 1.5m above neighbouring houses or existing ground levels (but that would be required if minimum FFLs were set at 3.8m AHD, which might be required if an integrated inundation protection solution were not proposed). It is not practicable to lift existing development to 3.8m AHD, hence an integrated inundation protection solution is required.
- The City has been applying the requirement for 3.0m AHD FFL on sites directly adjoining the coast for around the last 20 years (on the basis of technical advice from the then Waters and Rivers Commission).

MU 06

Dunsborough Townsite



MU 07 Quindalup

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0m AHD.
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0m AHD (or higher, if natural ground level is higher than 3.0m AHD).

Note: Inundation risk potentially extends much further inland than erosion risk and minimum FFLs will need to be set for land inland of the coastal erosion hazard lines proposed to be adopted for planning purposes in Recommendation 1 of the CHRMAP.

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, construct a buried seawall/bund from the western boundary of the management unit to a point somewhat to the east of the existing cycle/pedestrian bridge across Toby Inlet.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Financial response

By 2030, apply a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Quindalup

- Northeast-facing sandy beach that includes the point of land fall for the Dunn Bay Bar and Station Gully Drain outlet.
- Continuous public foreshore reserve (with significant vegetation & habitat values).
- Toby Inlet runs generally parallel to the coast and discharges into the ocean west of Station Gully Drain.
- Coastal protection structures: stone revetment (1973), timber groynes (1982) and Quindalup Sea Rescue trial groyne (2013).

* *Denotes management units where there are existing coastal protection structures*

MU 07 Quindalup

Adaptation Pathway

2040 - 2070

- Erosion Hazard — **PROTECT**
- Inundation Hazard — **PROTECT**

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

1. Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to a minimum height of 3.5 - 3.8m AHD.
2. Increase the level of the fore dune from a point to the east of the existing cycle/pedestrian bridge across Toby Inlet to a point somewhat to the east to a minimum height of 3.5 – 3.8m AHD, construct a storm surge barrier across Toby Inlet at that point, and elevate portion of Caves Road to that height, to prevent storm surge events affecting property in the management unit.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection at Toby Inlet, Station Gully Drain and urban stormwater outlets will be required and is a recommendation of the CHRMAP.

Emergency management response

Establish emergency management plans and protocols will be necessary to ensure that the elevated fore dune to the east of the eastward limit of the buried seawall/bund is sufficiently robust, and Caves Road may also need to be closed to traffic.

Note: If the buried seawall/bund and storm surge barrier has been constructed to a minimum height of 3.5 – 3.8m AHD, private property in the management unit should not be vulnerable to coastal inundation events during this period.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

- Erosion Hazard — **PROTECT**
- Inundation Hazard — **PROTECT**

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

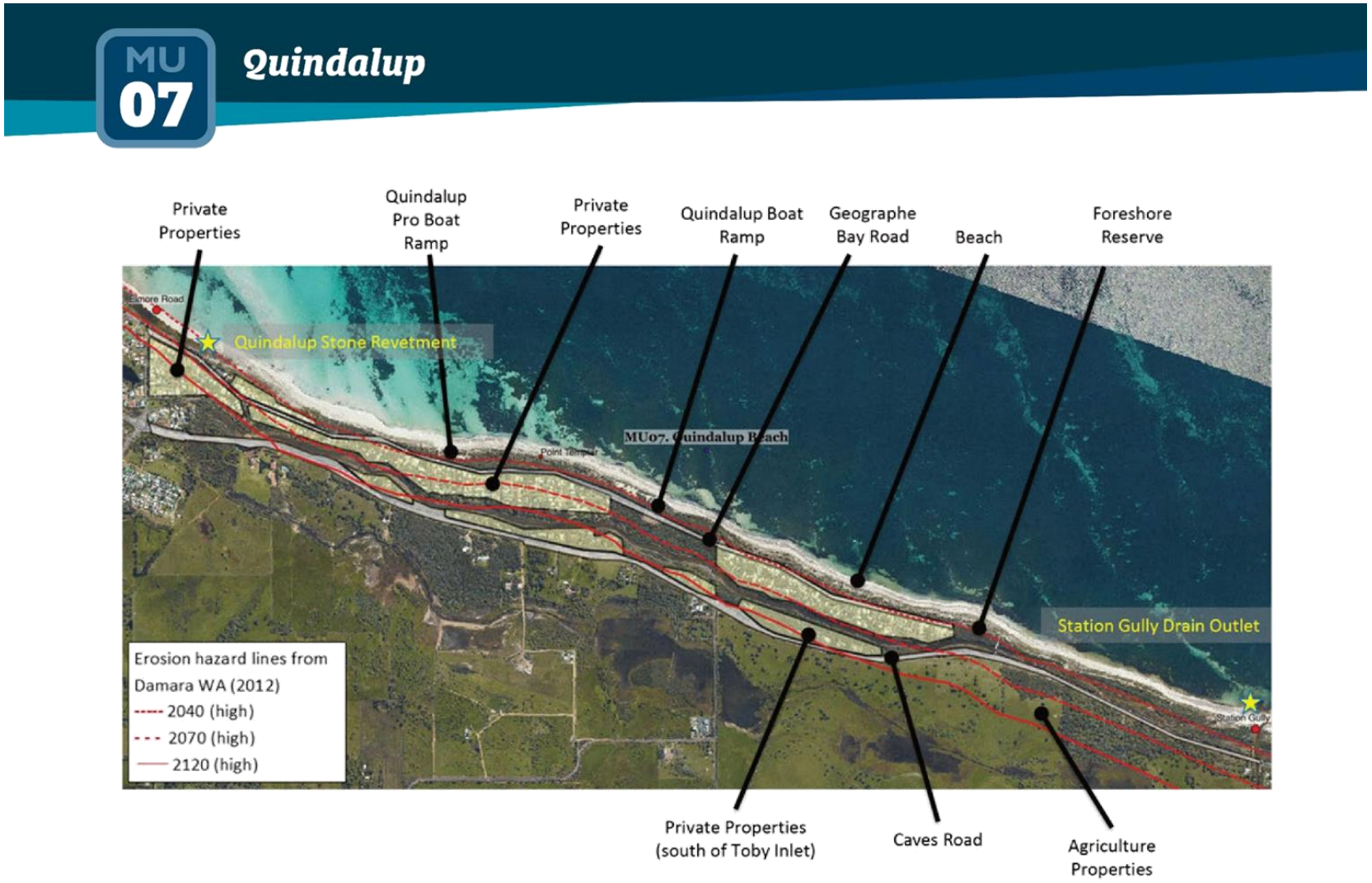
As per '2040 - 2070'.

Key Issues

- Urban area vulnerable to coastal erosion and coastal inundation.

Key Rationale

- A minimum FFL of 3.0m AHD could accommodate the potential coastal inundation impact of a 1 in 500 year storm event resulting in a storm surge as high as 2.9m AHD in around 2040, given projected sea level rise by that time, and noting that movement towards an integrated inundation protection solution after that time is proposed.
- A minimum FFL of 3.0m AHD could be widely applied without resulting in houses needing to be built in some cases in excess of 1.5m above neighbouring houses or existing ground levels (but that would be required if minimum FFLs were set at 3.8m AHD, which might be required if an integrated inundation protection solution were not proposed). It is not practicable to lift existing development to 3.8m AHD, hence an integrated inundation protection solution is required.
- The City has been applying the requirement for 3.0m AHD FFL on sites directly adjoining the coast for around the last 20 years (on the basis of technical advice from the then Waters and Rivers Commission).


MU 07
Quindalup
Private Properties
Quindalup Pro Boat Ramp
Private Properties
Quindalup Boat Ramp
Geographe Bay Road
Beach
Foreshore Reserve
Elmore Road
Quindalup Stone Revetment
MU07. Quindalup Beach
Point Tempest
Station Gully Drain Outlet
Station Gully
Erosion hazard lines from Damara WA (2012)
2040 (high)
2070 (high)
2120 (high)
Private Properties (south of Toby Inlet)
Caves Road
Agriculture Properties

MU 08 Marybrook*

Adaptation Pathway

Current - 2040

P Erosion Hazard
PROTECT Keep option of managed retreat possible post 2070

A Inundation Hazard
ACCOMMODATE

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).
6. Require development approval for all development.
7. Prohibit private coastal protection structures.
8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
9. Do not support any subdivision or increases in permissible development density.

Infrastructure / coastal management response

Subject to resolution of land tenure and access issues -

1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Station Gully Drain to a point somewhat to the west of the Molloy Drain, continuing from a point somewhat to the east of the Molloy Drain to a point somewhat to the east of the Lennox River Drain.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. Caves Road may also need to be closed to traffic..

Financial response

Subject to resolution of land tenure and access issues, and implementation of an integrated protection strategy, consider applying a Specified Area Rate to fully fund works required to protect properties from coastal erosion hazard.

Overview

Marybrook*

- Northeast- facing wide sandy beach (narrowing to the east) with the Molloy Drain and Lennox River Drain outlets.
- Includes the 'Deadwater' – the easternmost section of Toby Inlet dissected by Station Gully Drain.
- Public access to the beach becomes increasingly constrained between Birl Elbow and the Lennox River Drain.
- There is no continuous public foreshore reserve in the eastern section of this Management Unit.
- There are some private coastal protection structures.

MU 08 Marybrook*

Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT Keep option of managed retreat possible post 2070

A Inundation Hazard
ACCOMMODATE

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection for Molloy Drain and Lennox River Drain outlets will be required and is a recommendation of the CHRMAP.

Emergency management response

As per 'Current - 2040'.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

Erosion Hazard
TO BE DETERMINED

Inundation Hazard
TO BE DETERMINED

Responses

Planning Response

To be determined.

Infrastructure / coastal management response

To be determined.

Emergency management response

To be determined.

Financial response

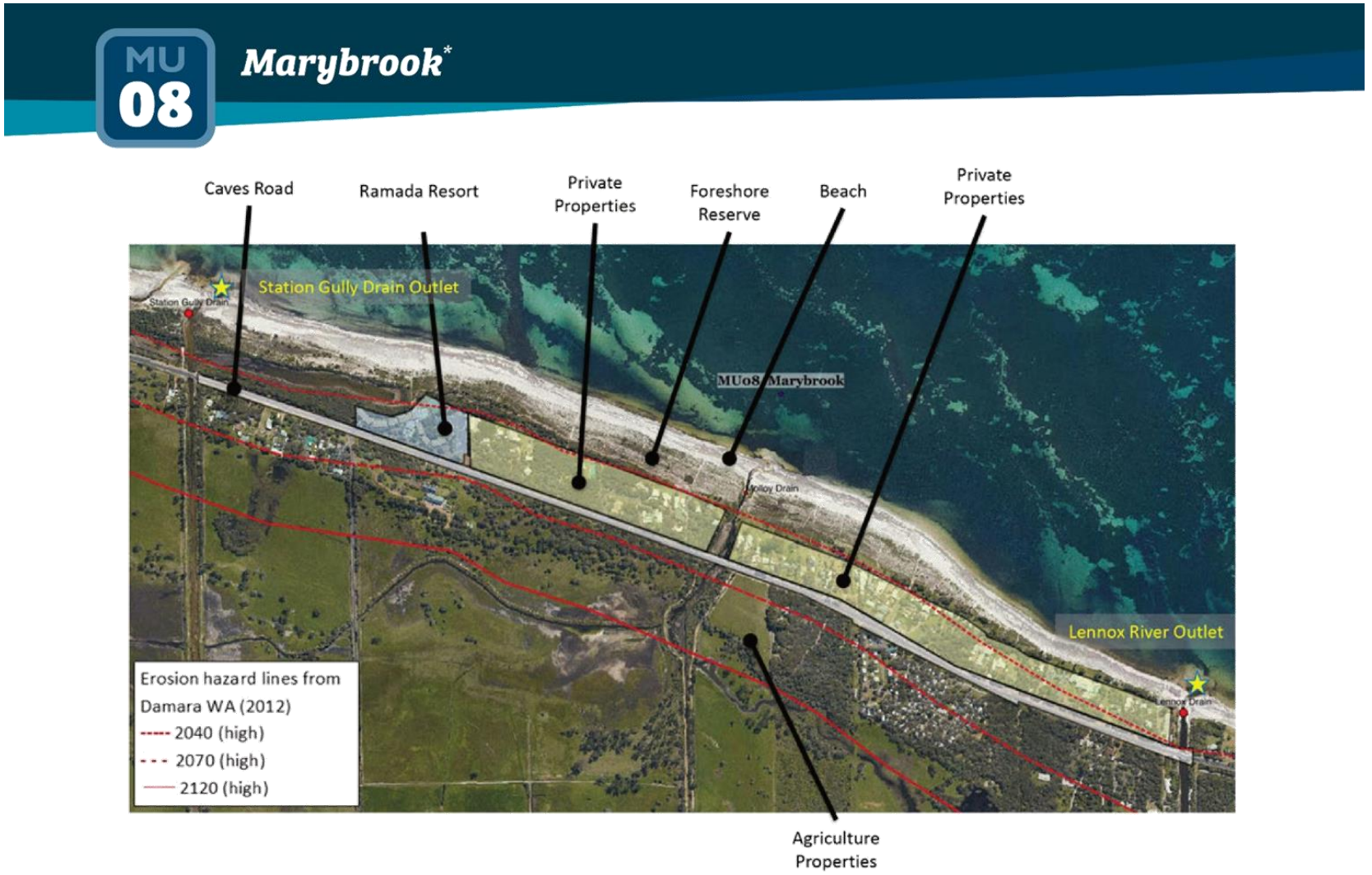
To be determined.

Key Issues

- Vulnerable to coastal erosion and coastal inundation.
- Absence of a substantial foreshore reserve at the eastern end of the Management Unit.
- Land tenure and limited public access.

Key Rationale

- The absence of a substantial foreshore reserve in parts of Marybrook means that protection from inundation is not practicable – hence the accommodate strategy proposed. Also, the pattern of land tenure, limited public access and absence of public facilities means there is little broader public benefit in coastal protection in this area. As such, it is considered that the costs of protection should be borne by the benefiting landowners.
- Private coastal protection structures have the potential to cause unintended off-site impacts (such as protection on one property increasing erosion elsewhere) when implemented in an uncoordinated manner. An integrated approach, led by the City, however, would likely result in protection at lower overall cost and with less unintended consequences.
- Because there are not substantial developed areas inland of the narrow strips of private property along the coast, some of the issues that would arise with retreat strategies elsewhere would also not arise here; certainly not to the same degree. Once the planned Vasse-Dunsborough Link is built, the importance of Caves Road as a transport route would also diminish significantly. For those reasons, it is seen as appropriate to provide for potential retreat from this section of the coast in the longer-term. The adoption of such a strategy would provide flexibility for future decision-makers (albeit less certainty for landowners).


MU 08
Marybrook*
Caves Road
Ramada Resort
Private Properties
Foreshore Reserve
Beach
Private Properties
Station Gully Drain Outlet
MU08 Marybrook
Lennox River Outlet
Erosion hazard lines from Damara WA (2012)
2040 (high)
2070 (high)
2120 (high)
Agriculture Properties

MU 09 Siesta Park*

Adaptation Pathway

Current - 2040

P **Erosion Hazard**
PROTECT Keep option of managed retreat possible post 2070

A **Inundation Hazard**
ACCOMMODATE

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).
6. Require development approval for all development.
7. Prohibit private coastal protection structures.
8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
9. Do not support any subdivision or increases in permissible development density.

Infrastructure / coastal management response

Subject to resolution of land tenure and access issues -

1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Lennox River Drain to a point somewhat to the east of Locke Swamp Drain.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment (note: the shortening of the existing Siesta Park Groyne may be appropriate, to reduce coastal erosion hazard on the eastern side).

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. Caves Road may also need to be closed to traffic.

Financial response

Subject to resolution of land tenure and access issues, and implementation of an integrated protection strategy, consider applying a Specified Area Rate to fully fund works required to protect properties from coastal erosion hazard.

Overview

Siesta Park*

- North-facing sandy beach that has been influenced by the Siesta Park groyne.
- There is limited public access to the beach and there is not a continuous, usable public foreshore reserve.
- Coastal protection structures: Siesta Park jetty groyne (1950s), East Lennox timber groyne field (1960s) and Siesta Park groyne (1965/67). There are a number of private coastal protection structures.
- Includes the Lennox River and Locke Swamp Drain outlets.

** Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

Erosion Hazard
PROTECT Keep option of managed retreat possible post 2070

Inundation Hazard
ACCOMMODATE

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection at Lennox River Drain and Locke Swamp Drain outlets will be required and is a recommendation of the CHRMAP.

Emergency management response

As per 'Current - 2040'.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

Erosion Hazard
TO BE DETERMINED

Inundation Hazard
TO BE DETERMINED

Responses

Planning Response

To be determined.

Infrastructure / coastal management response

To be determined.

Emergency management response

To be determined.

Financial response

To be determined.

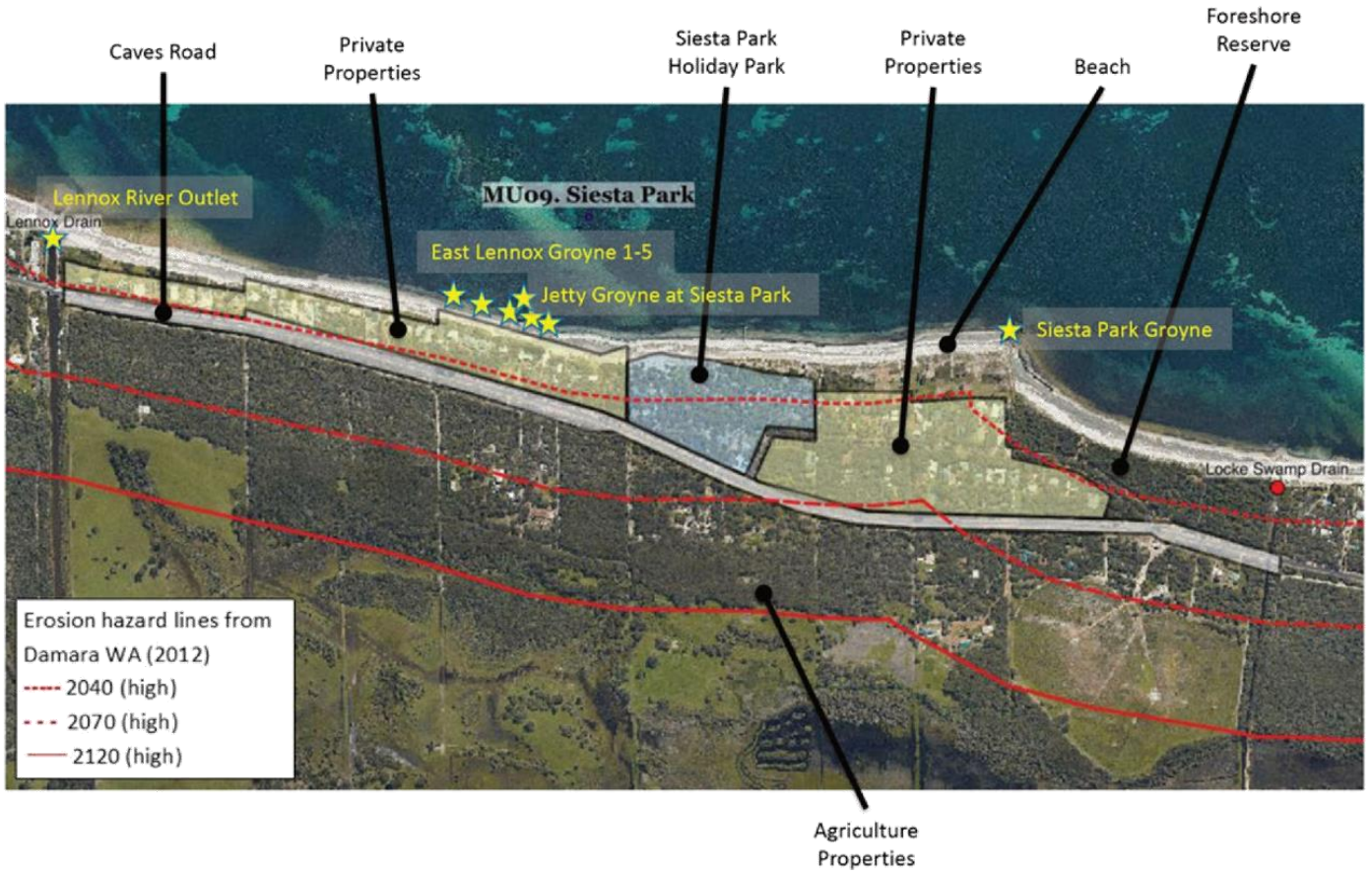
Key Issues

- Vulnerable to coastal erosion and coastal inundation.
- Absence of a continuous substantial foreshore reserve.
- Land tenure and limited public access.

Key Rationale

- The absence of a continuous substantial foreshore reserve means that protection from inundation is not practicable (hence accommodate). The absence of a foreshore reserve means there is little broader public benefit in coastal protection in this area, as such, it is considered that the costs of protection should be borne by the benefitting landowners.
- Private coastal protection structures have the potential to cause unintended off-site impacts (such as protection on one property increasing erosion elsewhere) when implemented in an uncoordinated manner. An integrated approach, led by the City, however, would likely result in protection at lower overall cost and with less unintended consequences.
- Because there are not substantial developed areas inland of the narrow strips of private property along the coast, some of the issues that would arise with retreat strategies elsewhere would also not arise here; certainly not to the same degree. Once the planned Vasse-Dunsborough Link is built, the importance of Caves Road as a transport route would also diminish significantly. For those reasons, it is seen as appropriate to provide for potential retreat from this section of the coast in the longer-term. The adoption of such a strategy would provide flexibility for future decision-makers (albeit less certainty for landowners).

MU 09 **Siesta Park***



MU 10 Locke Estate*

Adaptation Pathway

Current - 2040

P **Erosion Hazard**
PROTECT Keep option of managed retreat possible post 2070

A **Inundation Hazard**
ACCOMMODATE

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0m AHD (note: existing natural ground and second floor levels are already above 3.0m AHD, with very limited exceptions).
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0m AHD (or higher, if natural ground level is higher than 3.0m AHD).
5. Continue to offer leasehold tenure consistent with the reserve purpose and granting of the land to the Crown for periods no greater than 21 years.

Infrastructure / coastal management response

1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Locke Swamp Drain to the Buayanyup River Drain.
2. To protect the beach and beach amenity, maintain and upgrade as necessary the existing groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. Caves Road may also need to be closed to traffic.

Financial response

Require at least 50% of the cost of coastal protection and management to be met by lessees, the remainder from State and/or Federal Government grants.

Overview

Locke Estate*

(Note: There is no privately owned land in this management unit)

- North-facing sandy beach backed by camp lease sites and, further inland, the Locke Nature Reserve.
- Includes the Locke Swamp and Buayanyup River Drain outlets.
- Coastal protection structures: Buayanyup River Drain training wall (1985), groyne field (1988-1992 & 2014/15), Locke Estate seawall (1985-1992/2014).

** Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

Erosion Hazard
PROTECT Keep option of managed retreat possible post 2070

Inundation Hazard
ACCOMMODATE

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Emergency management response

As per 'Current - 2040'.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

Erosion Hazard
TO BE DETERMINED

Inundation Hazard
TO BE DETERMINED

Responses

Planning Response

To be determined.

Infrastructure / coastal management response

To be determined.

Emergency management response

To be determined.

Financial response

To be determined.

Key Issues

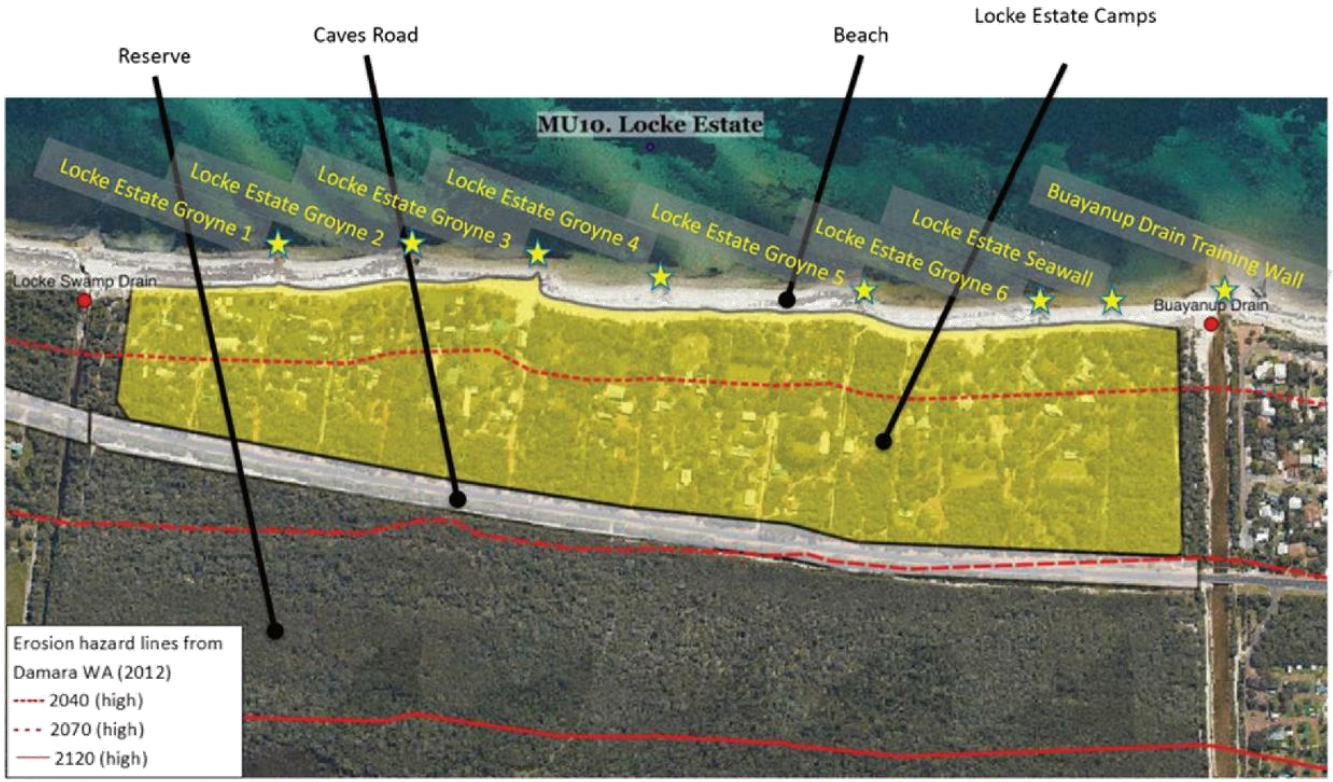
- Vulnerable to coastal erosion and coastal inundation.
- All of the land in this Management Unit is in public ownership.

Key Rationale

- Campsites on the seaward side of Caves Road are leasehold facilities and the lease terms in place cannot extend beyond 21 years at present.
- There are already coastal protections in place with a design life that extends for at least another 10 years – that also provide some protection from coastal inundation risk, along with establishing minimum floor levels for new development and emergency management approaches.
- The option of retreat over the medium to long term is left open for future decision-makers.

MU 10

Locke Estate*





Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0m AHD.
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0m AHD (or higher, if natural ground level is higher than 3.0m AHD).

Note: Inundation risk potentially extends much further inland than erosion risk and minimum FFLs will need to be set for land inland of the coastal erosion hazard lines proposed to be adopted for planning purposes in Recommendation 1 of the CHRMAP.

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, construct a buried seawall/bund from the Buayanyup River Drain to the eastern boundary of the management unit.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Abbey*

- North-facing sandy beach with a continuous, narrow public foreshore reserve (including vegetation and habitat).
- Coastal protection structures: boat ramp headland (1978, refurbished 2011 & 2013), groyne field (1990s, 2011 & 2012/13), Abbey West groyne (2012/13).

** Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT

P Inundation Hazard
PROTECT

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

1. Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to a minimum height of 3.5 – 3.8m AHD.
2. Engage with the State Government (in particular, Water Corporation), to advocate for the upgrade of the eastern bank of the Buayanyup River Drain to minimum height of 3.5 – 3.8m AHD, and to be structurally capable of protecting land to the east from a major storm surge (coastal inundation hazard) event.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection along the eastern bank of the Buayanyup River Drain and urban stormwater outlets will be required and is a recommendation of the CHRMAP.

Emergency management response

As above.

Note: If the buried seawall/bund and eastern bank of the Buayanyup River Drain has been constructed to a minimum height of 3.5 – 3.8m AHD, the management unit should not be vulnerable to coastal inundation events during this period.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

P Erosion Hazard
PROTECT

P Inundation Hazard
PROTECT

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

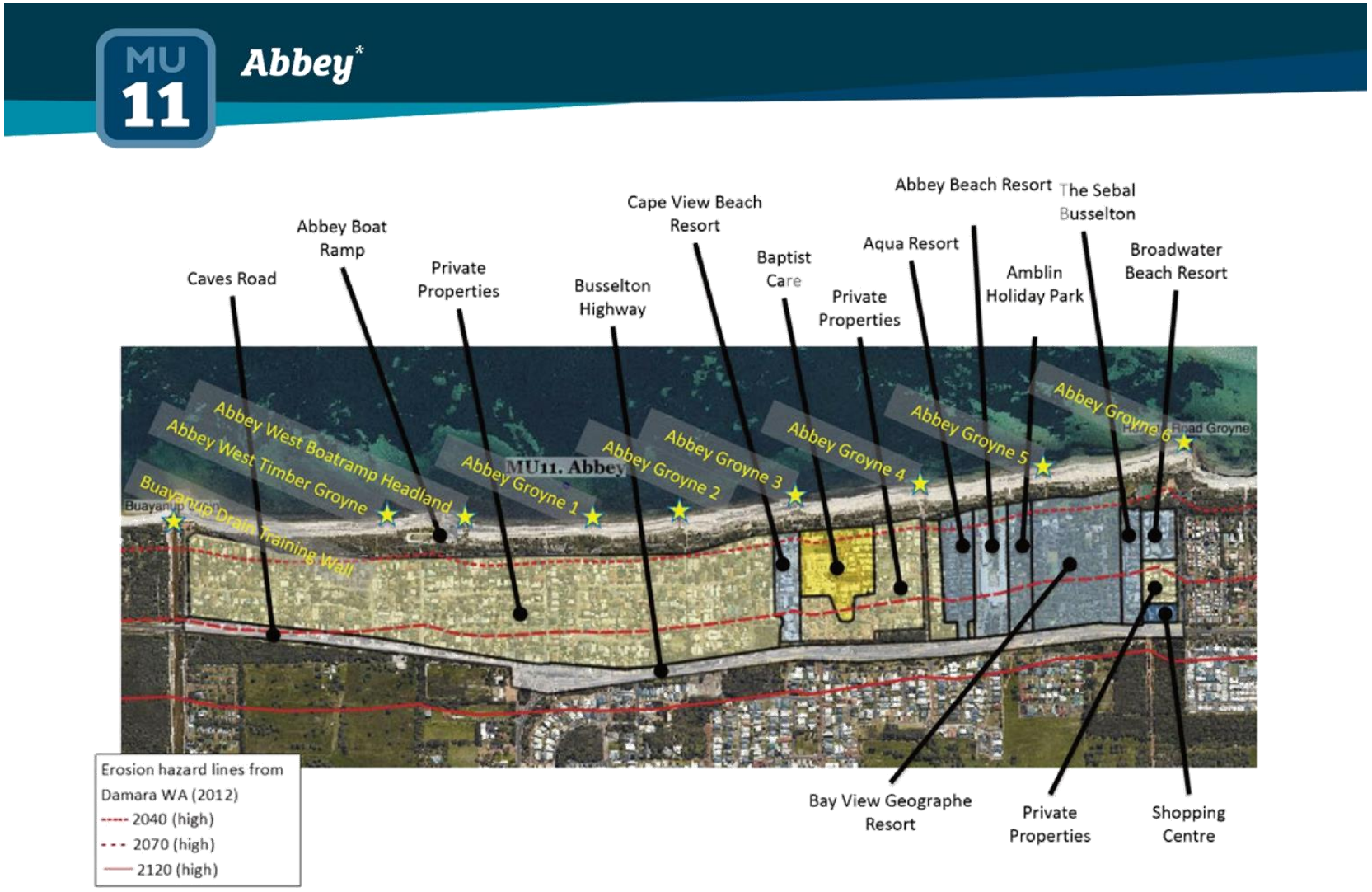
As per '2040 - 2070'.

Key Issues

- Urban area vulnerable to coastal erosion and coastal inundation.

Key Rationale

- A minimum FFL of 3.0m AHD could accommodate the potential coastal inundation impact of a 1 in 500 year storm event resulting in a storm surge as high as 2.9m AHD in around 2040, given projected sea level rise by that time, and noting that movement towards an integrated inundation protection solution after that time is proposed.
- A minimum FFL of 3.0m AHD could be widely applied without resulting in houses needing to be built in some cases in excess of 1.5m above neighbouring houses or existing ground levels (but that would be required if minimum FFLs were set at 3.8m AHD, which might be required if an integrated inundation protection solution were not proposed). It is not practicable to lift existing development to 3.8m AHD, hence an integrated inundation protection solution is required.
- The City has been applying the requirement for 3.0m AHD FFL on sites directly adjoining the coast for around the last 20 years (on the basis of technical advice from the then Waters and Rivers Commission).


MU 11
Abbey*
Caves Road
Abbey Boat Ramp
Private Properties
Busselton Highway
Cape View Beach Resort
Baptist Care
Private Properties
Aqua Resort
Abbey Beach Resort
Amblin Holiday Park
The Sebal Busselton
Broadwater Beach Resort
Abbey West Boatramp Headland
Abbey West Timber Groyne
Buayanup Drain Training Wall
Abbey Groyne 1
MU11. Abbey
Abbey Groyne 2
Abbey Groyne 3
Abbey Groyne 4
Abbey Groyne 5
Abbey Groyne 6
Erosion hazard lines from Damara WA (2012)
2040 (high)
2070 (high)
2120 (high)
Bay View Geographe Resort
Private Properties
Shopping Centre

MU 12

Broadwater*

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0m AHD.
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0m AHD (or higher, if natural ground level is higher than 3.0m AHD).

Note: Inundation risk potentially extends much further inland than erosion risk and minimum FFLs will need to be set for land inland of the coastal erosion hazard lines proposed to be adopted for planning purposes in Recommendation 1 of the CHRMAP.

Infrastructure / coastal management response

1. To protect the fore dune, significant remnant vegetation, infrastructure and buildings, construct a buried seawall/bund from the western to the eastern boundary of the management unit.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Broadwater*

- North-facing sandy beach with a wide continuous public foreshore reserve (including vegetation and habitat).
- Landfall for the Abbey sand bar.
- Coastal protection structures: two trial groynes (2011).

** Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT

P Inundation Hazard
PROTECT

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to a minimum height of 3.5 – 3.8m AHD.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection at urban stormwater outlets will be required and is a recommendation of the CHRMAP.

Emergency management response

As above.

Note: If the buried seawall/bund has been constructed to a minimum height of 3.5 – 3.8m AHD, the management unit should not be vulnerable to coastal inundation events during this period.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

P Erosion Hazard
PROTECT

P Inundation Hazard
PROTECT

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

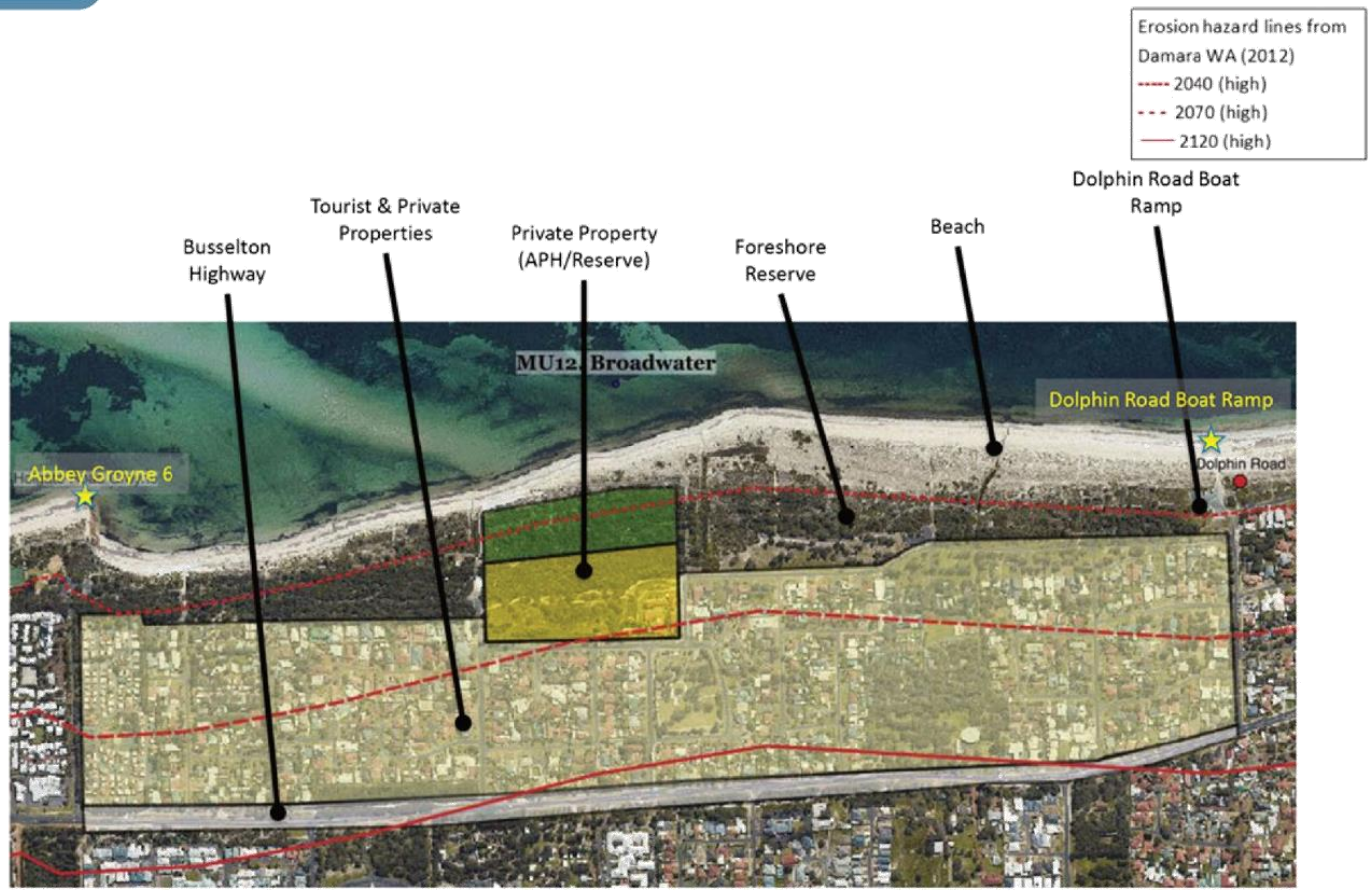
Key Issues

- Urban area vulnerable to coastal erosion and coastal inundation.

Key Rationale

- A minimum FFL of 3.0m AHD could accommodate the potential coastal inundation impact of a 1 in 500 year storm event resulting in a storm surge as high as 2.9m AHD in around 2040, given projected sea level rise by that time, and noting that movement towards an integrated inundation protection solution after that time is proposed.
- A minimum FFL of 3.0m AHD could be widely applied without resulting in houses needing to be built in some cases in excess of 1.5m above neighbouring houses or existing ground levels (but that would be required if minimum FFLs were set at 3.8m AHD, which might be required if an integrated inundation protection solution were not proposed). It is not practicable to lift existing development to 3.8m AHD, hence an integrated inundation protection solution is required.
- The City has been applying the requirement for 3.0m AHD FFL on sites directly adjoining the coast for around the last 20 years (on the basis of technical advice from the then Waters and Rivers Commission).

MU 12 **Broadwater***



MU 13 Busselton West (A)*

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0m AHD.
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0m AHD (or higher, if natural ground level is higher than 3.0m AHD).

Note: Inundation risk potentially extends much further inland than erosion risk and minimum FFLs will need to be set for land inland of the coastal erosion hazard lines proposed to be adopted for planning purposes in Recommendation 1 of the CHRMAP.

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, construct a buried seawall/bund from the western boundary of the management unit to the Vasse Diversion Drain.

   Note: The foreshore reserve in much of this management unit is too narrow to allow effective landscaping over a buried seawall/bund. Where possible, though, it is envisaged that the seawall/bund would be landscaped.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Financial response

1. By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.
2. Require the State Government to meet 100% of the cost of protecting the Busselton Regional Hospital site.

Overview

Busselton West (A)*

- North-facing sandy beach with a narrow continuous public foreshore reserve.
- Includes the Vasse Diversion Drain outlet.
- Coastal protection structures: seawalls (1970s), groynes (1990-1995 & 2016) and Vasse River Diversion Drain outlet training wall (1983).

* *Denotes management units where there are existing coastal protection structures*

MU 13 Busselton West (A)*

Adaptation Pathway

2040 - 2070

- Erosion Hazard — **PROTECT**
- Inundation Hazard — **PROTECT**

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

1. Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to a minimum height of 3.5 – 3.8m AHD.
2. Engage with the State Government (in particular, Water Corporation), to ensure that Water Corporation constructs a storm surge barrier at the mouth of the Vasse Diversion Drain.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection at the Vasse Diversion Drain mouth and urban stormwater outlets will be required and is a recommendation of the CHRMAP.

Emergency management response

As above.

Note: If the seawall/bund and Vasse Diversion Drain storm surge barrier has been constructed to a minimum height of 3.5 – 3.8m AHD, the management unit should not be vulnerable to coastal inundation events during this period.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

- Erosion Hazard — **PROTECT**
- Inundation Hazard — **PROTECT**

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

Key Issues

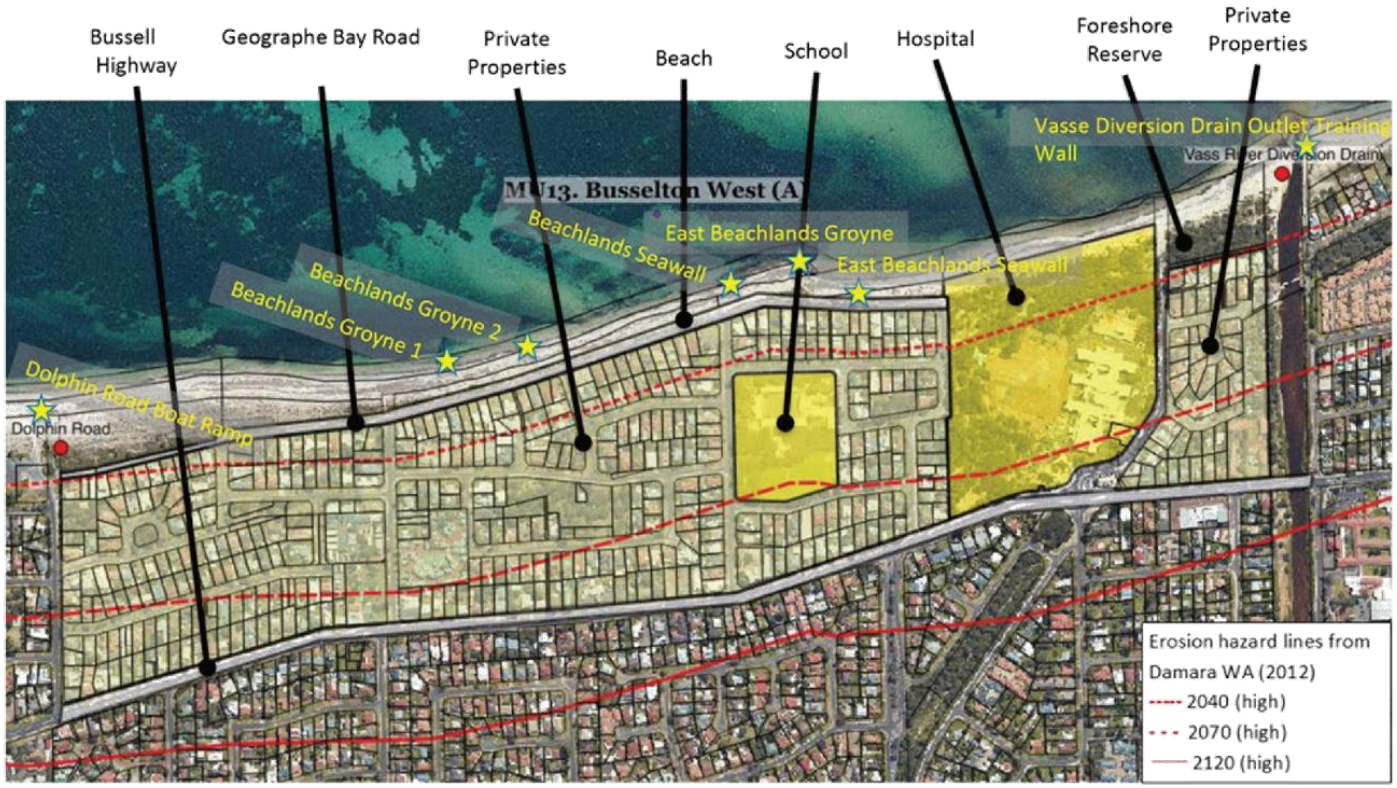
- Urban area vulnerable to coastal erosion and coastal inundation.

Key Rationale

- A minimum FFL of 3.0m AHD could accommodate the potential coastal inundation impact of a 1 in 500 year storm event resulting in a storm surge as high as 2.9m AHD in around 2040, given projected sea level rise by that time, and noting that movement towards an integrated inundation protection solution after that time is proposed.
- A minimum FFL of 3.0m AHD could be widely applied without resulting in houses needing to be built in some cases in excess of 1.5m above neighbouring houses or existing ground levels (but that would be required if minimum FFLs were set at 3.8m AHD, which might be required if an integrated inundation protection solution were not proposed). It is not practicable to lift existing development to 3.8m AHD, hence an integrated inundation protection solution is required.
- The City has been applying the requirement for 3.0m AHD FFL on sites directly adjoining the coast for around the last 20 years (on the basis of technical advice from the then Waters and Rivers Commission).

MU 13

Busselton West (A)*



MU 14 Busselton West (B)*

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0m AHD.
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0m AHD (or higher, if natural ground level is higher than 3.0m AHD).

Note: Inundation risk potentially extends much further inland than erosion risk and minimum FFLs will need to be set for land inland of the coastal erosion hazard lines proposed to be adopted for planning purposes in Recommendation 1 of the CHRMAP.

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, construct a buried seawall/bund from the Vasse Diversion Drain to the eastern boundary of the management unit.

   Note: The foreshore reserve in some of this management unit is too narrow to allow effective landscaping over a buried seawall/bund. Where possible, though, it is envisaged that the seawall/bund would be landscaped.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Busselton West (B)*

- Northwest-facing sandy beach with a generally narrow, continuous public foreshore reserve.
- Includes the Vasse Diversion Drain outlet.
- Coastal protection structures: King Street carpark buried geofabric sand container seawall (2013).

* *Denotes management units where there are existing coastal protection structures*

MU 14 Busselton West (B)*

Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT

P Inundation Hazard
PROTECT

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

1. Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to a minimum height of 3.5 – 3.8m AHD.
2. Engage with the State Government (in particular, Water Corporation), to ensure that Water Corporation constructs a storm surge barrier at the mouth of the Vasse Diversion Drain.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection at the Vasse Diversion Drain mouth and urban stormwater outlets will be required and is a recommendation of the CHRMAP.

Emergency management response

As above.

Note: If the buried seawall/bund and Vasse Diversion Drain storm surge barrier has been constructed to a minimum height of 3.5 – 3.8m AHD, the management unit should not be vulnerable to coastal inundation events during this period.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

P Erosion Hazard
PROTECT

P Inundation Hazard
PROTECT

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

Key Issues

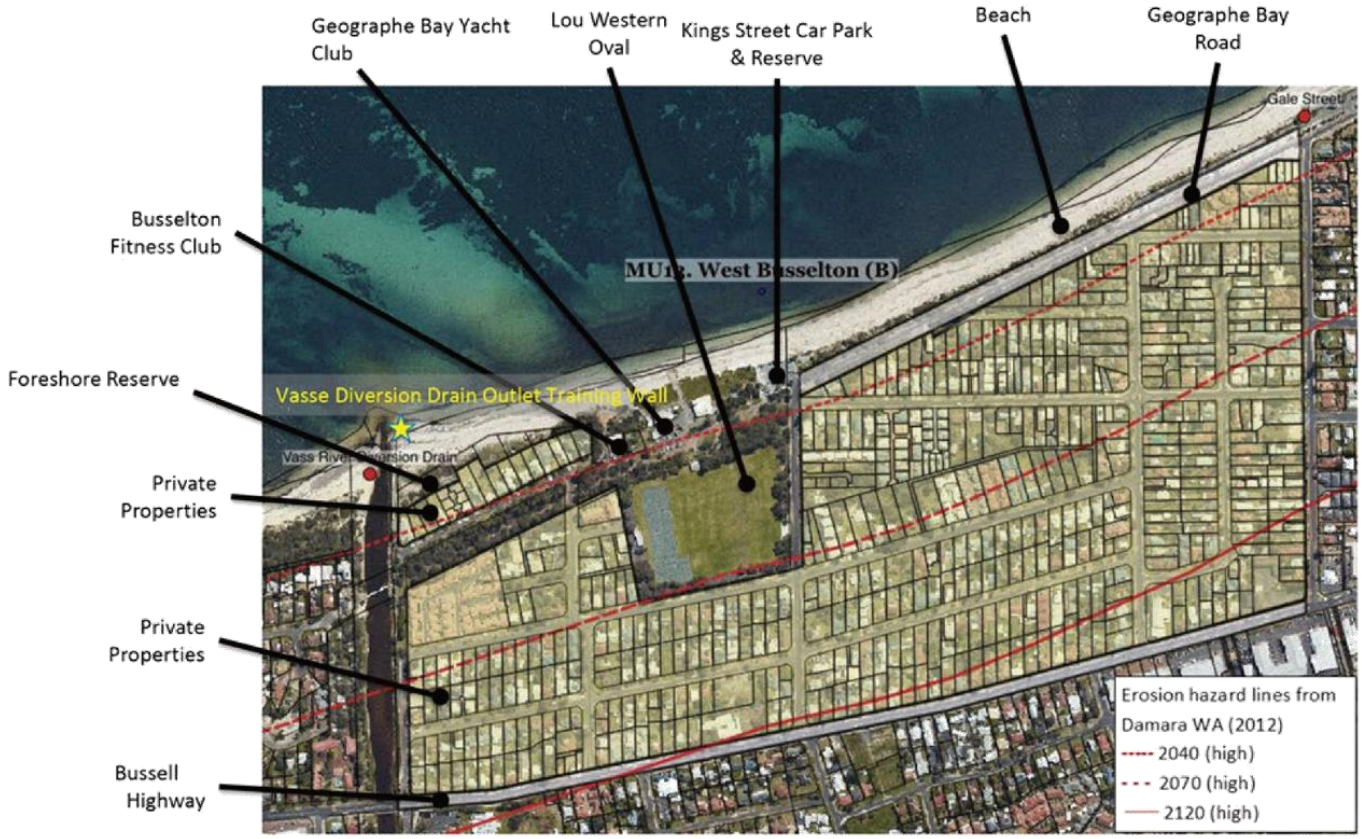
- Urban area vulnerable to coastal erosion and coastal inundation.

Key Rationale

- A minimum FFL of 3.0m AHD could accommodate the potential coastal inundation impact of a 1 in 500 year storm event resulting in a storm surge as high as 2.9m AHD in around 2040, given projected sea level rise by that time, and noting that movement towards an integrated inundation protection solution after that time is proposed.
- A minimum FFL of 3.0m AHD could be widely applied without resulting in houses needing to be built in some cases in excess of 1.5m above neighbouring houses or existing ground levels (but that would be required if minimum FFLs were set at 3.8m AHD, which might be required if an integrated inundation protection solution were not proposed). It is not practicable to lift existing development to 3.8m AHD, hence an integrated inundation protection solution is required.
- The City has been applying the requirement for 3.0m AHD FFL on sites directly adjoining the coast for around the last 20 years (on the basis of technical advice from the then Waters and Rivers Commission).

MU 14

Busselton West (B)*



MU 15 Busselton Central*

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0m AHD.
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0m AHD (or higher, if natural ground level is higher than 3.0m AHD).

Note: Inundation risk potentially extends much further inland than erosion risk and minimum FFLs will need to be set for land inland of the coastal erosion hazard lines proposed to be adopted for planning purposes in Recommendation 1 of the CHRMAP.

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, extend and maintain the existing buried seawall/bund for the full length of the management unit.
2. To protect the beach and beach amenity, supplement as necessary groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Busselton Central

- Northwest-facing sandy beach with a continuous public foreshore reserve that widens to the east.
- Includes the Busselton Foreshore Precinct and significant heritage assets.
- Coastal protection structures: Busselton Jetty GSC groynes (2008), seawalls (refurbished 2011, 2015 & 2017), Scout Road groynes (2013).

* *Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

- Erosion Hazard — **PROTECT**
- Inundation Hazard — **PROTECT**

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to a minimum height of 3.5 – 3.8m AHD.

Emergency management response

As above.

Note: If the buried seawall/bund has been constructed to a minimum height of 3.5 – 3.8m AHD, the management unit should not be vulnerable to coastal inundation events during this period.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

- Erosion Hazard — **PROTECT**
- Inundation Hazard — **PROTECT**

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

Key Issues

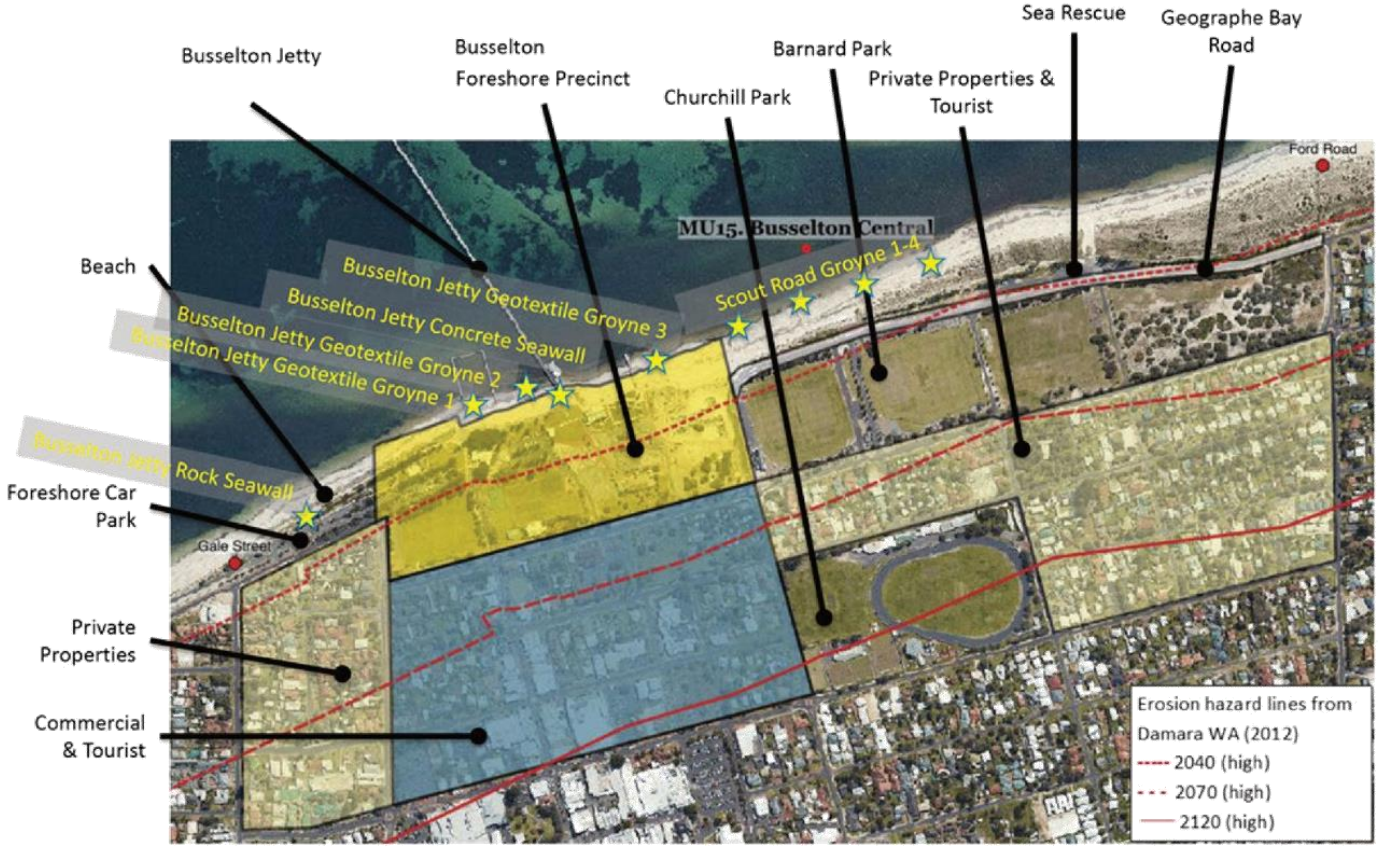
- Urban area vulnerable to coastal erosion and coastal inundation.

Key Rationale

- A minimum FFL of 3.0m AHD could accommodate the potential coastal inundation impact of a 1 in 500 year storm event resulting in a storm surge as high as 2.9m AHD in around 2040, given projected sea level rise by that time, and noting that movement towards an integrated inundation protection solution after that time is proposed.
- A minimum FFL of 3.0m AHD could be widely applied without resulting in houses needing to be built in some cases in excess of 1.5m above neighbouring houses or existing ground levels (but that would be required if minimum FFLs were set at 3.8m AHD, which might be required if an integrated inundation protection solution were not proposed). It is not practicable to lift existing development to 3.8m AHD, hence an integrated inundation protection solution is required.
- The City has been applying the requirement for 3.0m AHD FFL on sites directly adjoining the coast for around the last 20 years (on the basis of technical advice from the then Waters and Rivers Commission).

MU 15

Busselton Central*



MU 16 Busselton East

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0m AHD.
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0m AHD (or higher, if natural ground level is higher than 3.0m AHD).

Note: Inundation risk potentially extends much further inland than erosion risk and minimum FFLs will need to be set for land inland of the coastal erosion hazard lines proposed to be adopted for planning purposes in Recommendation 1 of the CHRMAP.

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure and buildings, construct a buried seawall/bund for the full length of the management unit.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Busselton East

- Northwest-facing sandy beach with continuous public foreshore reserve.
- Wide beach and foreshore reserve.
- Land fall for the Busselton Jetty sand bar.
- No current coastal protection structures.

* *Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT

P Inundation Hazard
PROTECT

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to a minimum height of 3.5 – 3.8m AHD.

Emergency management response

As above.

Note: If the buried seawall/bund has been constructed to a minimum height of 3.5 – 3.8m AHD, the management unit should not be vulnerable to coastal inundation events during this period.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

P Erosion Hazard
PROTECT

P Inundation Hazard
PROTECT

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

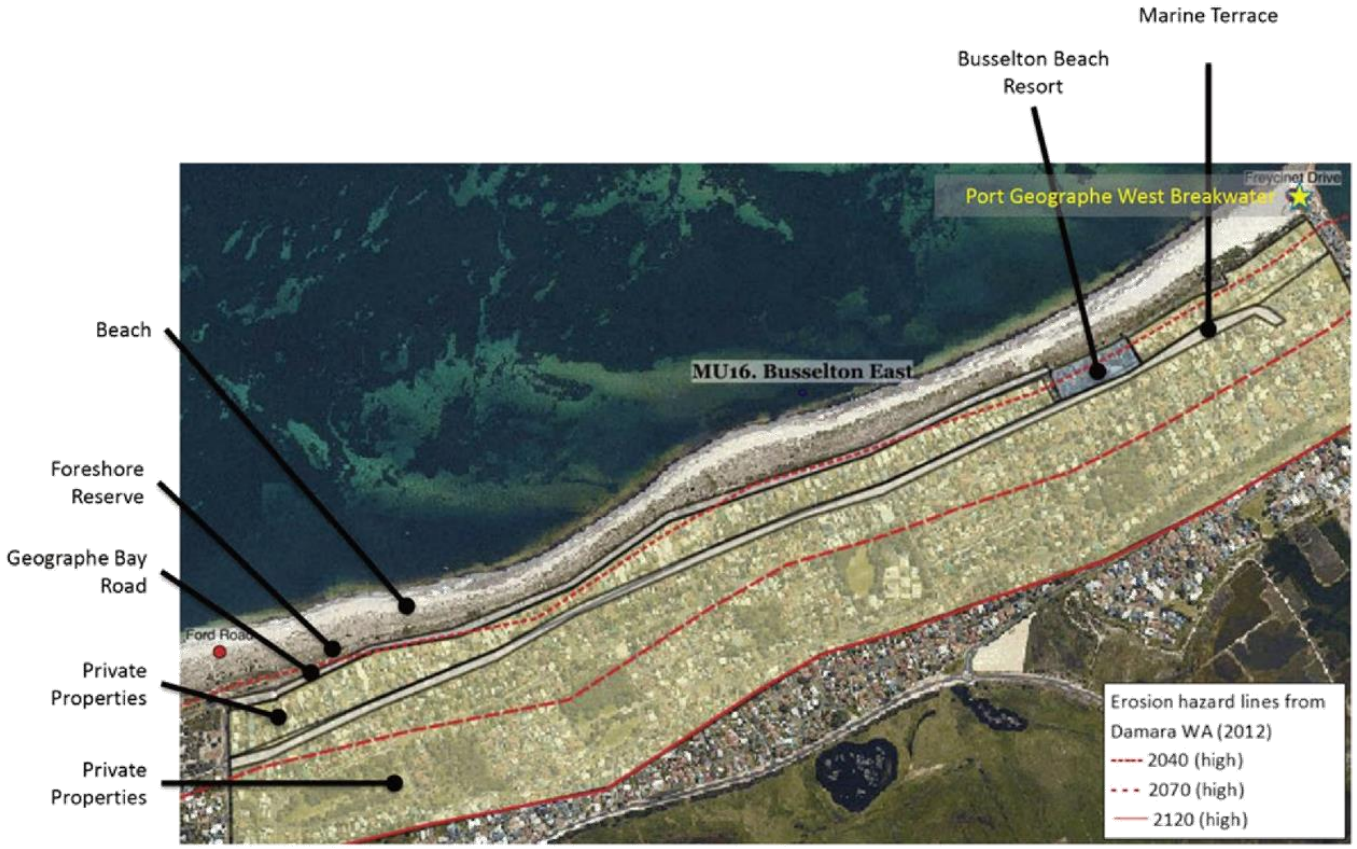
Key Issues

- Urban area vulnerable to coastal erosion and coastal inundation

Key Rationale

- A minimum FFL of 3.0m AHD could accommodate the potential coastal inundation impact of a 1 in 500 year storm event resulting in a storm surge as high as 2.9m AHD in around 2040, given projected sea level rise by that time, and noting that movement towards an integrated inundation protection solution after that time is proposed.
- A minimum FFL of 3.0m AHD could be widely applied without resulting in houses needing to be built in some cases in excess of 1.5m above neighbouring houses or existing ground levels (but that would be required if minimum FFLs were set at 3.8m AHD, which might be required if an integrated inundation protection solution were not proposed). It is not practicable to lift existing development to 3.8m AHD, hence an integrated inundation protection solution is required.
- The City has been applying the requirement for 3.0m AHD FFL on sites directly adjoining the coast for around the last 20 years (on the basis of technical advice from the then Waters and Rivers Commission).

MU 16 Busselton East



MU 17

Port Geographe*

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0 AHD.
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0 AHD (or higher, if natural ground level is higher than 3.0 AHD).

Note: Inundation risk potentially extends much further inland than erosion risk and minimum FFLs will need to be set for land inland of the coastal erosion hazard lines proposed to be adopted for planning purposes in Recommendation 1 of the CHRMAP.

Infrastructure / coastal management response

1. To protect infrastructure and buildings, engage with the State Government (in particular, Department of Transport), to ensure that the Department of Transport maintains the existing seawall/bund.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Port Geographe*

- Port Geographe Marina and canal development.
- Public foreshore reserve from the inner marina entry wall extending along the seawall.
- Coastal protection structures: Port Geographe seawall and west breakwater.

* *Denotes management units where there are existing coastal protection structures*

MU 17 Port Geographe*

Adaptation Pathway

2040 - 2070

- Erosion Hazard — **PROTECT**
- Inundation Hazard — **PROTECT**

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

1. Engage with the State Government (in particular, Department of Transport), to ensure that the Department of Transport upgrade and maintain the infrastructure in place in the preceding period as required.
2. Engage with the State Government (in particular, Department of Transport), to investigate options for storm surge protection at the Marina Entry Channel in conjunction with land-based protection (bund or levee) for the remainder of the Management Unit.
3. Potentially, in parallel with 2 above, a mechanical flushing system may be required to protect water quality in the Marina and canals.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection at the Marina Entry Channel and seawall and urban stormwater outlets will be required and is a recommendation of the CHRMAP.

Emergency management response

As above.

Note: If the seawall/bund and storm surge (coastal inundation hazard) protection has been constructed to a minimum height of 3.4m AHD, the management unit should not be vulnerable to coastal inundation events during this period.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

- Erosion Hazard — **PROTECT**
- Inundation Hazard — **PROTECT**

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

Key Issues

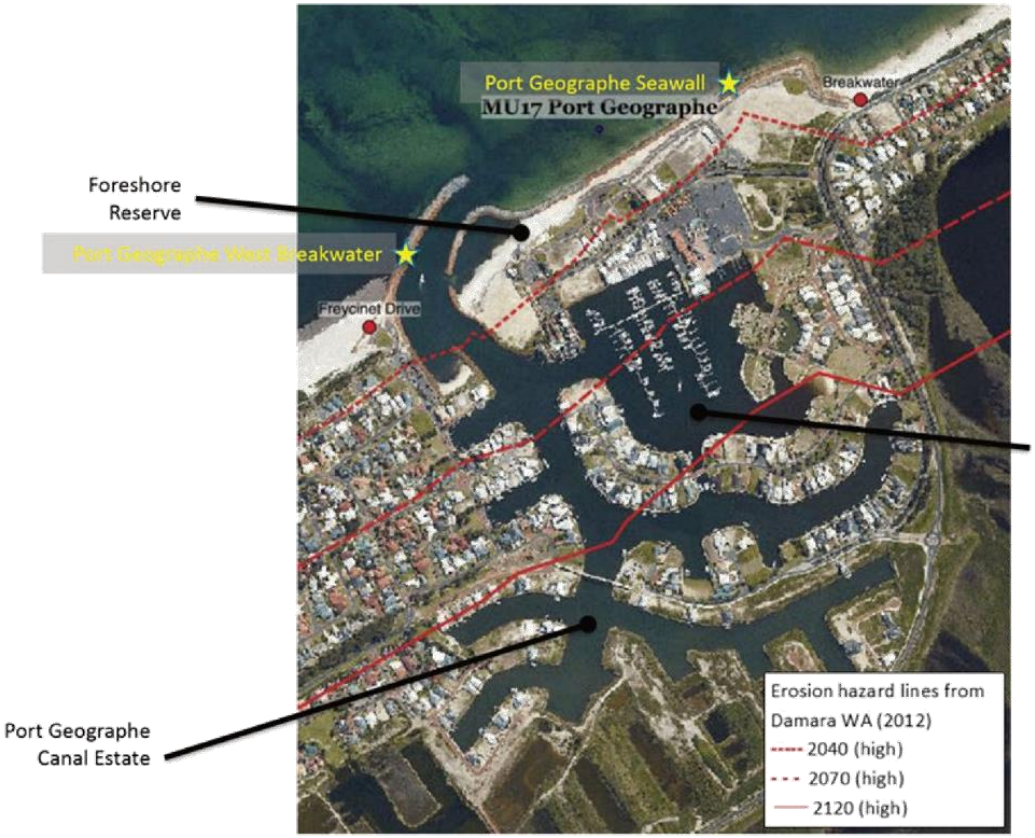
- Urban area vulnerable to coastal erosion and coastal inundation.

Key Rationale

- A minimum FFL of 3.0m AHD could accommodate the potential coastal inundation impact of a 1 in 500 year storm event resulting in a storm surge as high as 2.9m AHD in around 2040, given projected sea level rise by that time, and noting that movement towards an integrated inundation protection solution after that time is proposed.
- A minimum FFL of 3.0m AHD could be widely applied without resulting in houses needing to be built in some cases in excess of 1.5m above neighbouring houses or existing ground levels (but that would be required if minimum FFLs were set at 3.8m AHD, which might be required if an integrated inundation protection solution were not proposed). It is not practicable to lift existing development to 3.8m AHD, hence an integrated inundation protection solution is required.
- The City has been applying the requirement for 3.0m AHD FFL on sites directly adjoining the coast for around the last 20 years (on the basis of technical advice from the then Waters and Rivers Commission).

MU 17

Port Geographe*



MU 18 Wonnerup*

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0m AHD.
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0 AHD (or higher, if natural ground level is higher than 3.0 AHD).

Note: Inundation risk potentially extends much further inland than erosion risk and minimum FFLs will need to be set for land inland of the coastal erosion hazard lines proposed to be adopted for planning purposes in Recommendation 1 of the CHRMAP.

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure, buildings, and Vasse Estuary, construct a buried seawall/bund from a point somewhat to the north of the northern extent of the town site to the southern boundary of the management unit.
2. To protect the beach and beach amenity, supplement as necessary groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Wonnerup*

- Northwest-facing sandy beach and low lying coastal barrier backed by the Vasse-Wonnerup Estuary.
- Includes the mouth of the Wonnerup Inlet.
- Continuous public foreshore reserve.
- Coastal protection structures: Wonnerup groyne field (2004-2006), buried seawall and Baudin Reserve GSC groynes (2017).
- Flood protection structures: Vasse Estuary storm surge barrier.

* *Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT

P Inundation Hazard
PROTECT

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

1. Upgrade infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to a minimum height of 3.5 – 3.8m AHD.
2. Consider increasing the height of Layman Road, from a point just to the north of Vasse Estuary inlet channel to a point somewhat to the north of Tuart Drive to a minimum height of 3.8m AHD.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection at Layman Road and the Vasse Estuary Channel will be required and is a recommendation of the CHRMAP.

Emergency management response

As above.

Note: If the buried seawall/bund has been constructed to a minimum height of 3.8m AHD, the management unit should not be vulnerable to coastal inundation events during this period.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

P Erosion Hazard
PROTECT

P Inundation Hazard
PROTECT

Responses

Planning Response

As per '2040 - 2070'.

Infrastructure / coastal management response

As per '2040 - 2070'.

Emergency management response

As per '2040 - 2070'.

Financial response

As per '2040 - 2070'.

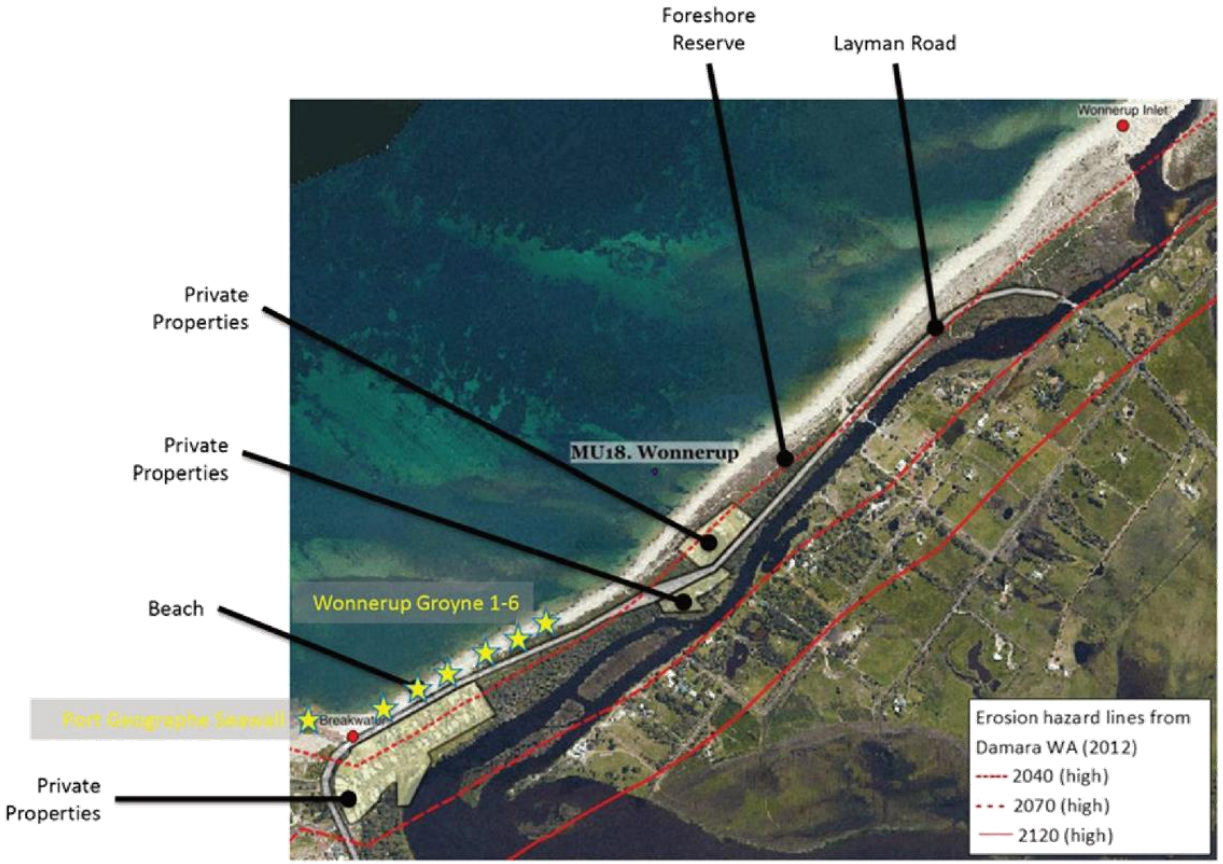
Key Issues

- Urban area vulnerable to coastal erosion and coastal inundation.

Key Rationale

- A minimum FFL of 3.0m AHD could accommodate the potential coastal inundation impact of a 1 in 500 year storm event resulting in a storm surge as high as 2.9m AHD in around 2040, given projected sea level rise by that time, and noting that movement towards an integrated inundation protection solution after that time is proposed.
- A minimum FFL of 3.0m AHD could be widely applied without resulting in houses needing to be built in some cases in excess of 1.5m above neighbouring houses or existing ground levels (but that would be required if minimum FFLs were set at 3.8m AHD, which might be required if an integrated inundation protection solution were not proposed). It is not practicable to lift existing development to 3.8m AHD, hence an integrated inundation protection solution is required.
- The City has been applying the requirement for 3.0m AHD FFL on sites directly adjoining the coast for around the last 20 years (on the basis of technical advice from the then Waters and Rivers Commission).

MU 18 **Wonnerup***



MU 19 Forrest Beach

Adaptation Pathway

Current - 2040

P Erosion Hazard **PROTECT**

A Inundation Hazard **ACCOMMODATE**

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than access, parking or landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. Establish minimum FFL for habitable floor space at 3.0m AHD (note: existing private property ground and floor levels are already above 3.0m AHD, with very limited exceptions).
4. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.0m AHD (or higher, if natural ground level is higher than 3.0m AHD).
5. Require development approval for all development.
6. Prohibit private coastal protection structures.
7. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
8. Do not support any subdivision or increases in permissible development density.

Note: Inundation risk potentially extends much further inland than erosion risk and minimum FFLs will need to be set for land inland of the coastal erosion hazard lines proposed to be adopted for planning purposes in Recommendation 1 of the CHRMAP.

Infrastructure / coastal management response

1. To protect the fore dune, infrastructure, buildings, and Wonnerup Estuary, construct a buried seawall/bund from a point somewhat to the east of the eastern end of the Deadwater to the eastern boundary of the management unit.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment.

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. Forrest Beach Road may also need to be closed to traffic.

Financial response

By 2030, consider applying a 2.0% higher differential rate to properties wholly or partly within the 2120 coastal erosion hazard line, and allocate that additional revenue to a 'Coastal Adaptation Reserve'.

Overview

Forrest Beach

- Northwest-facing sandy beach and coastal barrier backed by the Vasse-Wonnerup Estuary.
- Includes the Wonnerup Inlet, the 'Deadwater' wetland and a continuous public foreshore reserve.
- No current coastal protection structures.
- Flood protection structures: Wonnerup Estuary storm surge barrier.

** Denotes management units where there are existing coastal protection structures*



Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT Keep option of managed retreat possible post 2070

A Inundation Hazard
ACCOMMODATE

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including extending to the buried seawall progressively to the west.

Emergency management response

As per 'Current - 2040'.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

P Erosion Hazard
PROTECT Keep option of managed retreat possible post 2070

A Inundation Hazard
ACCOMMODATE

Responses

Planning Response

To be determined.

Infrastructure / coastal management response

To be determined.

Emergency management response

To be determined.

Financial response

To be determined.

Key Issues

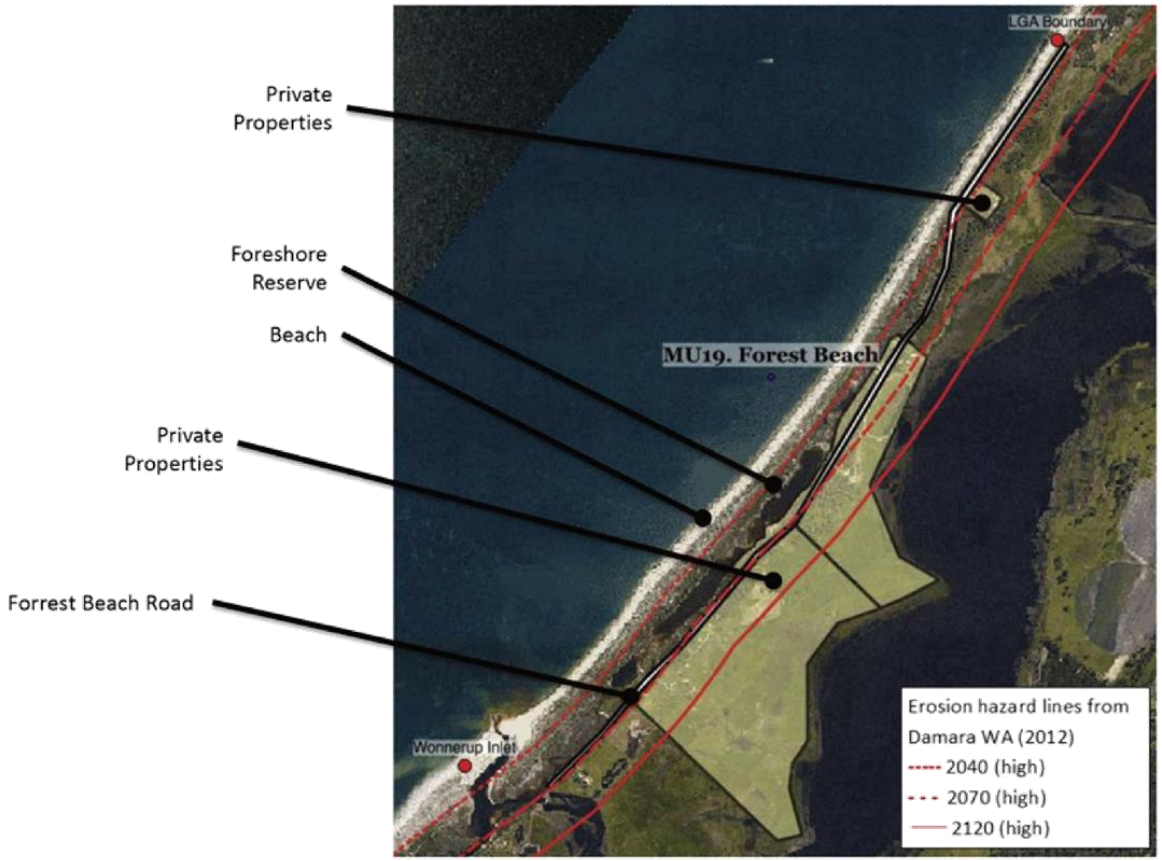
- Public foreshore reserve and Forrest Beach Road are vulnerable to coastal erosion.
- Inland flood risk linked to management of the Vasse-Wonnerup Estuary inlet.
- Environmental implications for the Vasse-Wonnerup Estuary transforming from a freshwater estuary to a saltwater inlet.

Key Rationale

- There is a substantial public foreshore reserve in this area which means that the costs of protection, especially in the short term, are much lower.
- There is a rationale for the community in general to meet some of the costs of protecting the coast as there is a foreshore reserve and beach that can be used by the community in general, as well as significant environmental values.

MU 19

Forrest Beach



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Glossary of Terms

'accretion' refers to shoreline movement where the shoreline shifts seaward increasing the width of a coastal foreshore reserve and/or the distance to a fixed feature on the adjoining land.

'coastal foreshore reserve' is 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, safety, biodiversity and ecosystem integrity, landscape, visual landscape, indigenous and cultural heritage.

'coastal hazard' means the consequence of coastal processes that affect the environment and safety of people. Potential coastal hazards include erosion, accretion and inundation.

'coastal processes' means any action of natural forces on the coastal environment.

'coastal zone' includes the areas of water and land that may be influenced by coastal processes.

'erosion' refers to shoreline movement where the shoreline shifts landward reducing the width of a coastal foreshore reserve and/or the distance to a fixed feature on the adjoining land.

'horizontal shoreline datum (HSD)' defines the active limit of the shoreline under storm activity. It is the line from which a physical processes allowance will be applied from.

'inundation' means the flow of water onto previously dry land. It may either be permanent (for example due to sea level rise) or a temporary occurrence during a storm event.

'sediment cell framework' means the hierarchy of sediment cells along the Western Australian coast between the Moore River and Cape Naturaliste. The hierarchy includes primary, secondary and tertiary sediment cells.

'sediment cell' means a length of shoreline in which interruptions to the movement of sediment along beaches or near shore sea bed do not significantly affect beaches in the adjacent lengths of coastline. Within a sediment cell the sediments sources, transport pathways and sinks should be clearly definable.

Appendices



Appendix A Management Unit Multiple Criteria Analysis Tables

MU 01 Smiths Beach

	Acceptability Criteria			Feasibility Criteria			Financial Criteria					
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1			
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.											
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue	Total Score	Weighted Total Score	
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option			
2040												
Avoid												fatal flaw
Managed Retreat	2	2	2	1	1	1	1	1	1	12	39	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	1	1	2	2	1	11	35	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	2	2	2	2	1	3	2	1	1	16	51	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	1	1	2	2	1	11	35	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	2	3	3	2	2	4	2	1	2	21	63	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	1	1	2	2	1	11	35	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 02 Yallingup

	Acceptability Criteria			Feasibility Criteria			Financial Criteria				
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1		
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.										
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue		
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	1	1	2	1	1	1	1	2	1	11	33	
Accommodate										0	0	fatal flaw
Protect	1	2	2	1	3	2	3	3	1	18	56	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	3	2	2	2	3	3	3	2	2	22	69	
Accommodate										0	0	fatal flaw
Protect	1	2	2	1	3	2	3	3	1	18	56	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	3	2	2	2	3	3	3	2	2	22	69	
Accommodate										0	0	fatal flaw
Protect	1	3	2	1	4	2	4	4	1	22	70	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 03 Bunker Bay

	Acceptability Criteria			Feasibility Criteria			Financial Criteria				
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1		
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.										
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue		
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	1	1	1	1	1	1	1	1	1	9	28	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	2	1	2	1	1	11	36	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	2	2	1	2	2	2	2	1	1	15	50	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	2	1	2	2	1	12	38	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	2	2	3	2	3	3	3	1	2	21	66	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	2	1	2	3	1	13	40	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 04 Eagle Bay

	Acceptability Criteria			Feasibility Criteria			Financial Criteria				
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1		
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.										
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue		
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	1	2	1	2	1	1	1	1	1	11	37	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	1	1	2	2	1	11	35	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	2	3	2	2	3	3	3	1	2	21	67	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	1	1	2	3	1	12	37	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	3	3	3	2	3	4	4	1	3	26	81	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	1	1	2	3	1	12	37	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 05 Old Dunsborough

	Acceptability Criteria			Feasibility Criteria			Financial Criteria					
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1			
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.											
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue			
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	2	3	1	4	3	3	2	1	1	20	68	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	1	1	2	2	1	11	35	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	3	4	2	4	4	4	3	1	2	27	89	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	2	1	2	3	1	13	40	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	3	4	4	4	4	1	3	31	102	
Accommodate										0	0	fatal flaw
Protect	1	1	2	2	2	1	3	4	1	17	55	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 06 Dunsborough Townsite

	Acceptability Criteria			Feasibility Criteria			Financial Criteria				
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1		
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.										
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue		
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	3	3	2	3	4	4	2	2	1	24	76	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	1	2	2	2	1	13	39	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	4	3	3	3	4	4	3	3	3	30	92	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	2	2	2	3	1	15	44	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	3	3	3	4	4	4	3	4	32	98	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	2	2	2	4	1	16	46	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 07 Quindalup

	Acceptability Criteria			Feasibility Criteria			Financial Criteria				
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1		
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.										
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue		
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	2	3	3	3	3	3	1	1	1	20	64	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	2	1	2	2	1	13	41	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	4	4	4	3	2	2	31	101	
Accommodate										0	0	fatal flaw
Protect	1	1	2	2	2	1	3	3	1	16	53	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	4	4	4	4	2	3	33	107	
Accommodate										0	0	fatal flaw
Protect	1	1	3	2	3	2	4	3	1	20	65	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 08 Marybrook

	Acceptability Criteria			Feasibility Criteria			Financial Criteria				
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1		
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.										
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue		
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	2	2	2	2	1	2	1	1	1	14	45	
Accommodate										0	0	fatal flaw
Protect	1	1	2	2	1	2	2	2	1	14	44	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	4	2	4	4	4	4	3	1	1	27	90	
Accommodate										0	0	fatal flaw
Protect	1	1	3	2	1	2	3	3	1	17	54	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	2	4	4	4	4	3	1	1	27	90	
Accommodate										0	0	fatal flaw
Protect	1	1	3	2	1	2	3	3	1	17	54	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 09 Siesta Park

	Acceptability Criteria			Feasibility Criteria			Financial Criteria				
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1		
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.										
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue		
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	4	2	2	2	2	2	3	1	1	19	66	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	3	2	2	2	1	15	45	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	2	4	4	4	1	1	28	93	
Accommodate										0	0	fatal flaw
Protect	1	1	3	1	3	2	2	3	1	17	50	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	2	4	4	4	1	1	28	93	
Accommodate										0	0	fatal flaw
Protect	1	1	3	2	3	3	3	3	1	20	61	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 10 Locke Estate

	Acceptability Criteria			Feasibility Criteria			Financial Criteria					
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1			
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.											
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue			
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	1	2	2	2	2	2	1	1	1	14	44	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	1	2	1	2	1	12	34	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	3	4	4	4	4	4	3	1	1	28	94	
Accommodate										0	0	fatal flaw
Protect	1	1	3	1	1	2	2	2	1	14	42	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	3	4	4	4	4	4	3	1	1	28	94	
Accommodate										0	0	fatal flaw
Protect	1	1	3	2	1	2	3	3	1	17	54	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 11 Abbey

	Acceptability Criteria			Feasibility Criteria			Financial Criteria					
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1			
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.											
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue			
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	3	4	3	3	4	4	2	2	1	26	83	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	1	2	1	2	1	12	34	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	3	4	4	4	4	2	4	33	105	
Accommodate										0	0	fatal flaw
Protect	1	1	3	1	1	2	2	3	1	15	44	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	4	4	4	4	2	4	34	108	
Accommodate										0	0	fatal flaw
Protect	1	1	3	1	1	2	3	3	1	16	49	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 12 Broadwater

	Acceptability Criteria			Feasibility Criteria			Financial Criteria					
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1			
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.											
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue			
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	2	2	2	2	2	2	1	1	1	15	48	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	1	2	2	1	1	12	37	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	3	4	4	4	4	4	3	2	3	31	98	
Accommodate										0	0	fatal flaw
Protect	1	1	3	1	1	2	3	2	1	15	47	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	3	4	4	4	4	2	4	33	105	
Accommodate										0	0	fatal flaw
Protect	1	1	3	1	1	2	3	3	1	16	49	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 13 Busselton West (A)

	Acceptability Criteria			Feasibility Criteria			Financial Criteria					
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1			
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.											
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue			
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	3	3	2	3	3	3	2	2	1	22	72	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	1	2	2	2	1	13	39	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	3	3	4	3	3	2	3	29	93	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	2	2	2	3	1	15	44	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	4	4	4	4	2	4	34	108	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	3	3	3	4	1	19	55	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 14 Busselton West (B)

	Acceptability Criteria			Feasibility Criteria			Financial Criteria					
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1			
1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.												
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue			
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	2	3	3	3	2	2	1	24	80	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	1	2	2	2	1	13	39	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	3	3	4	3	3	2	3	29	93	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	2	2	2	3	1	15	44	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	4	4	4	4	2	4	34	108	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	3	3	3	4	1	19	55	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 15 Busselton Central

	Acceptability Criteria			Feasibility Criteria			Financial Criteria				
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1		
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.										
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue		
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	3	4	4	3	2	2	30	96	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	1	2	1	2	1	12	34	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	4	4	4	4	2	3	33	107	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	2	2	2	3	1	15	44	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	4	4	4	4	2	4	34	108	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	3	3	3	4	1	19	55	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 16 Busselton East

	Acceptability Criteria			Feasibility Criteria			Financial Criteria					
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1			
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.											
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue			
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	3	3	2	2	3	3	2	1	1	20	65	
Accommodate										0	0	fatal flaw
Protect	1	1	1	1	1	2	2	1	1	11	34	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	4	3	2	3	4	4	4	2	3	29	92	
Accommodate										0	0	fatal flaw
Protect	1	1	2	1	1	2	3	2	1	14	44	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	3	4	4	4	4	4	2	4	33	104	
Accommodate										0	0	fatal flaw
Protect	1	1	3	1	1	2	3	3	1	16	49	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 17 Port Geographe

	Acceptability Criteria			Feasibility Criteria			Financial Criteria				
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1		
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.										
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue		
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	3	2	2	4	4	4	3	2	2	26	83	
Accommodate										0	0	fatal flaw
Protect	1	1	1	2	1	2	1	2	1	12	36	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	4	4	4	4	2	3	33	107	
Accommodate										0	0	fatal flaw
Protect	1	1	2	2	3	4	4	3	1	21	64	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	4	4	4	4	2	4	34	108	
Accommodate										0	0	fatal flaw
Protect	1	1	3	2	3	4	4	3	1	22	67	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 18 Wonnerup

	Acceptability Criteria			Feasibility Criteria			Financial Criteria				
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1		
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.										
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue		
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	3	3	2	3	3	3	3	1	2	23	76	
Accommodate										0	0	fatal flaw
Protect	1	1	2	2	1	2	2	2	1	14	44	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	4	4	4	3	1	3	31	100	
Accommodate										0	0	fatal flaw
Protect	1	1	2	2	1	3	3	2	1	16	50	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	4	4	4	4	4	4	3	2	3	32	102	
Accommodate										0	0	fatal flaw
Protect	1	1	3	2	1	4	4	3	1	20	61	

Appendix A Management Unit Multiple Criteria Analysis Tables

MU 19 Forrest Beach

	Acceptability Criteria			Feasibility Criteria			Financial Criteria					
Criteria weighting (1 – 5) *1 = least important* *5 = most important*	4	4	3	5	3	1	5	2	1			
	1. (is) – socially & environmentally acceptable, easily adaptable, long term effectiveness, low cost; 2. (may) - minor social & environment impacts, may be acceptable, partially adaptable, medium term effectiveness, acceptable cost; 3. (likely) – significant social & environmental impacts, difficult to adapt, limited or short term effectiveness, high cost; 4. (will) - unacceptable social & environmental impact, not adaptable, ineffective, cost prohibitive.											
Risk Management Option	Social Impact - Property & Infrastructure	Social Impact - Community use	Environmental Impact	Effectiveness in Risk Reduction	Practicability	Reversibility Adaptability	Cost Implementation	Ongoing Cost Maintenance	Ongoing Cost Lost Revenue			
	Social Impact (property & infrastructure) – loss or damage to private property or privately operated leasehold land, reticulated services, roads etc	Social Impact (community use) – ability to use a beach and foreshore/public recreational infrastructure (e.g. DUP)	Environmental Impact – possible damage or loss of the beach/foreshore, impact on coastal ecosystem (e.g. dune vegetation, seagrass, fauna habitat), wetlands, Aboriginal and European heritage	Effectiveness in risk reduction – how effective the option is at managing vulnerability and risk, how well tested the option is, how long the option may be effective	Practicability – can a risk management option actually be implemented (e.g. is it 'do-able'/workable/politically practicable?)	Reversibility / adaptability – can it be reversed or adapted	Cost (implementation) – cost to implement a specific risk management option (includes modifying/relocating/voluntary acquisition costs)	Ongoing cost (maintenance) – cost to keep maintaining a risk management option	Ongoing cost (lost revenue) – how much revenue (specifically rates) would be lost due to a risk management option	Total Score	Weighted Total Score	
2040												
Avoid										0	0	fatal flaw
Managed Retreat	2	1	2	1	2	1	2	1	1	13	43	
Accommodate										0	0	fatal flaw
Protect	1	1	2	2	2	1	3	2	1	15	51	
2070												
Avoid										0	0	fatal flaw
Managed Retreat	3	2	4	3	4	4	3	1	1	25	81	
Accommodate										0	0	fatal flaw
Protect	1	1	2	2	3	3	4	2	1	19	61	
2120												
Avoid										0	0	fatal flaw
Managed Retreat	3	2	4	3	4	4	3	1	1	25	81	
Accommodate										0	0	fatal flaw
Protect	1	1	2	2	3	4	4	2	1	20	62	



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Recommendations

The City of Busselton adopts the following recommendations to guide future coastal adaptation:

1. That the coastal erosion hazard lines shown on the maps for each of the identified Management Units in Recommendation 9 be adopted as a guide for future planning.

2. That the adaptation pathways for the identified Management Units are generally as set out in Recommendation 9.

3. That the City:

   a. Allocates, through a phased increase from 1% (as applies currently), a minimum of 2.0% of total rates revenue to the 'Coastal Adaptation Reserve', as set out in the City's current 10-year Long Term Financial Plan;

   b. Advocates and make application for State and/or Federal Government grants funding to support coastal adaptation measures and initiatives as these become available and necessary;

   c. Advocates at State and Federal Government level for the identification and implementation of a sustainable, equitable and efficient framework for the funding of coastal adaptation;

   d. Advocates at State Government level to identify and secure strategic sand supplies for beach nourishment, including a coordinated regional approach to the delivery of such supplies.

4. That the City undertake or support, subject to appropriate assistance from the State and/or Federal Government, the following associated but additional work:

   a. A cost-benefit and/or benefit distribution analysis and/or systemic financial and economic system risk analysis of the identified adaptation pathways.

   b. Coastal erosion modelling, following specific geotechnical investigations (possibly in partnership with landowners), for the following Management Units:

      i. Smiths Beach;

      ii. Yallingup;

      iii. Bunker Bay;

      iv. Eagle Bay; and

      v. Old Dunsborough.

   c. Given the identified pathways for coastal erosion hazard management in the CHRMAP, further coastal inundation hazard modelling including for both Geographe Bay and west coast settlements (Yallingup and Smiths Beach).

   d. Preliminary design and costings associated with storm surge events (coastal inundation hazard) protection at:

      i. Toby Inlet mouth.

      ii. The mouths of all agricultural drains.

      iii. The eastern bank of the Buayanyup River Drain.

      iv. Vasse Diversion Drain mouth and Vasse-Wonnerup Estuary storm surge barrier.

      v. Port Geographe Marina entry channel and seawall.

      vi. Vasse-Wonnerup Estuary Channel.

      vii. Layman Road, from a point just to the north of the Vasse-Wonnerup Estuary Channel to a point somewhat to the north of Tuart Drive.

      viii. Urban stormwater outlets.

5. That the City amends the Local Planning Strategy and town planning scheme, and develops local planning policy, as follows -

   a. Amend Theme 4, Strategies (f), (g) and (i) of the *Local Planning Strategy* to identify the adoption of the CHRMAP, and reflect at a high level the strategic direction set out in the CHRMAP;

   b. Extension of a modified Coastal Management Special Control Area or other suitable mechanism in the town planning scheme to –

      i. Establish a requirement for development approval for development that is not infill, but which would otherwise not require development approval;

      ii. Support the setting out of advice in local planning policy around –

         I. what types of development could be supported beyond the 'infill line';

         II. how to calculate/determine the location of the infill line; and

III. guidance relating to private coastal protection works, which may be supported, but which will generally not be supported where coordinated approaches to coastal protection are being implemented, unless they are consistent with those coordinated approaches; and

iii. Apply the Special Control Area or other suitable mechanism to coastal areas across the whole of the coast, to an area generally aligned with the seaward side of the 2123 coastal erosion hazard line.

c. Introduce controls on minimum FFLs for new development throughout the whole of the City through a suitable mechanism which would set out that –

i. Unless a higher minimum FFL is required elsewhere in the Scheme, or through the application of the BCA, the minimum FFL for new habitable floorspace is -

I. Generally 2.7m AHD; and

II. A reduction to 2.2m AHD may be considered, subject to –

- Development being additions or extensions;
- Electrical wiring and installations being placed at or above 3.4m AHD; and
- Structures being moisture proofed up to 3.4m AHD.

ii. Subject to resolution of detailed boundary and interface issues, in an area generally bound by Geographe Bay, Station Gully Drain, Caves Road, Quindalup Siding Road, Vasse-Yallingup Siding Road, the section of Bussell Highway between Vasse-Yallingup Siding Road and Caves Road, the section of Caves Road between Bussell Highway and Buayanyup Drain, and the section of Buayanyup Drain between Caves Road and Geographe Bay, and in an area bound by Geographe Bay, the Shire of Capel boundary, Ludlow North Road, Tuart Drive, the section of Layman Road between Tuart Drive and the Vasse Estuary Channel, and the Vasse Estuary Channel, unless a higher minimum FFL is required through the application of the BCA, the minimum FFL for new habitable floorspace is –

I. Generally 3.4m AHD; and

II. A reduction to 3.0m AHD may be considered, subject to –

- Development being additions or extensions;
- Electrical wiring and installations being placed at or above 3.4m AHD; and
- Structures being moisture proofed up to 3.4m AHD.

iii. For the purposes of assessing compliance with height, overlooking, overshadowing, building separation or setback controls, if Natural Ground Level is less than the generally applicable minimum FFL, NGL shall be assumed to be the generally applicable minimum FFL.

6. That the above recommendations are all incorporated into the City's:

a. *Community Strategic Plan*;

b. *Corporate Business Plan*;

c. *Long-Term Financial Plan*;

d. Rolling, ten-year *Coastal Management Programme*; and

e. *Local Emergency Management Arrangements.*

7. That the City provide an annual update to the community and other relevant stakeholders on progress towards implementation of the findings and recommendations of the CHRMAP.

8. That the CHRMAP is the subject of scheduled periodic review, at least once every ten years.

Management Unit	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU01 SMITHS BEACH West-facing sandy beach situated between rocky headlands extending south to the 2123 coastal erosion hazard line. Dunes within westernmost section of the foreshore reserve up to 10m AHD. Includes Gunyulgup Brook mouth. The continuous public foreshore reserve is currently unallocated Crown land and its northern end is contiguous with the Leeuwin-Naturaliste National Park. There are no current coastal protection structures.	Current - 2043	Erosion – Protect Inundation - Avoid	As per general recommendations.	1. To protect the beach, beach amenity, fore dune, infrastructure and buildings, maintain existing fore dune and beach as much as possible, and install coastal protection structures, such as seawalls or groynes, as necessary. 2. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Avoid	As per 'Current – 2043'	1. To protect the fore dune, infrastructure and buildings, construct a buried seawall from the western end of the beach to a point between the most eastward beach access path and Gunyulgup Brook. 2. To protect the beach and beach amenity, construct one or more groynes between the western end of the beach to a point between the most eastward beach access path and Gunyulgup Brook. Supplement the infrastructure described above with beach nourishment.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Avoid	As per '2043 – 2073'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU02 YALLINGUP Southern section of a west-facing sandy beach situated between a rocky headland and a rock platform extending to the 2123 coastal erosion hazard line. Continuous public foreshore reserve partly within the Leeuwin-Naturaliste National Park with the remainder vested in the City. There are no current coastal protection structures. Dunes within the foreshore reserve range from 5m AHD to 20m AHD.	Current - 2043	Erosion – Protect Inundation - Avoid	As per general recommendations.	1. To protect the fore dune, infrastructure and buildings, construct a buried seawall and/or bank stabilisation structure from a point just to the north of Yallingup Brook to a point between the Dawson Drive and Rabbits Hill beach access paths. 2. To protect the beach and beach amenity, construct one or more groynes from a point just to the north of Yallingup Brook to a point between the Dawson Drive and Rabbits Hill beach access paths. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Avoid	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Avoid	As per '2043 – 2073'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU03 BUNKER BAY North-facing sandy beach situated between rocky headlands extending to the 2123 coastal erosion hazard line. Dunes within the foreshore reserve range from 5m AHD to 10m AHD. Limited public foreshore reserve and facilities. Flows from Lake Jingi breach the dune barrier and discharge into the ocean. There are no current coastal protection structures.	Current - 2043	Erosion – Protect Inundation - Avoid	1. As per general recommendations. 2. As a condition of approval of any development or subdivision of what is currently Lots 50 and 203 require, on the southern side of the vegetated dunes, a public foreshore reserve, configured such that the western section is approximately 1.5ha and able to be developed for a car park and facilities similar to those at Meelup Beach.	To protect the beach, beach amenity, fore dune, infrastructure and buildings, maintain existing fore dune and beach as much as possible, without installing coastal protection structures, such as seawalls or groynes.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. *Note: Management unit should not be vulnerable to coastal inundation events during this period.*	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Avoid	As per 'Current – 2043'	1. To protect the fore dune, infrastructure and buildings, construct a buried seawall from the northern end of the beach to a point to the east of the eastern end of Lake Jingi, with a gap to allow continued water flow from Lake Jingi into the ocean. 2. To protect the beach and beach amenity, construct one or more groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Avoid	As per '2043 – 2073'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU04 EAGLE BAY Northwest-facing sandy beach with a series of rock platforms and outcrops extending to the 2123 coastal erosion hazard line. Includes the Jingarmup Brook outlet. Continuous public foreshore reserve contiguous with Meelup Regional Park. There are no current coastal protection structures.	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, infrastructure and buildings, construct a buried seawall from a point somewhat to the north of the northern extent of the town site to a point somewhat to the south-east of the south-eastern extent of the town site, with a gap to allow continued water flow from Jingarmup Brook into the ocean. 2. To protect the beach and beach amenity, construct one or more groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. *Note: Management unit should not be vulnerable to coastal inundation events during this period.*	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Accommodate	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Accommodate	As per '2043 – 2073'	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU05 OLD DUNSBOROUGH East-facing mixed sandy/rocky coastline, including Point Daking and Point Dalling, with rock platforms outcrops extending to the 2123 coastal erosion hazard line. Continuous public foreshore reserve but often very narrow. There are no current coastal protection structures. The foreshore reserve lies generally at 5.0m AHD, with some sections lower.	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, infrastructure and buildings, construct a seawall from a point somewhat to the north of the northern extent of the town site to the southern boundary of the management unit, other than where natural rock formations already provide protection. 2. To protect the beach and beach amenity, construct one or more groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Accommodate	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Accommodate	As per '2043 – 2073'	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit **Denotes management units where there are existing coastal protection structures*	**Timeframe**	**Adaptation Pathway**	**Planning Response**	**Infrastructure/coastal management response**	**Emergency management response**	**Foreshore management/use response**
MU06 DUNSBOROUGH TOWNSITE* Northeast- facing sandy beach in the lee of a rocky headland extending to the 2123 coastal erosion hazard line. Includes the Dunn Bay Bar, the mouths of the Dandatup and Dugalup Brooks. The foreshore reserve generally lies below 5.0m AHD. Continuous public foreshore reserve (including vegetation and habitat). Coastal protection structures: buried geotextile sand container (GSC) seawall installed in 2012.	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, infrastructure and buildings, construct a buried seawall/bund from a point somewhat to the north of the northern extent of the town site to the southern boundary of the management unit. 2. To protect the beach and beach amenity, maintain, upgrade and supplement as necessary the existing groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Protect	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to an approximate height of 3.5 -4.0m AHD.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Protect	As per '2043 – 2073'	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit **Denotes management units where there are existing coastal protection structures*	**Timeframe**	**Adaptation Pathway**	**Planning Response**	**Infrastructure/coastal management response**	**Emergency management response**	**Foreshore management/use response**
MU07 QUINDALUP* Northeast- facing sandy beach that includes the point of land fall for the Dunn Bay Bar and Station Gully Drain outlet, extending to the 2123 coastal erosion hazard line. Continuous public foreshore reserve (with significant vegetation & habitat values). Toby Inlet runs generally parallel to the coast and discharges into the ocean west of Station Gully Drain. Coastal protection structures: stone revetment (1973), timber groynes (1982) and Quindalup Sea Rescue trial groyne (2013).	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, infrastructure and buildings, construct a buried seawall/bund from the western boundary of the management unit to a point somewhat to the east of the existing cycle/pedestrian bridge across Toby Inlet. 2. To protect the beach and beach amenity, construct one or more groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Protect	As per 'Current – 2043'	1. Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to an approximate height of 3.5 - 4.0m AHD. 2. Increase the level of the fore dune from a point to the east of the existing cycle/pedestrian bridge across Toby Inlet to a point somewhat to the east to an approximate height of 3.5 – 4.0m AHD, construct a storm surge barrier across Toby Inlet at that point, and elevate portion of Caves Road to that height, to prevent storm surge events affecting property in the management unit.	Establish emergency management plans and protocols will be necessary to ensure that the elevated fore dune to the east of the eastward limit of the buried seawall/bund is sufficiently robust, and Caves Road may also need to be closed to traffic.	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Protect	As per '2043 – 2073'	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU08(A) MARYBROOK WEST To the north of Caves Road, contains land from Station Gully Drain east as far as the western boundary of Lot 66 Caves Road, Marybrook. To the south of Caves Road, contains all land from Station Gully Drain east to the Lennox River Drain, extending south to the 2123 coastal erosion hazard line. *(MU also includes the Marybrook Drain outlet)*	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	To protect the beach, fore dune, beach amenity, foreshore reserve, infrastructure and buildings – 1. Construct one or more groynes along the beach; 2. Construct a buried seawall/bund/levee or reinforced fore dune; and 3. Supplement the infrastructure described above with beach nourishment as necessary.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below the projected maximum potential water level for an expected storm surge event. Caves Road may also need to be closed to traffic.	Consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Accommodate	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period as required.
	2073 - 2123	Erosion – Protect Inundation - Accommodate	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU08(B) MARYBROOK/SIESTA PARK CENTRAL To the north of Caves Road only, from the western boundary of Lot 66 Caves Road, Marybrook to the western boundary of the Siesta Park Holiday Resort. *(MU contains the Lennox River Drain outlet)*	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. Subject to resolution of land tenure and access issues, implement an integrated erosion protection strategy to protect properties from coastal erosion hazard, with works funded and costs apportioned between State/Federal Government, City of Busselton ratepayers as a whole and direct contributions from landowners. 2. Protect beach, buildings and foreshore through an integrated approach using a combination of groynes, beach nourishment and seawall, subject to detailed design, costings, further consultation and land access agreements where necessary. 3. Engage with the State Government (in particular, Water Corporation) to address and resolve erosion issues relating to management of the Lennox River Drain outlet.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. Caves Road may also need to be closed to traffic.	Foreshore reserve insufficient to accommodate significant community infrastructure.
	2043 - 2073	Erosion – Protect Inundation - Accommodate	As per 'Current – 2043'	1. Upgrade and maintain infrastructure constructed in the preceding period as required. 2. Approach to funding infrastructure development and maintenance to be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.	As per 'Current – 2043'	As per 'Current – 2043'
	2073 - 2123	Erosion – Protect Inundation - Accommodate	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU09(A) SIESTA PARK HOLIDAY RESORT North of Caves Road only, consists of Lot 106 (No. 367) and Lot 105 (No. 388) Caves Road, Siesta Park.	Current - 2043	Erosion – Protect Inundation - Accommodate	1. As per general recommendations. 2. By 31 December 2023, a development application shall be lodged by the landowners seeking approval for an integrated coastal adaptation strategy for the management unit, identifying – • Designs, specifications and schedule of actions necessary to protect existing development on the properties from projected potential coastal erosion for a period of at least 20 years, whilst maintaining a continuous beach and foreshore reserve for the full width of the properties, and identifying, considering and mitigating potential impacts on other sections of the coast; • The strategy may include proposals for maintenance or upgrade of existing coastal protection structures, development and maintenance of new coastal protection structures, including groynes or seawalls, actions to reinforce the fore dune and/or beach nourishment; • If the strategy does not propose the protection of all development, it shall identify how and when development may be relocated or demolished prior to it being affected by coastal erosion; • The strategy shall identify that a review shall take place no later than 10 years after approval of the development application – that requirement would likely be reflected in a condition of development approval; and	To be determined through process described in Planning Response Recommendation 4.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. Caves Road may also need to be closed to traffic.	Foreshore reserve insufficient to accommodate significant community infrastructure.

			• Lodgement of the application shall be preceded by the City obtaining power to licence over the foreshore reserve, within which some works may need to be undertaken, and a licence agreement with the landowner will be required to undertake and maintain any works within the foreshore reserve.			
	2043 - 2073	Erosion – Protect Inundation - Accommodate	1. As per 'Current – 2043' for Recommendations 1-3. 2. Approach to coastal adaptation to address coastal erosion risk to be considered as part of review process identified in Recommendation 4.	Upgrade and maintain infrastructure constructed in the preceding period as required.	As per 'Current – 2043'	As per 'Current – 2043'
	2073 - 2123	Erosion – Protect Inundation - Accommodate	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU09(B) SIESTA PARK EAST To the north of Caves Road, contains land from the eastern boundary of the Siesta Park Holiday Resort east to Locke Swamp Drain. To the south of Caves Road, contains all land from Lennox River Drain east to Locke Swamp Drain, extending south to the 2123 coastal erosion hazard line.	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	To protect the beach, fore dune, beach amenity, foreshore reserve, infrastructure and buildings – 1. Construct one or more groynes along the beach; 2. Construct a buried seawall/bund/levee or reinforced fore dune; and 3. Supplement the infrastructure described above with beach nourishment as necessary.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below the projected maximum potential water level for an expected storm surge event. Caves Road may also need to be closed to traffic.	Consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Accommodate	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period as required.
	2073 - 2123	Erosion – Protect Inundation - Accommodate	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit **Denotes management units where there are existing coastal protection structures*	**Timeframe**	**Adaptation Pathway**	**Planning Response**	**Infrastructure/coastal management response**	**Emergency management response**	**Foreshore management/use response**
MU10 LOCKE ESTATE* *(Note: There is no privately owned land in this management unit)* North-facing sandy beach backed by camp lease sites and, further inland, the Locke Nature Reserve, and extending south to the 2123 coastal erosion hazard line. Includes the Locke Swamp and Buayanyup River Drain outlets. Coastal protection structures: Buayanyup River Drain training wall (1985), groyne field (1988-1992 & 2014/15), Locke Estate seawall (1985-1992/2014).	Current - 2043	Erosion – Protect, keep option of managed retreat possible post 2073. Inundation - Accommodate	1. As per general recommendations. 2. Continue to offer leasehold tenure consistent with the reserve purpose and granting of the land to the Crown for periods no greater than 21 years.	1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Locke Swamp Drain to the Buayanyup River Drain. 2. To protect the beach and beach amenity, maintain and upgrade as necessary the existing groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. Caves Road may also need to be closed to traffic.	Foreshore reserve insufficient to accommodate significant community infrastructure
	2043 - 2073	Erosion – Protect, keep option of managed retreat possible post 2073. Inundation - Accommodate	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.	As per 'Current – 2043'	As per 'Current – 2043'
	2073 - 2123	To be determined.	To be determined.	To be determined.	To be determined.	To be determined.

Management Unit *Denotes management units where there are existing coastal protection structures*	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU11 ABBEY* Buayanyup River Drain outlet to the Holgate Road groyne, extending south to the 2123 coastal erosion hazard line. North-facing sandy beach with a continuous, narrow public foreshore reserve (including vegetation and habitat). Coastal protection structures: boat ramp headland (1978, refurbished 2011 & 2013), groyne field (1990s, 2011 & 2012/13), Abbey West groyne (2012/13).	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, infrastructure and buildings, construct a buried seawall/bund/levee or reinforced fore dune from the Buayanyup River Drain to the eastern boundary of the management unit. 2. To protect the beach and beach amenity, construct one or more groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Protect	As per 'Current – 2043'	1. Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund/levee or reinforced fore dune to an approximate height of 3.5 – 4.0m AHD. 2. Beyond 2043, integrated flood protection through the seawall/bund/levee or reinforced fore dune is to be continuous. 3. Engage with the State Government (in particular, Water Corporation), to advocate for the upgrade of the eastern bank of the Buayanyup River Drain to to an approximate height of 3.5 – 4.0m AHD, and to be structurally capable of protecting land to the east from a major storm (coastal inundation hazard) event.	As per 'Current – 2043' *Note: If the buried seawall/bund and eastern bank of the Buayanyup River Drain has been constructed to a minimum height of 3.4m AHD, the management unit should not be vulnerable to coastal inundation events during this period.*	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Protect	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit *Denotes management units where there are existing coastal protection structures*	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU12 BROADWATER* North-facing sandy beach with a wide continuous public foreshore reserve (including vegetation and habitat) extending south to the 2123 coastal erosion hazard line. Landfall for the Abbey sand bar. Coastal protection structures: two trial groynes (2011).	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, significant remnant vegetation, infrastructure and buildings, construct a buried seawall/bund from the western to the eastern boundary of the management unit. 2. To protect the beach and beach amenity, construct one or more groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Protect	As per 'Current – 2043'	Upgrade infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to an approximate height of 3.5 – 4.0m AHD.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Protect	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit *Denotes management units where there are existing coastal protection structures*	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU13 BUSSELTON WEST(A) North-facing sandy beach with a narrow continuous public foreshore reserve extending south to the 2123 coastal erosion hazard line. Includes the Vasse Diversion Drain outlet. Coastal protection structures: seawalls (1970s), groynes (1990-1995 & 2016) and Vasse River Diversion Drain outlet training wall (1983).	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, infrastructure and buildings, construct a buried seawall/bund from the western boundary of the management unit to the Vasse Diversion Drain. 2. To protect the beach and beach amenity, construct one or more groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Protect	As per 'Current – 2043'	1. Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to an approximate height of 3.5 – 4.0m AHD. 2. Engage with the State Government (in particular, Water Corporation), to ensure that Water Corporation constructs a storm surge barrier at the mouth of the Vasse Diversion Drain.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Protect	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit *Denotes management units where there are existing coastal protection structures*	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU14 BUSSELTON WEST(B) Northwest-facing sandy beach with a generally narrow, continuous public foreshore reserve, extending south to the 2123 coastal erosion hazard line. Includes the Vasse Diversion Drain outlet. Coastal protection structures: King Street carpark buried geotextile sand container seawall (2013).	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, infrastructure and buildings, construct a buried seawall/bund from the Vasse Diversion Drain to the eastern boundary of the management unit. 2. To protect the beach and beach amenity, construct one or more groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Protect	As per 'Current – 2043'	1. Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to an approximate height of 3.5 – 4.0m AHD. 2. Engage with the State Government (in particular, Water Corporation), to ensure that Water Corporation constructs a storm surge barrier at the mouth of the Vasse Diversion Drain.	As per 'Current – 2043' *Note: If the buried seawall/bund and Vasse Diversion Drain storm surge barrier has been constructed to a minimum height of 3.5 – 3.8m AHD, the management unit should not be vulnerable to coastal inundation events during this period.*	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Protect	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

Management Unit **Denotes management units where there are existing coastal protection structures*	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU15 BUSSELTON CENTRAL* Northwest-facing sandy beach with a continuous public foreshore reserve that widens to the east extending south to the 2123 coastal erosion hazard line. Includes the Busselton Foreshore Precinct and significant heritage assets. Coastal protection structures: Busselton Jetty GSC groynes (2008), seawalls (refurbished 2011, 2015 & 2017), Scout Road groynes (2013).	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, infrastructure and buildings, extend and maintain the existing buried seawall/bund for the full length of the management unit. 2. To protect the beach and beach amenity, supplement as necessary groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Protect	As per 'Current – 2043'	1. Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to an approximate height of 3.5 – 4.0m AHD.	As per 'Current – 2043' *Note: If the buried seawall/bund has been constructed to a minimum height of 3.5 – 3.8m AHD, the management unit should not be vulnerable to coastal inundation events during this period.*	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Protect	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

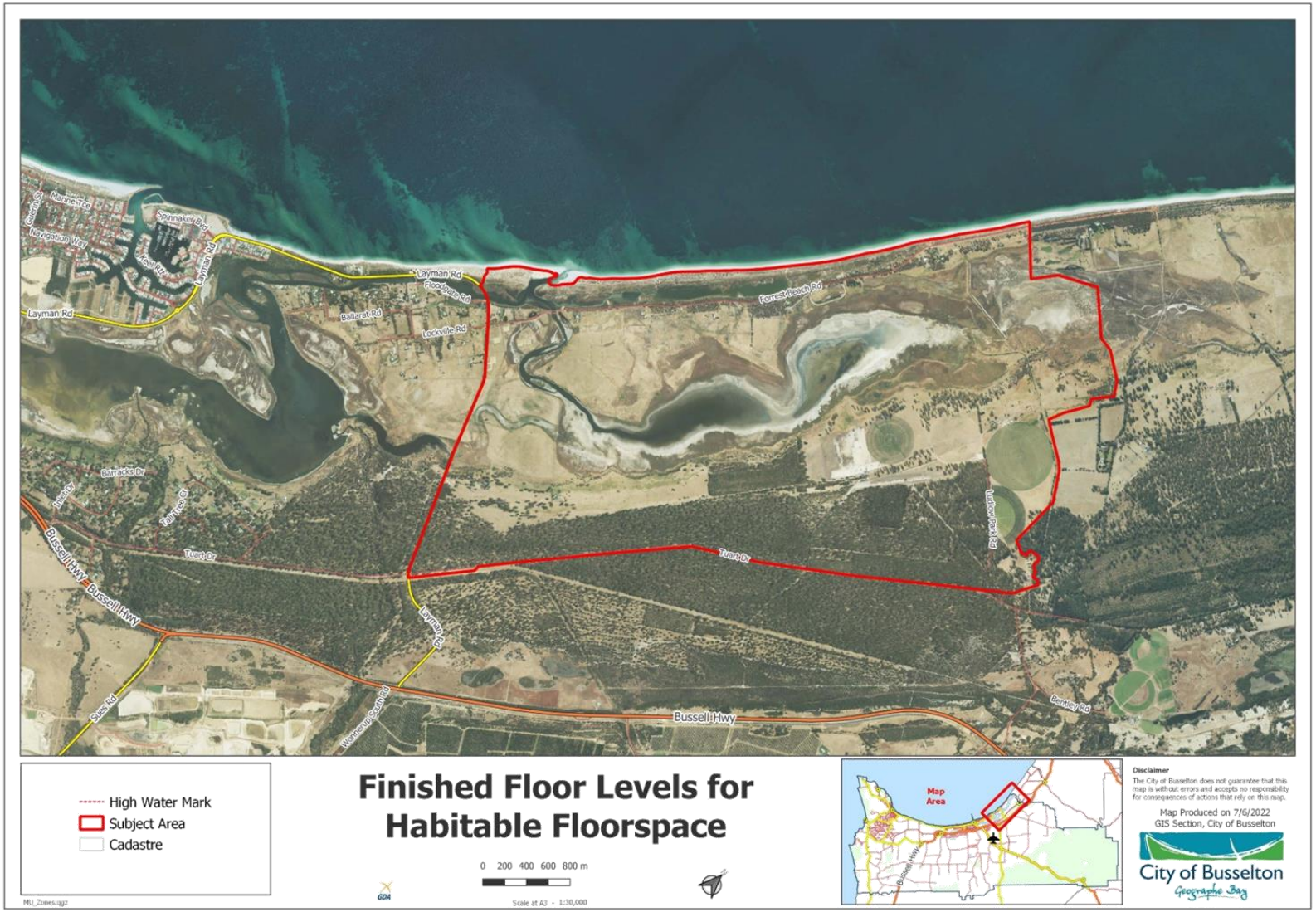
Management Unit	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU16 BUSSELTON EAST Northwest-facing sandy beach with a continuous public foreshore reserve, extending to the 2123 coastal erosion hazard line. Land fall for the Busselton Jetty sand bar. No current coastal protection structures.	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, infrastructure and buildings, extend and maintain the existing buried seawall/bund for the full length of the management unit. 2. To protect the beach and beach amenity, supplement as necessary groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Protect	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to an approximate height of 3.5 – 4.0m AHD.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Protect	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

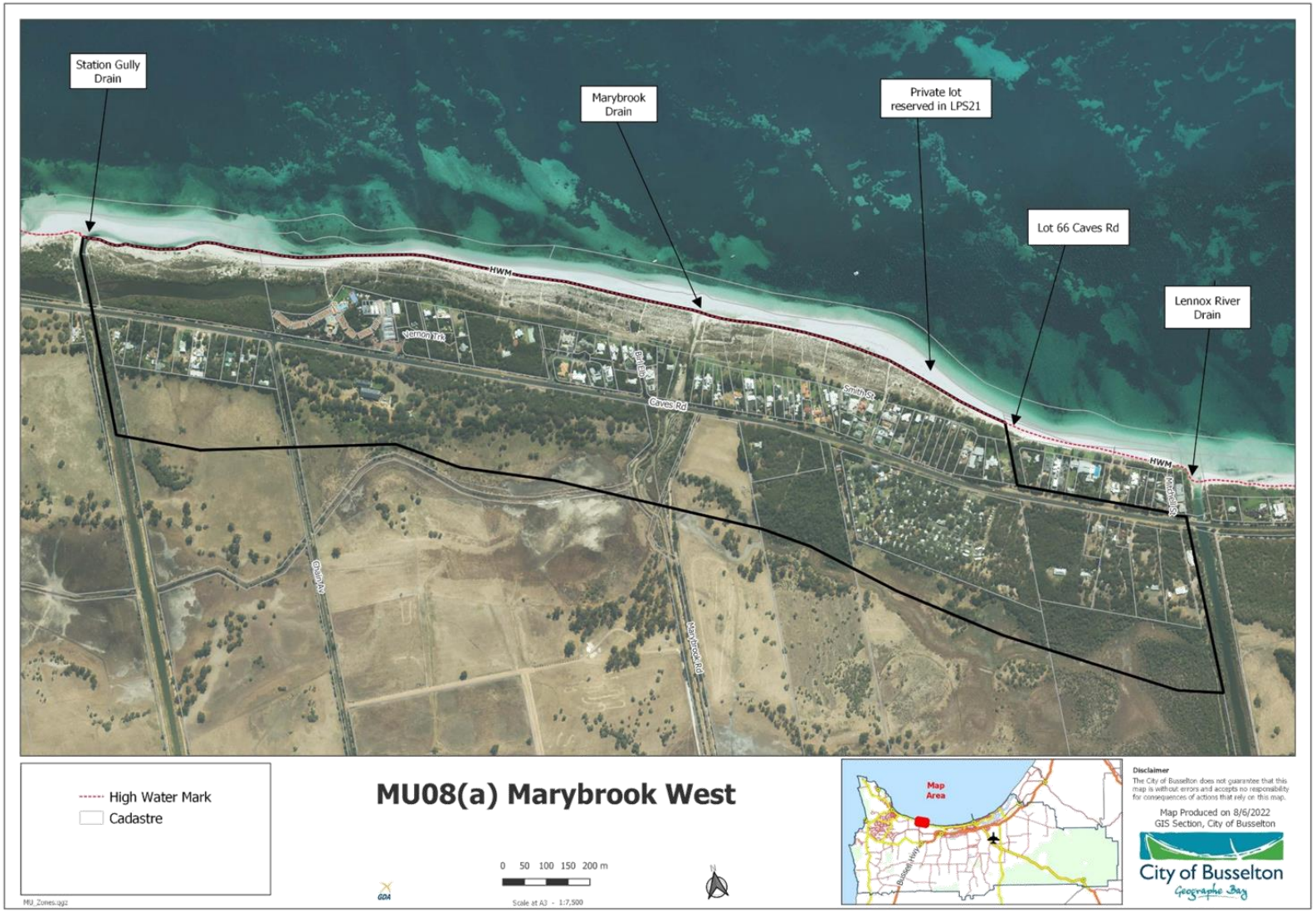
Management Unit *Denotes management units where there are existing coastal protection structures*	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU17 PORT GEOGRAPHE* Port Geographe Marina and canal development, extending to the 2123 coastal erosion hazard line. Public foreshore reserve from the inner marina entry wall extending along the seawall. Coastal protection structures: Port Geographe seawall and west breakwater.	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect infrastructure and buildings, engage with the State Government (in particular, Department of Transport), to ensure that the Department of Transport maintains the existing seawall/bund. 2. To protect the beach and beach amenity, construct one or more groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Protect	As per 'Current – 2043'	1. Engage with the State Government (in particular, Department of Transport), to ensure that the Department of Transport upgrade and maintain the infrastructure in place in the preceding period as required. 2. Engage with the State Government (in particular, Department of Transport), to investigate options for storm surge protection at the Marina Entry Channel in conjunction with land-based protection (bund or levee) for the remainder of the Management Unit. 3. Potentially, in parallel with 2 above, a mechanical flushing system may be required to protect water quality in the Marina and canals.	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Protect	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

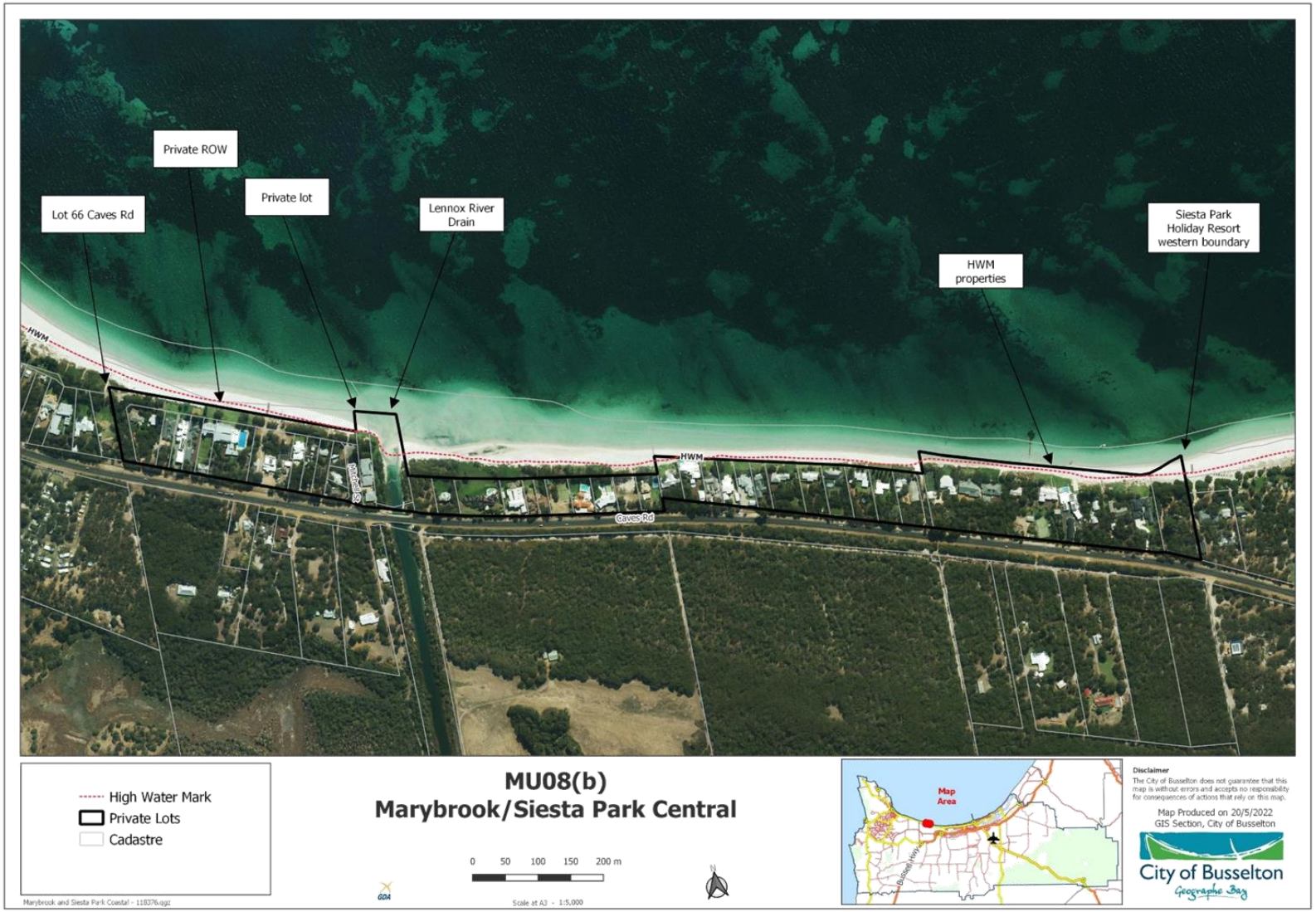
Management Unit **Denotes management units where there are existing coastal protection structures*	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU18 WONNERUP* Northwest-facing sandy beach and low lying coastal barrier backed by the Vasse-Wonnerup Estuary. Includes the mouth of the Wonnerup Inlet and extends to the 2123 coastal erosion hazard line. Continuous public foreshore reserve. Coastal protection structures: Wonnerup groyne field (2004-2006), buried seawall and Baudin Reserve GSC groynes (2017). Flood protection structures: Vasse Estuary storm surge barrier.	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, infrastructure, buildings, and Vasse Estuary, construct a buried seawall/bund from a point somewhat to the north of the northern extent of the town site to the southern boundary of the management unit. 2. To protect the beach and beach amenity, supplement as necessary groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Continue to support and consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Protect	As per 'Current – 2043'	1. Upgrade infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including increasing the height of the buried seawall/bund to an approximate height of 3.5 – 4.0m AHD. 2. Consider increasing the height of Layman Road, from a point just to the north of Vasse Estuary inlet channel to a point somewhat to the north of Tuart Drive to an approximate height of 3.5 – 4.0m AHD.	As per 'Current – 2043' *Note: If the seawall/bund and storm surge (coastal inundation hazard) protection has been constructed to a minimum height of 3.4m AHD, the management unit should not be vulnerable to coastal inundation events during this period.*	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Protect	As per '2043 – 2073'	As per '2043 - 2073'	As per '2043 - 2073'	As per '2043 - 2073'

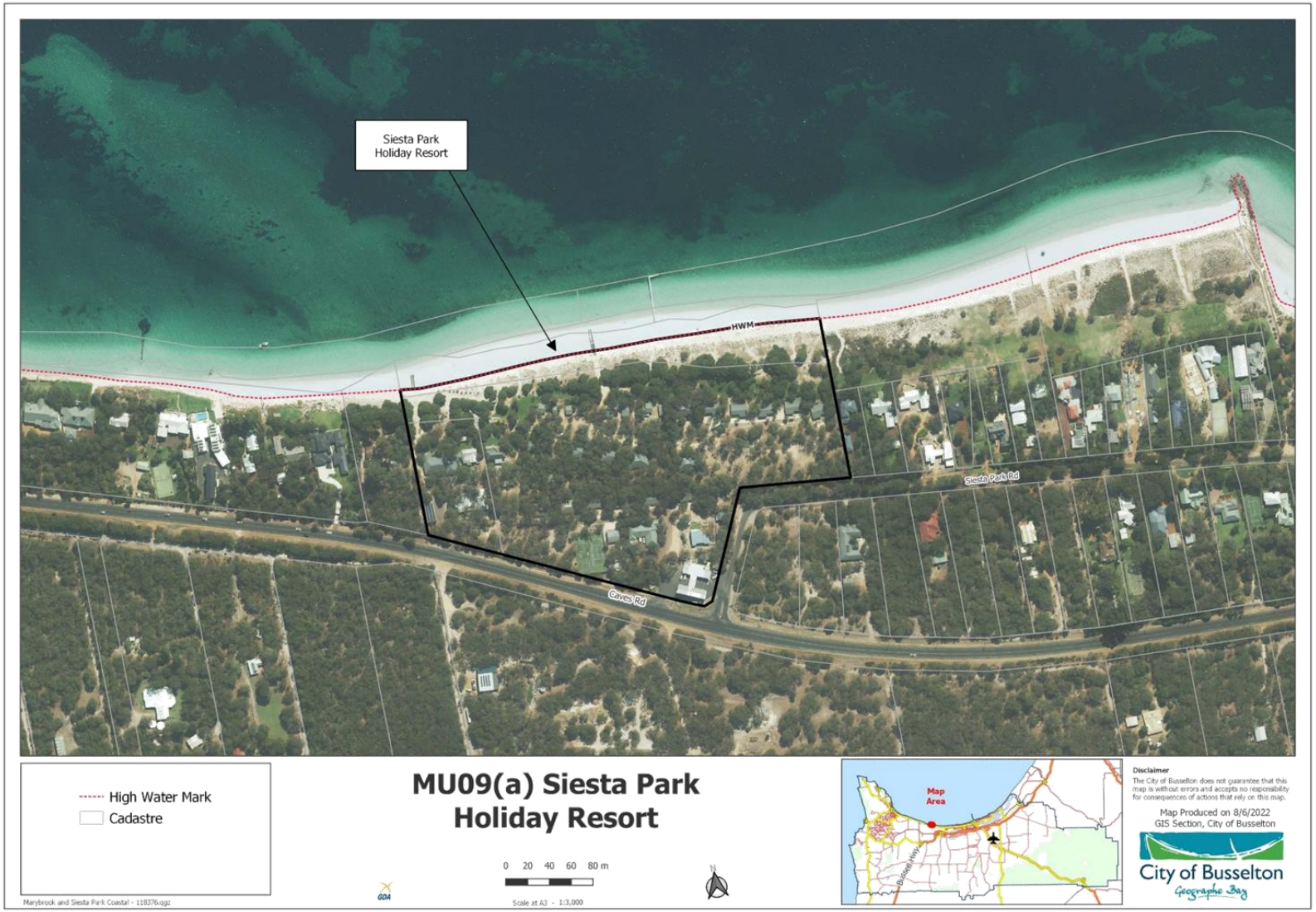
Management Unit	Timeframe	Adaptation Pathway	Planning Response	Infrastructure/coastal management response	Emergency management response	Foreshore management/use response
MU19 FORREST BEACH Northwest-facing sandy beach and coastal barrier backed by the Vasse-Wonnerup Estuary. Includes the Wonnerup Inlet, the 'Deadwater' wetland and a continuous public foreshore reserve and extends to the 2123 coastal erosion hazard line. No current coastal protection structures. Flood protection structures: Wonnerup Estuary storm surge barrier.	Current - 2043	Erosion – Protect Inundation - Accommodate	As per general recommendations.	1. To protect the fore dune, infrastructure, buildings, and Wonnerup Estuary, construct a buried seawall/bund from a point somewhat to the east of the eastern end of the Deadwater to the eastern boundary of the management unit. 2. To protect the beach and beach amenity, construct one or more groynes along the beach. 3. Supplement the infrastructure described above with beach nourishment.	Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event.	Consider accommodating new community infrastructure within the foreshore reserve.
	2043 - 2073	Erosion – Protect Inundation - Accommodate	As per 'Current – 2043'	Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment, including extending to the buried seawall progressively to the west.	As per 'Current – 2043' *Note: If the seawall/bund and storm surge (coastal inundation hazard) protection has been constructed to a minimum height of 3.4m AHD, the management unit should not be vulnerable to coastal inundation events during this period.*	Upgrade and maintain infrastructure constructed in the preceding period.
	2073 - 2123	Erosion – Protect Inundation - Accommodate	To be determined.	To be determined.	To be determined.	To be determined.


Geographe Bay Rd
Mewett Rd
Quindalup Siding Rd
Pearce Rd
Vasse-Yallingup Siding Rd
Annebrook Rd
Markey Rd
Caves Rd
Siesta Park Rd
John St
Averill St
Dawson Av
Bussell Hwy
Busselton Bypa
Gibbs Rd
Marybrook Rd
Gibbs Cct
Harbeck Dr
Napoleon Prom
Ostler Dr
Albrey St
Northerly St
Heritage Dr
Commerce Rd
Map Area
High Water Mark
Subject Area
Cadastre
Finished Floor Levels for Habitable Floorspace
0 200 400 600 800 m
Scale at A3 - 1:28,000
Disclaimer
The City of Busselton does not guarantee that this map is without errors and accepts no responsibility for consequences of actions that rely on this map.
Map Produced on 8/6/2022
GIS Section, City of Busselton
City of Busselton
Geographe Bay


Finished Floor Levels for Habitable Floorspace
High Water Mark
Subject Area
Cadastre
0 200 400 600 800 m
Scale at A3 - 1:30,000
Map Area
Disclaimer
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Map Produced on 7/6/2022
GIS Section, City of Busselton
City of Busselton
Geographe Bay
Layman Rd
Ballarat Rd
Lockville Rd
Forrest Beach Rd
Tuart Dr
Bussell Hwy
Barracks Dr
Sues Rd
Womenorup South Rd
Bentley Rd
Ludlow Park Rd
Spinnaker Dr
Navigation Way


Station Gully Drain
Marybrook Drain
Private lot reserved in LPS21
Lot 66 Caves Rd
Lennox River Drain
HWM
Caves Rd
Smith St
Marybrook Rd
High Water Mark
Cadastre
MU08(a) Marybrook West
0 50 100 150 200 m
Scale at A3 - 1:7,500
Map Area
Disclaimer
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Map Produced on 8/6/2022
GIS Section, City of Busselton
City of Busselton
Geographe Bay


Private ROW
Private lot
Lot 66 Caves Rd
Lennox River Drain
HWM properties
Siesta Park Holiday Resort western boundary
HWM
HWM
Caves Rd
Riddell St
High Water Mark
Private Lots
Cadastre
MU08(b)
Marybrook/Siesta Park Central
0 50 100 150 200 m
Scale at A3 - 1:5,000
Marybrook and Siesta Park Coastal - 118376.qgz
Map Area
Disclaimer
The City of Busselton does not guarantee that this map is without errors and accepts no responsibility for consequences of actions that rely on this map.
Map Produced on 20/5/2022
GIS Section, City of Busselton
City of Busselton
Geographe Bay


Siesta Park
Holiday Resort
HWM
Siesta Park Rd
Caves Rd
High Water Mark
Cadastre
MU09(a) Siesta Park
Holiday Resort
0 20 40 60 80 m
Scale at A3 - 1:3,000
Marybrook and Siesta Park Coastal - 118376.qgz
Map
Area
Bussell Hwy
Disclaimer
The City of Busselton does not guarantee that this map is without errors and accepts no responsibility for consequences of actions that rely on this map.
Map Produced on 8/6/2022
GIS Section, City of Busselton
City of Busselton
Geographe Bay


Lennox River Drain
Siesta Park Holiday Resort eastern boundary
Private lot
Siesta Park Groyne
Lock Swamp Drain
HWM
Siesta Park Rd
Caves Rd
High Water Mark
Cadastre
MU09(b) Siesta Park East
0 50 100 150 200 m
Scale at A3 - 1:7,000
Map Area
Disclaimer
The City of Busselton does not guarantee that this map is without errors and accepts no responsibility for consequences of actions that rely on this map.
Map Produced on 8/6/2022
GIS Section, City of Busselton
City of Busselton
Geographe Bay

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan

SUBMISSIONS CLOSE: 28th September 2021

No.	NAME & ADDRESS	NATURE OF SUBMISSION	KEY ISSUES
1.	Department of Planning, Lands and Heritage (Coastal branch) 140 William Street Perth WA 6000	The Department has been working collaboratively with the City in the formulation of the CHRMAP and is a member of the project steering group. We have had the opportunity to review each chapter of the report along the way and have provided detailed comment. As such, rather than make a public submission on the City's CHRMAP, the following matters are raised for consideration in the finalisation of the CHRMAP. The WA coastal planning framework provides strategic and policy leadership including CHRMAP guidance. Overarching principles in this planning framework are that private parties are responsible for managing risks to their private assets and incomes, while governments on behalf of the community are primarily responsible for managing risks and impacts to public goods and assets. The draft CHRMAP would offer greater clarity if, in keeping with the beneficiary pays' principle, it clearly addresses the party/parties financially responsible for initiatives that will protect the coastline. As the local coastal manager, the City is responsible for the sustainable management of the coastal zone, and undertaking the appropriate work to achieve this. For many years, the State government has been working collaboratively with local government on coastal planning. This includes support with funding through the Coastal Management Plan Assistance Program and Coastal Adaptation Program grants. It would be advantageous to see the City's CHRMAP reflect the WA coastal planning framework, especially as the CHRMAP will be the key document that will inform future assessment for grant funding. Clear, soundly-based and equitable CHRMAP implementation plans will see these projects being highly competitive for State funding towards protection of public assets. The Department is happy to provide further detailed feedback on the changes required, via the project steering group as the CHRMAP is finalised.	Comments provided. Further and ongoing consultation with the Department of Planning, Lands and Heritage will occur in implementing the CHRMAP recommendations.
2.	Department of Planning, Lands and Heritage (Aboriginal Heritage) 140 William Street Perth WA 6000	A review of the Register of Places and Objects, as well as the DPLH Aboriginal Heritage Database concludes that there are multiple lodged and registered Aboriginal cultural heritage places that may be affected by future erosion of the coastline and one that may be affected by future coastal structures. It is also noted that a cultural feature of the south west region is the traditional Aboriginal practice of sand dune burials which may, in time, become exposed by ongoing coastal processes. Advice to amend the draft plan to ensure consultation with local Aboriginal bodies and local knowledge holders in future planning requirements and to have an agreed strategy in place ahead of time on how to address any Aboriginal cultural heritage materials or burials that may be uncovered in the future. Given the possibility that the proposed seawalls involve ground disturbance that may uncover previously unknown Aboriginal cultural material, it is recommended that the City take into consideration the DPLH's Aboriginal Heritage Due Diligence Guidelines, which have been developed to assist proponents to identify any risk.	Comments provided on process to address Aboriginal cultural heritage in relation to construction of future coastal infrastructure. Consultation with the Department of Planning, Lands and Heritage will occur when and where necessary in implementing the CHRMAP recommendations.

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan

SUBMISSIONS CLOSE: 28th September 2021

No.	NAME & ADDRESS	NATURE OF SUBMISSION	KEY ISSUES
3.	Department of Mines, Industry Regulation and Safety 100 Plain Street East Perth WA 6892	The Department has determined that the proposal raises no significant issues with respect to mineral and petroleum resources, geothermal energy and basic raw materials.	Nil.
4.	Department of Fire and Emergency Services PO Box P1174 Perth WA 6844	Given the CHRMAP seeks to provide a long-term view of coastal hazards for the City, and recommends pathways to adapt to future oceanic and coastal conditions, which may not be considered an intensification of land use, the application of State of Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7) may not be required in this instance. DFES does note that the objectives of the CHRMAP include to: • Guide the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, commercial and other activities. • Provide for sustainable public coastal foreshore reserves and access to those reserves. • Protect, conserve and enhance coastal zone values, particularly in areas of landscape, biodiversity and ecosystem integrity, and indigenous and cultural significance. Bushfire risk will need to be considered when implementing the above objectives. The City may wish to reference the need for such consideration or SPP3.7 in the final CHRMAP. Note that the application of SPP 3.7 is ultimately at the discretion of the decision maker.	Comments provided.
5.	Department of Transport 5 Newman Court Fremantle WA 6160	Thank you for the opportunity to review the draft CHRMAP again and many of the matters raised previously have been addressed. The following matters remain for consideration: 1. Page 107. '2. Engage with the State Government (in particular, Department of Transport), to investigate options for storm surge protection at the Marina Entry Channel in conjunction with land-based protection (bund or levee) for the remainder of the Management Unit.' Comment – a storm surge barrier is not a feasible measure for any marina entrance setting. The breakwaters at the marina entrance are highly permeable and the entrance need to be kept open during storm for returning boats safety. The CHRMAP may recommend a process by which a refined inundation assessment and mitigation strategy can be developed either (i) for the entire City foreshore; OR (ii) as part of development for the marina segments. 2. Page 107. '3. Potentially, in parallel with 2 above, a mechanical flushing system may be required to protect water quality in the Marina and canals.' Comment - water quality is outside the scope of this CHRMAP. 3. Page 58 to 114 Planning response sections: add the following point according to SPP2.6: • Require approval based on a site-specific CHRMAP for developments between the 2040 and 2115 erosion hazard lines.	Comments provided. Further and ongoing consultation with the Department of Transport will occur in implementing the CHRMAP recommendations.

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan

SUBMISSIONS CLOSE: 28th September 2021

No.	NAME & ADDRESS	NATURE OF SUBMISSION	KEY ISSUES
		5. Page 79, 82 & 112 Planning Response sections point 7: 'Prohibit private coastal protection structures.' Comment - include a rationale for this recommendation. Would this exclude consideration of approval to upgrade/repair existing private coastal protection structures? 6. Page 112 MU19 Forrest Beach, Planning Response section point 1: 'Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area'. Comment - inundation hazard zone needs to be in the Coastal Management Area as well. 7. Available sediment supply to this section of coast (from the west) should be strategically managed as a resource. It is recommended the CHRMAP directs the Coastal Management Plan as a potential mechanism to support strategic sand management.	
6.	Department of Water and Environmental Regulation PO Box 261 Bunbury WA 6231	The Department supports the plan and provides the following comments for your consideration. 1. Section 4.2.5, page 21 – 'These recommended adaptation options for coastal erosion risk will anyway assist in mitigating inundation hazard'. Comment - inundation will only be mitigated if the erosion protection is a continuous linear system parallel to the coast along all low-lying areas and is set at a height to hold back inundation. Very few erosion mitigation approaches will achieve this, and for existing erosion structure this is verified by the statement in Section 5.2.3 of 'Retrofitting existing structures to accommodate inundation risk would be challenging and costly'. There will be a need to change the design principles for the coastal erosion structures for this to be a true statement. 2. Section 7.0, page 56 – 'Given the identified pathways for coastal erosion hazard management in the CHRMAP, further coastal inundation hazard modelling including for both Geographe Bay and west coast settlements (Yallingup and Smiths Beach).' Comment - Consideration of an additional recommendation to develop a formal position in relation to finished floor levels for dwellings, based on proposed long-term interventions (as per item d of recommendation 4) to ensure consistent and equitable planning decision are made. 3. Written rationale for establishing a minimum habitable finished floor level of 3.0mAHD (where recommended for management units) being: "The City has been applying the requirement for 3.0m AHD FFL on sites directly adjoining the coast for around the last 20 years (on the basis of technical advice from the then Waters and Rivers Commission)." Clarify this by adding 'prior to the release of *State Planning Policy 2.6 State Coastal Policy*.'	Comments provided. Further and ongoing consultation with the Department of Water and Environmental Regulation will occur in implementing the CHRMAP recommendations.
7.	Water Corporation PO Box 100 Leederville WA	The management recommendations outlined in the CHRMAP are noted and have no additional comments. The Water Corporation looks forward to working with the City in future to accommodate the requirements of the CHRMAP to achieve the objectives of SPP2.6.	Further and ongoing consultation with the Water Corporation will occur in implementing the CHRMAP recommendations.
8.	Department of Education 151 Royal Street East Perth WA 6004	The following comments are provided: 1. Busselton Primary School - The continued operation of West Busselton Primary School is critical to ensure the educational needs of the area are adequately provided for in the future.	Comments provided. The recommendations of the CHRMAP would result in DoE assets being protected.

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan

SUBMISSIONS CLOSE: 28th September 2021

No.	NAME & ADDRESS	NATURE OF SUBMISSION	KEY ISSUES
		The Department therefore supports the formal identification of Busselton Primary School within MU16: Busselton East. Notwithstanding this, there is no reference to the Busselton Primary School site being retained and protected in the future as part of the risk management options for MU13. The Department requests that the Plan be amended to offer the Busselton Primary School site the same level of protection offered to the West Busselton Primary School site contained within MU13: Busselton West (A). 2. Busselton Senior High School - The Department also notes that Busselton Senior High School is not formally identified within the CHRMAP despite the 2120 Erosion Hazard Line (Damara 2012) intersecting a number of school's buildings. Given the school site is likely to be affected by coastal erosion in the longterm, the Department requests that Busselton Senior High School is formally identified within the Plan and is also offered an adequate level of protection. Subject to the above matters being considered, the Department supports the strategic direction of the Plan. The Department would welcome the opportunity to work with the City to ensure that planning for the public school sites and their assets adequately responds to the risks identified within the Plan.	
9.	Department of Health 189 Royal Street East Perth WA 6004	The Department has no objection to the draft CHRMAP. Has the City considered the potential impacts of seagrass accumulation on beaches should the use of groynes or other interventions increase? Decomposition of large quantities of seagrass will result in the release of hydrogen sulphide that may result in potential odour and health related complaints.	Comments provided.
10.	Department of Biodiversity, Conservation and Attractions PO Box 1693 Bunbury WA 6230	DBCA is responsible for management of terrestrial and marine reserves vested in the Conservation and Parks Commission under the *Conservation and Land Management Act 1984,* administration of the *Biodiversity Conservation Act 2016*, and provision of advice on non-estuarine wetlands, wetlands listed under the Ramsar Convention for Wetlands of International Importance and migratory bird international agreements. Values of DBCA interest associated with the CHRMAP include Ngari Capes Marine Park, Vasse Wonnerup Ramsar Wetlands including fringing nature reserves supporting populations of waterbirds and threatened species, Coastal Saltmarsh Threatened Ecological Communities (TEC) at Vasse Wonnerup, New River, and Toby's Inlet, Broadwater Nature Reserve, Locke Estate Nature Reserve, inland streams and drainage channels with weirs that control upstream salinity, wetlands and waterways supporting the endangered Carter's Freshwater Mussel, and terrestrial habitats supporting the Critically Endangered Western Ringtail Possum. The draft CHRMAP contains definitions of Protect and Managed Retreat. Table 2 (Summary of MCA of coastal erosion risk management options) includes the following for MU19 Forrest Beach; **2040** Managed Retreat/Protect, **2070** Protect, and **2120** Protect. It is not obvious what current land use might be affected by the suggested Managed Retreat in Table 2 for the short term to 2040 and DBCA queries the basis of referring to Managed Retreat in this instance. As stated in the draft CHRMAP, MU 19 Forrest Beach:	Comments provided. Further and ongoing consultation with the Department of Biodiversity, Conservation and Attractions will occur in implementing the CHRMAP recommendations.

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan

SUBMISSIONS CLOSE: 28th September 2021

No.	NAME & ADDRESS	NATURE OF SUBMISSION	KEY ISSUES
		A Protect strategy would ameliorate risk to assets (private properties and public infrastructure) and internationally important environmental values/assets. These values include the Ramsar Wetlands, including significant waterbird values and Coastal Saltmarsh TEC. DBCA recommends consideration be given to a *Protect* management option north of Layman Rd to Capel Shire border, which has tall dune systems extending northwards along the coast from within several hundred metres north of the Wonnerup floodgates. These will provide a more substantial barrier than the dunes between Port Geographe and the Layman Rd bridge. A suggestion that a coastal barrier intervention might terminate its eastern extent in the vicinity of Wonnerup mouth is contained in the CHRMAP draft (See *7.0 Recommendations 7.1, 4.d.vii investigate Layman Rd seawall*). This would impact the Vasse and Wonnerup components of the Ramsar listed wetlands, which provide environments that sustain significant numbers of waterbirds. Environmental implications for the Vasse Wonnerup Estuary transforming from a freshwater estuary to a saltwater inlet would alter the ecology and values recognised and protected by the Ramsar listing including numbers of birds using these wetlands. Deadwater near the mouth of the Wonnerup Estuary includes Coastal Saltmarsh TEC, and may have importance as a fish nursery and habitat. Seeking advice from the Department of Primary Industries and Regional Development on this matter is recommended. As it is not far to higher coastal dune systems, DBCA recommends the implications, cost and benefits of connecting the storm surge barrier northwards along the coast to Capel Shire be further investigated. The current height/surge protection level for each of the Vasse and Wonnerup floodgates is about 2m AHD and would likely need to be upgraded to be 3m or more to fit with the current proposed strategy. A potential option would be to focus on a single higher floodgate barrier at the mouth of the Wonnerup inlet, with a decision on this being linked with a buried seawall strategy east of the Wonnerup mouth. DBCA notes and agrees with the draft CHRMAP reference to:- *d. Preliminary design and costings associated with storm surge events (coastal inundation hazard) protection at:* *i. Toby Inlet mouth.* *ii. The mouths of all agricultural drains.* *iii. The eastern bank of the Buayanyup River Drain.* *iv. Vasse Diversion Drain mouth and Vasse-Wonnerup Estuary storm surge barrier. (s)* *v. Port Geographe Marina entry channel and seawall.* *vi. Vasse-Wonnerup Estuary Channel.* *vii. Layman Road, from a point just to the north of the Vasse-Wonnerup Estuary Channel to a point somewhat to the north of Tuart Drive.* *viii. Urban stormwater outlets.*	

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan
SUBMISSIONS CLOSE: 28th September 2021

No.	NAME & ADDRESS	NATURE OF SUBMISSION	KEY ISSUES
		DBCA recommends consideration of various options and the ecological impacts upon the waterways be part of the design process. Part (d) above reflects that there are a number of locations where there needs to be connection between inland waterways/drainage infrastructure and the ocean. It is suggested that there would be benefits in scoping and costing options for preventing coastal inundation to assist in understanding complexity and potential costs.	
11.	ATCO Gas Locked Bag 2 Bibra Lake DC WA 6965	No issues raised.	Nil.

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan

SUBMISSIONS CLOSE: 28th September 2021

No.	NAME	NATURE OF SUBMISSION	KEY ISSUES
1.	Jane Snee	I have been concerned for many years about Busselton's future as a coastal town at sea level. I am extremely reassured to know that our City Council are on to it and have conducted extensive research into the matter. I applaud you for not waiting until there is a disastrous storm and homes lost before you act. I would not want to go with a 'retreat plan' as I love my home and hope to grow old in it, and hope that Busselton will be here into the distant future. The sea will likely keep rising for many more years and one street after another would have to go. Also, I feel the whole town is vulnerable to an extreme storm tragedy. I am so glad you have an evidence based approach and early prevention policy and give my full support to doing whatever needs to be done to ensure that we can all keep our homes and grow old in them. I am happy to pay a bit extra in the rates to allow this. Thank you for being onto it and I have great faith we will triumph against this slowly worsening man-made disaster.	Support for CHRMAP.
2	Julian Bussell	Erosion issues along the coast should be the City's main priority but a 9 billion plan to buy people's properties is ludicrous, especially when the City isn't obliged to do so. What use would that be to the ratepayers? Just madness to even consider the idea. On one hand the City is selling their high and dry land opposite the Golf course to make a quick buck now, (instead of holding onto it for when and if sea levels rise) and on the other hand you're talking about buying blocks of land falling into the ocean. The City could even do a land swap deal with the land at Ambergate North and make millions subdividing it. If sea levels rise, land will be worth a lot of money in the future. The ocean has been much higher in the past but with no noticeable rise as yet, the City should just focus on funding and fixing the erosion issues as well as making sure they have all the resources and machinery on hand to quickly respond and help repel the ocean as needed.	Support addressing erosion. General view about funding.
3	Heather Starr	We sold our house on Campion Way last year as we were told by numerous scientists from UWA, that it will eventually be under water, when we will never know, could be 10 years, 20, 30 - but it wasn't something we were going to wait around for. With the rising sea levels, storm surge and the inlet draining issues during heavy storms it's only a matter of time when those houses along the inlet and Geographe Bay road are flooded. Insurance companies already don't cover for flood in that area, those homes are all going to drop in value significantly in the near future, especially if there is a storm and flood damage, meanwhile building permits for new homes are constantly being allowed to be built along that area by the City of Busselton when you know what is coming? People are paying top dollar for land and construction, without flood insurance, and it's only a matter of time that many of these homes will be under water? It's disaster waiting to happen. I believe the City needs to stop approving building permits, and stop allowing re-constructions, or large scale renovations in low laying flood areas (Abbey, Quindalup, Marybrook, ect), and have a rating for flood zones like we do for Bushfire zones (ie FZ) - this will help with the pending costs of having to buy back land from residents. If people want to live near the sea while constantly being told that sea levels are rising, it should be upon them to take that risk, not up to rate payers to bail them out when their house is no longer worth a fraction of what they paid for it.	Funding.
4.	Rosemary Crake	The draft plan seems to make a lot of sense. However what's missing is attention to: - the City continuing to allow development in at-risk areas	Support with comments on development, rates and current coastal protection infrastructure.

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		- the nature of developments being allowed by Council - eg in at-risk areas (and therefore increasing costs to ratepayers in the long term - not only due to protection and retreat costs but also due to increased population and / or tourist impact on the environment); and developments that contribute to environment and climate change issues eg badly designed homes with no ceiling fans and poor orientation (in terms of breeze and heat / cold); which then result in higher use of air-conditioners and heaters; developments such as the Shelter that must have a very high power use to heat the structure in winter): poor public transport options that increase the need for car use - impact of rate increases on low to middle income ratepayers in the context of COVID related reductions in income; and the need to differentiate possible levies between low income older residents who have been in their modest homes in at-risk areas for over 30 years (as opposed to high income investors and residents who have chosen to build in more recent years) - ensuring adequacy of design of protection mechanisms - eg the Port Geographe existing structures seem to be woefully poorly designed and have significant negative consequences and costs involved in fixing the problems they create"	
5	GAIL lee	I do not support any hypothetical modelling, or algorithm modelling, to determine CHRMAP. I can see that a lot of time, energy and referencing has gone into this proposal, however, why? Climate is always changing, algorithm modelling can be wrong, particularly dealing with nature. Storm, surges and accretion are part of nature's cycle. To undertake preventative action by building infrastructure now, creation of a contribution levy for coastal residents all based on a hypothesis is absurd - up to 100 years out. Surely science fiction. All based on a model! Planning and Infrastructure needs to re-look at their abysmal development decisions of the past and learn from the mistakes and not allow, private or council structures along the coastal shorelines. Port Geographe is a prime example of a stuff-up. Leave our coast nature strip, so that all can enjoy the inlets, ocean, flora and fauna. Nature always repairs itself and moves on. Stop meddling.	Not supportive of CHRMAP and modelling.
6	Ian Christophersen	Given that development has been allowed on actual and potential coastal erosion areas, my preference would be that the main costs might be better covered by a gradual introduction of a Special Area Rate for those in areas that are/might be affected. Further development in erosion areas should be ceased. Given that cyclical erosion along the coast naturally occurs, then I would not support any hard structures on the land which would require continual beach nourishment. My preference would be for artificial reefs to supplement the mitigating effects of the seagrass. A managed retreat would then need to be co-ordinated, but the Council and Ratepayers should not be charged with paying to resume private properties. Possibly we can just let private properties along the erosion prone areas to simply wash away as is the nature of things.	Supportive in part. Funding.
7	Sally Dix	I would like the beach to take its natural course, ie leave the seaweed during the winter months and try not to interfere as much as is possible.	General comment.
8.	Dylan Lee	Well thought out plan, covers all topics i can think of. One thing is to shorten it if possible, considering it is very, very long. Other than that the information is very detailed and hopefully the future of Busselton will be the same with the use of this plan.	Support for CHRMAP.

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8	Dylan Lee (2nd Submission)	I forgot to add, they should include a section solely about the thoughts of the Greens, like if they agree with it or want ideas changed. I also recommend not using too many hard engineering techniques due to the unaesthetic qualities of it. Lastly, use the differential rating system, don't increase rates of people who live away from the coast please.	Erosion protection and funding.
9.	Kyden Brown	I like the option of selected areas where tax rates will increase to account for funding. I do however feel that the government should also help to account for funding. I also feel that we should integrate others regions in WA into the program so that we can all work towards a sustainable environmental management program.	Supportive in part. Funding.
10	Reilly Steve Cockbain	I think that the 100 year plan is a sustainable one which should have been enacted years ago. I also think that before the year 2040 we should attempt to find as many plausible options to stop/ mitigate the damage of rising sea level with the use of ICZM.	Support for CHRMAP.
11	Tay Allen	This is a great way to establish a beautiful community, and develop very strong connections between the people.	Support for CHRMAP.
12	Harry Cannon	Well I think that the Draft CHRMAP is fairly clear about the majority of issues that are raised by the threat of the rising sea levels but I want to know how the city is going to deal with the residents that are currently residing on the foreshore and what the range of a settlement price for the relocation of people whose housing is under threat. Also how much of the total 9 billion dollars is going to be put towards the protection of the current coastline, how long these strategies are predicted to last for and how will it impact the beaches in an aesthetic sense	Cost and funding.
13	Jack Stewart	Looks good, I like it. Good coverage of the whole coast Techniques look good	Support for CHRMAP.
14	Denva Lumley	Will I have to use MY money to pay for a percentage of the plan as long as I am a resident of Busselton. And will my house be flooded by 2040 due to rising sea levels, and by how many meters of water.	Cost and funding.
15	Reuben Wild	It seems to be a very suitable and efficient management solution, however the cost is exponential when compared to previous management effects. It may be helpful for now and the 100 year future, but what about after, when new generations come along, are you just going to come up with another 9 Billion dollars out of nowhere, and continue to charge us with tax that will help support those more at risk to erosion?	Support for CHRMAP. Cost and funding.
16	Ben Davies	I question how the coast might differ in its course to what your prediction is that you are basing this 100 year plan off. How might you manage the change in the coasts change of course. I personally don't want to pay to protect the city of Busselton's assets that they decided to build right on the coast and have now found they need protecting.	Uncertainty on 100yr timeframe. Funding.
17	Hayley Grocock	It's a good idea but many people may not like the amount it shall cost	Support for CHRMAP. Cost to protect or retreat.
18	Judd Truscott	The proposal that is used is for the City of Busselton's good, but I hope that if there is a tax inflation that it isn't a massive increase and that if not the people that actually live on the beach front has to pay a fair amount of it as they had made the decision to build and live there right next to the coast. As well I hope	Support for CHRMAP. Funding.

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		there is enough hard engineering so then it will protect the coastline as well as some soft as it doesn't pollute the air as much compared to some hard engineering choices, a sea wall, also being a bit more of a cheaper option.	
19	Dieter Spurgeon	It's definitely a good attempt at keeping the ocean at 'bay' (pun intended), and in the most part it will probably help the local residents out a lot. Yet there is very little flexibility, as the ocean won't stick to a 100 year plan as the council will, so a little more flexibility in the document (i.e. start building sea-wall when sea level reaches n metres) instead of just building whatever at a certain point in time.	Support for CHRMAP.
20	Laika Kiala Bowman	I think that the planned retreat should have been done years ago before further development of our coast with businesses and public areas. Other than that this '100' year plan sounds like it could use some soft engineering ideas to keep our coast looking natural and we should try not to use groynes because once you place one, you have to place many more and it looks ugly and will draw tourists away. A good idea to look at and draw ideas from for the plan is the "Sand Motor" from Norway, not only was it a soft engineering technique and worked with the environment, it brought tourists in and brought back old and new species to the area, regenerated the dunes and kept the beach intact.	Support for CHRMAP (retreat). Erosion infrastructure options.
21	Corbin Brown	It's better late than never. This plan should've been suggested many years ago before we started building up our coasts. Currently we have many houses and business along the coast as our beaches are amazing so we must protect them. We are using too much hard engineering techniques but this is necessary as we have waited too long to properly protect the coast. We should still use soft engineering techniques but we must do what is necessary.	Support for CHRMAP. Erosion infrastructure options.
22	Jordan Lay	The many financial options work well to accommodate different people, especially the plan to raise the tax only for tax payers in the danger zones. This is a good idea because only the people who decided to build in areas on the coast should have to pay more. It's a good idea to sustainably manage the coast but it also needs to be refined down to something almost everyone is happy with.	Support for CHRMAP. Funding.
23	Storm Ramsey	I think it's good because it will last for 100 years and protect the coast for a very long time. However I think it should of got put in place much earlier, I also think they should save some of the 9 billion dollars for a backup plan in case of natural disasters to the coast and other unpredictable factors.	Support for CHRMAP. Costs and funding.
24	Eva Nimmo	My comment on the CHRMAP is that I like that they are thinking far ahead in time and that they are concerned about the local foreshore, but I feel that they need to expand the area that they are planning to protect from coastal erosion. I also think they should take more money for the 9 billion out of the government rather than the citizens	Support for CHRMAP. Costs and funding.
25	Hannah Waters	It's a good plan however it should have been put into action years ago. That way some of the problems that we face now could have been prevented.	Support for CHRMAP.
26	Darcie Morris	I like the option that they will tax certain areas that are at risk more instead of increasing everyone's shire rates. I think it will benefit us more if we involve other regions other than Busselton. I think it is smart as we are planning for the future and stopping problems before they come instead of dealing with problems once they occur and create damage. I believe they should've done this plan years ago before damage was done to the coast and we could've saved more money in the long run	Support for CHRMAP. Funding.

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27	Ashley Yates	The CHRMAP is brilliant because it really is a severe problem and for once the government has actually considered the future in the plan, with considerations from the public.	Support for CHRMAP.
28	Bella Wylie	I think it's a good idea but we should not be using so many hard engineering techniques on our coast. I propose a sand motor as it works with the natural processes of the coast like longshore drift. I like how the plan is thinking 100 years into the future but what happens after that? The plan is very strategic and everything has been thought through in great depth but I believe it is too late. This plan should have come out 100 years ago before investors started ruining the coast by building on it. I believe messing with the coast more is just going to cost more economically and for the environment. Hard engineering strategies do not allow for nature to do its own thing so it heightens the chance of climate change. When you state that you are protecting the coast, I strongly believe that you are thinking more economically rather than environmentally. The coast is the environment and not the assets that have been bombarded onto it. Hence the environment should be saved rather than assets.	Support for CHRMAP. Comments on erosion protection options. Protect environmental values of coast.
29	Apple Hanahan	My comments on the 100 year plan is that it's a good investment for the community to protect our coastlines. Yet I believe with the budget of 9 billion dollars, coming out of the community's pockets it is used sustainably to ensure the money towards the fight of erosion doesn't go to waste. The document seems environmentally friendly but we can still do other things that can avoid coastal erosion.	Support for CHRMAP.
30	Thomas Leach	I think that elements of the draft have been constructed and executed effectively. I think that it was a good decision to focus on each specific area of the City of Busselton, by calculating the assets both tangible and non-tangible in each area to decide the best plan both economically and environmentally. I also like the idea of the longer 100 year time period as this is a way to ensure it is sustainable and taxpayer money is spent well. So in these ways I think that it has been done well. However in legal terms I do not like some aspects of the plan, as stated in the plan the government is not responsible for damage done to private property. I believe that the government should be compensating at least a percentage of the damage. As homeowners pay large rates.	Support for CHRMAP. Funding.
31	Geoffrey Kenneth Binckes	I wonder if the effect of rising water tables under Busselton has been considered. I may be wrong but I would have thought that most of Busselton is situated on porous sands and that the surface water table would rise roughly in line with increases in mean sea level, since the water has to drain to the ocean. If you are projecting a sea level rise of 0.9m by 2120, would a corresponding rise in the water table cause problems for existing infrastructure? Also, I find these planning studies deficient in that they look at a fixed time period but give no indication of what is likely to happen beyond that time. Obviously they cannot go into detail but, in this case, sea level rise will not stop in 2021. Indeed, if there is not rapid action on global scale to curtail climate change, it is inevitable that large parts of Busselton will be lost to the sea.	Groundwater and sea level rise.
32	Dale Harris	Refer to submissions 1 & 2 in Attachment D.	Boundaries of MU08 Marybrook and MU09 Siesta Park management units. Distribution of costs and benefits Finished floor levels. Use of beach and foreshore areas.

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33	Jeff Falconer	About time that a seawall was built along Wonnerup beach. The replenishment sand always is muddy as accessed inland. The dredge trial putting sand on the beach was fantastic, should have done more though.	Nil.
34	Peter Maccora	As President of the Western Beach Residents Association our association has major concerns in relation to the DoT wanting to extract sand from the beach located between Morgan Street and the Western Breakwater at Port Geographe. Reading through your draft document it is very clear that sand accretion along the beaches within Geographe Bay is declining yet the DoT wants to remove sand from this area to replenish sand eroding at Wonnerup. We firmly believe no sand should be removed within 200 metres from the shoreline as sand must be encouraged to build up to limit future erosion. Alternative sand sources must be sourced to nourish Wonnerup from the offshore sand bars. If Wonnerup continues to erodes at a point whereby it is not possible to limit the erosion at Wonnerup, then relocation of properties or protection mechanisms must be implemented to protect Wonnerup, but not at the expense of removing sand from the beach between Morgan street and the Western Breakwater at Port Geographe.	Comments on Department of Transport operations at Port Geographe.
35	Port Geographe Land Owners Association	Refer to Submission 3 in Attachment D.	Protection strategy for Port Geographe supported. Finished floor levels supported.
36	Robert Hingston	I have been a resident of Busselton since 1973 and have watched the erosion of our beach land firstly at Siesta Park and the loss of beach and the dune system on the Holy Mile since. Also at Groyne Rd (now Port Geographe). Groynes do not work unless you are protecting infrastructure on the western side of them or you have a large area of dune to 'sacrifice'. It has become very clear to me that the erection of rocky groynes have contributed or accelerated the rate of erosion on the eastern or lee sections of all groynes in this Shire. These are your ""coastal hazards""!! They are nothing short of blatant environmental vandalism and the Shire should acknowledge this fact. Some examples of this are discussed below. Well done on having the CHRMAP Report written. This is at 40 years too late in my opinion. The obvious information missing in the Draft CHRMAP is that the Leeuwin Current has not been used as a key factor causing erosion on the eastern side of groynes. Groynes will accrete sand on the western side of Geographe Bay and erode on the eastern side in all cases. Aerial photos prove this. Look at historical photos prior to any groyne built. Siesta Park MU09. After this groyne was erected (1965/67), approximately 767 metres of beach and dune systems have been eroded along the Holy Mile. I know this because when some of the Church groups built	Support for CHRMAP. Not supportive of the use of groynes to control erosion.

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		their kitchens on these blocks they were built halfway from Caves Rd to the (then) beach which was 1000 metres. When I last saw them 30 years ago 500 metres was eroded as one of the dining rooms was on the edge of the water. Has this erosion stopped yet? I doubt it as many peppermint trees are still falling into the ocean. Management response - Shorten the groyne if not too late now. Groyne Rd. In the 80s, this groyne caused the Geographe Bay Rd East to be closed due to erosion on the eastern side so that Layman Rd became part of private property farm land (Wilmotts). MU13A, 13 B, MU 14. As a member of the Vasse/Wonnerup Landcare Committee, we wrote to the Shire & Dept of Infrastructure & Planning to remove the groyne at Craig St (known as "East Beachlands Groyne" as this would erode to the eastern side of it in front of Busselton Hospital. We did not get a reply from either groups after we wrote a second time. What arrogance!! Now at least 15 years later the coastline from Craig St to the jetty is severely eroded as we predicted then. What has caused this? It is so obvious to me. When the rocky outlet to Vasse Diversion Drain was built in the 80s, it was to the then high water mark as per correct engineering standards. What has happened since is the beach HAS eroded from Craig St to the jetty - all caused by the groyne. The Vasse Diversion Drain rock outlet is now ""exposed"" as a groyne. The Yacht Club have built a boat ramp between this rocky outlet which has led to the severe erosion to the east and in front of King St car park. The boat ramp sits high and dry with erosion of the dune system all around the ramp. Prior to this, you could walk straight onto the beach from the car park without stairways as the car park was level with the beach. The boat ramp is now acting like a groyne as it is into the ocean which is also eroding the eastern section of King St car park towards the jetty. This narrow dune system along Geographe Bay Rd is under threat from that mentioned above. It is NOT caused by rising sea levels but by groynes, rocky outlet and boat ramp!! The boat ramp has not been mentioned in the CHRAMP document and should be. Management action - destroy the Craig St groyne, and boat ramp at Yacht Club. Do not waste money by your beach nourishment program as the sand used is only washed away at the next storm. Sand filled groynes east of the jetty. I measured a loss of beach of at least 40 metres when they were installed and the work was being done in front of the Goose restaurant. These sand filled groynes were placed into the ocean and should have been placed at the high water mark - another example of not knowing the science. As a result, the cycle way eroded to the east of jetty and a small sandy headland in front of the Sea Rescue shed disappeared. I believe that assets should include ALL dunes and native vegetation. Timber groynes along the coast west of the jetty DID appear to work as they accreted sand around them. They also let water pass from the west (Leeuwin current) and did not cause erosion as rocky groynes do. Item 2.5 Historical Shoreline Changes - misses the point about the effects of groynes and does not touch on the effects or influence of the Leeuwin Current.	

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		MU 18. The Report does not mention the loss of at least 150 meters of shoreline since the Port Geographe groynes were installed or since they were modified. The loss of shoreline will continue but at what rate and how far east? This seems valuable data not mentioned although threats to housing and Layman Rd are imminent and discussed in the Report.	
37	Greg Tickle	Refer to Submissions 4 & 5 in Attachment D.	Boundaries of MU08 Marybrook and MU09 Siesta Park management units. Distribution of costs and benefits. Protect strategy supported over a retreat strategy. Finished floor levels. Erosion and inundation strategies. Shortening Siesta Park groyne.
38	Karen Hayne and Rob Zahtila	Refer to Submissions 6 & 7 in Attachment D.	Distribution of costs and benefits. Funding (SAR). Planning controls. Shortening Siesta Park groyne.
39	Richard Lester	Refer to Submission 8 in Attachment D.	Shortening Siesta Park groyne. Funding (SAR) supported. Finished floor levels – supported.
40	Peter McSweeney	Refer to Submissions 9 & 10 in Attachment D.	Distribution of costs and benefits. Low confidence in modelling and predicted sea level rise. Costs of strategy and funding. Planning controls. Finished floor levels. Infill subdivision/development density. Shortening of Siesta Park groyne.
41	Jeff Nicholas	As a current property owner of a coastal dwelling covered in the report, I appreciate the opportunity to provide public comment on such a significant subject. I certainly understand appreciate the need to address the effect of global warming, storm surge and potential flooding in our local community and the benefits the coastline brings to not only local but the state in general. My comments are specifically related to the Siesta Park (MU09) area and based simply on my observations and opinion certainly not as a suitably qualified person and some have already been mentioned in the draft report all be it the responses state "to be determined",	Support for CHRMAP Distribution of costs and benefits. Funding. General comments/observations on the Lennox River Drain outlet issues – impact on adjacent coastline.

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		- Page 36 point 5.0 in the draft report shows Protect out to 2120 however page 83 – 84 appear to contradict this from 2070 – 2120, appreciating that there are preliminary design and costings underway for the related drains, the key rationale mentioned in point 3 certainly is of concern. It would be good to get clarity on the timing with regard the "to be determined" items noted in the response 2070 – 2120. - Having been witness to the annual and significant beach erosion east of the Lennox River Drain I am confident that the outward flow of the drain causes the vast majority of the annual erosion as opposed storms and surges. I'm confident the relevant engineering staff within the Shire are aware of the resulting beach erosion which on numerous occasions creates a high safety risk for beach users. - Private property owners have in the past at their own expense moved beach sand in order to remove the safety risk and ensure the beach is usable for all concerned. Addressing the issue with the Lennox River Drain mouth would minimize this type of erosion. - I am of the opinion that should the Lennox River Drain river mouth be modified suitably then both the shire and the landowners would be in a better position to evaluate a the best path forward in relation to protection, very mindful that any resulting actions would need to be as recommended by those suitably qualified and adopted by all area nominated in order to avoid individual actions impacting in other areas. - My understanding is that this drain is the responsibility of the Water Corp and as such I am of the opinion, that they have a level of responsibility, in relation to the erosion and the safety hazard their initial actions and sub-sequent lack of action has created. As a rate payer I appreciate that the shire has a degree of responsibility to rectify beaches along the coast however when outside parties are responsible for a specific and easily identifiable action, I don't see why ratepayer funds or private funds should be utilised. - Appreciation and understanding that the many of the private properties are a result of generational wealth building and in the event of retreat this would have dramatic impact on existing and future valuations. In summary I look forward to a mutually beneficial outcome on what is an important issue and appreciate that my commentary is related specifically to the area I am most familiar with and there are many considerations when considering the large area covered in the draft report.	
42	Rod & Rhonda Hitchins	Refer to Submission 11 in Attachment D.	Distribution of costs and benefits. Finished floor levels. Funding (SAR). Planning controls. Public use of beach and foreshore areas.

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			Shortening Siesta Park groyne.
43	Neil Irvine	As Owner of 478 Caves Rd Siesta Park, I am very concern of the new policy try to be pushed through, these houses along this strip are very expensive and we all pay huge rate to the city of Busselton over may years and years to come, the houses most have been renovated over the years and may require future renovation or complete rebuilds, AS owner we MUST be able to defend our properties from any raise in sea level and storm surges, Most of these like mine, have been done at our own cost to protect the erosion of the beach, My sand bagging has cost over $60k in the first lot and extra bag layer, all done by the main approved contractor, And I expect that if the sea level is to rise at the amount you are predicting then a few more bags may be needed on to get to 3.5- 3.8 and in the future if house need to be rebuilt then yes fill material or the house being built on concrete piles having car port under house, BUT we just don't give up land of that value and walk away. About 10 years ago COB had an expert from Italy give a talk about 90 degree groynes to the beach cause scallop outs and groynes parallel to the beach, which broke up waves and then also deposited sand on the inside of the groynes making the beaches bigger? Why haven't these been done or even some sand bag groynes put in parallel to the beach as a trial for next winter. I will be instructing my family to defend the property we own at all cost in the future, and COB should be helping all rate payers along this strip OR why should we be paying the high rate we are paying and any future levy or fee to contribute $$ to protection anywhere else along the beach front including in Busselton Town itself, if COB are just throwing us out under the bus.	Planning controls. Funding.
44	Kerry Grist	Comments in relations to CHRMAP document and presentation, Thursday 5th August 2021 Some residents will inevitably 'benefit' more than others (e.g. someone living on the beach at Siesta Park would receive more recognizable immediate benefit from coastal protection works than someone residing in Provence). Response: Provence or any residents within WA are likely to use the beach especially if beach erosion is happening in other parts of the City It is incumbent on the Council to consider any potential funding options (at the local government level) in the interest of community cohesion and social equitability. A. Response: SAR is inequitable as all people use the beach and may need to use Siesta Park and Marybrook beaches more in the future. B. Response: MB & Siesta Park residents are regularly asked to contribute and do so often in a volunteer role and/or contribute extra dollar value to fundraising and donations to meet the community's needs. C. Response: One could equate Old Dunsborough and many residents throughout the district as having the same capacity to pay. The City is required to manage and protect important public assets and infrastructure such as foreshore reserves, roads, service and utility corridors, and buildings. The MUs at MB and SP have fewer public assets to speak of, and limited continuous foreshore reserve. There is also, comparatively speaking, far less public access opportunities for the use and enjoyment of the foreshore reserve and coastline at those particular locations.	Distribution of costs and benefits. Funding (SAR).

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No.	NAME	NATURE OF SUBMISSION	KEY ISSUES
		Response: We may be the only continuous foreshore reserve if sea levels rise. One could argue that the City has neglected SP and MB in relation to public assets. Consideration: In relation to building groynes and other infrastructure to contain increased sea level there is a concern that such installations may steer increased water and seaweed into MB and SP. Creating a pit. If this occurs then the accretion levels in the area may be depleted and result in there being no foreshore to enjoy. Including those who may have to travel further afar such as Dunsborough or Busselton as they seek to access a beach in the bay. It is very important that the right scientific studies/assessment and longitudinal modelling are done on the impact of installing groynes and other infrastructure before anything is done to change the natural environment.	
45	Roald Doughty & Caleen Doughty	As residents of the Siesta Park Area for approximately 32 years, but longer term visitors & tourists to the area, we are very concerned with the COB's proposal for our area. The COB appear to believe that Siesta Park & Marybrook residents should be treated differently to the rest of the Busselton area & specifically the coastal areas. To this aspect of the plan we were very disappointed that NO City Councillors attended any of the public meetings to explain their 9 - 0 vote to proceed with this scheme. Relevant points that we would appreciate clarity & further consultation on are. SIESTA PARK GROYNE: Why are you talking about shortening the Groyne? The area west of the groyne has done nothing but stabilise & grow since it was installed whilst the area east has stopped receding & is building a fine sand beach for everyone to enjoy. The erosion that was occurring on this side has not continued - other than an odd storm or high tide - since approximately 1980. Mr Paul Needham highlighted the fact that no modelling had been carried out regarding the shortening of the groyne -- so if there is no problem happening with the current structure why interfere with it -- there is nothing to fix? A possible action for the COB to consider would be the erection of another groyne -- wooden as has been erected before in other areas if preferred, approximately half way between Siesta Park Groyne & the Forth Road drain? It is also worth mentioning that in recent (2019) information sheets referring to Western Australia's Coastal Erosion Hotspots, no mention was listed of the Siesta Park / Marybrook area. The Siesta Park location is a very important & popular aspect of the COB as it provides ideal fishing aspects, both groyne, jetty & beach for all ages of persons. It is a well utilised Dog exercise area, good safe swimming areas, boating & ski reserve area, to not forget the Siesta Park Resort which has been an icon of this district for as long as we can remember. Hopefully the COB will participate in further consultation with the residents of both Siesta Park & Marybrook, before they make any final recommendations to the State Government & destroy a very serene & popular venue under their control. We trust that the City Councillors will give due consideration to all submissions.	Distribution of costs and benefits. Use of the beach and foreshore areas. Shortening Siesta Park Groyne.

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan

SUBMISSIONS CLOSE: 28th September 2021

No.	NAME	NATURE OF SUBMISSION	KEY ISSUES
46	David Couch	Refer to Submission 12 in Attachment D	Distribution of costs and benefits. Planning controls. Funding (SAR).
47	Alex Cleave	From my reading and understanding of the report, I make the following comments. 1. I understand the need to plan for the possible scenarios outlined, however they are predicated on forecasts and modelling, which may or may not happen. Modelling of this nature has proven to be inaccurate in the past. Am I right that the planning used was created in 2012? Why has not a similar plan been drawn for 2021 to demonstrate the change in the last 9 years? The beach in front of my property has increased in width by up to 100 metres in the past 20 years. Whilst not professing to know the reason for this, I suggest the changes that have happened in the last 10 years should be published for comparison. If the predictions of climate change are correct, one would imagine that world action will mollify those changes. 2. I am concerned at the suggestion in the report that Marybrook and Siesta Park residents will possibly be charged a "Specified Area Rate" to fully fund works required. To raise rates for two localities only, to the extent considered for a problem that may not eventuate is both discriminatory and inequitable. Surely further studies on a 5 year basis will indicate that the forecasts suggested are coming to fruition. 3. I have no problem with and support creating a fund to which all ratepayers contribute on a pro- rata rateable basis, such funds only to be used once the science of coastal forecast changes is proved accurate, and such funds to be refunded if not needed for that purpose.	Funding (SAR).
48	Ross Stanley & Roz Stevens	Refer to Submission 13 in Attachment D.	Distribution of costs and benefits.
49	Geoffrey Hanson	Refer to Submission 14 in Attachment D.	Distribution of costs and benefits. Planning controls. Integrated erosion protection. Funding (SAR).
50	Chris & Barry Waller	Same as Submission 14 in Attachment D.	Distribution of costs and benefits. Planning controls. Integrated erosion protection. Funding (SAR).
51	Bradley Colin Moore	Refer to Submission 15 in Attachment D.	Shortening Siesta Park groyne.
52	Antony Beeley	My family has lived at 65 Siesta Park Road since 1976. That was 10 years after the Siesta Park Groyne was built.	Shortening Siesta Park groyne.

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan

SUBMISSIONS CLOSE: 28th September 2021

No.	NAME	NATURE OF SUBMISSION	KEY ISSUES
		Though the beach was then being reclaimed we could see the previous erosion line had taken 9 metres of our block. Since then the beach has built up to extend 60 metres from our block and now contains large self-sown peppermint trees and grass which has been mown to produce attractive lawns. There is a protective sand bar at the high water mark. The Siesta Park Groyne seems to be a good example of how to combat beach erosion and could be repeated at intervals along the coast. If the Siesta Park Groyne had not been built it seems to me that erosion would have continued and by now 45 years later our block and possibly Siesta Park Road together with the Locke Estate campsites would have completely disappeared.	
53	Denby Roberts	Refer to Submission 16 in Attachment D.	Distribution of costs and benefits. Planning controls. Finished floor levels.
54	Phil Jones	Refer to Submission 17 in Attachment D.	Distribution of costs and benefits. Use of beach and foreshore areas. Planning controls. Shortening Siesta Park groyne.
55	Frederick Marshall Beresford COLEY	My issues of concern are 1 The preclusion of the Marybrook and Siesta Park (which presumably includes the holiday camps located on the Locke Estate) appears discriminatory and inappropriate in a circumstance where the council need the supportive cooperation of all parts of the City to ensure the effectiveness of the plan. It leaves the City in a position where it is happy to take the rates from the subject areas, but not support those areas in a time of need. And it should not be forgotten that significant infrastructure including fibre optic cables are located in Caves Road. It would appear that the subjects will be left to address their hazard mitigation through the power of their own ""pockets"" or those located on the Holy Mile through the Power of Prayer. And it is to be hoped that this approach will not be replicated in future Fire of Flood mitigation plans where city locations can be deemed self- supporting. 2. It seems inappropriate to adopt a plan introduced prior to an elections and requiring adoption by a new council after the election. It leaves council or executive exposed to the suggestion the ""new"" council is required to adopt a plan in which they had no opportunity to contribute to the recommended outcomes.	Distribution of costs and benefits. Funding.
56	Terry Gale	Pleasing to know the City of Busselton are now recommending seawall construction as outlined in the CHRMAP Draft. Seawalls are obviously required and it's difficult to understand why they were not supported in past years. Assuming current predictions have credibility the 10 year licence period for privately funded seawalls should be lifted providing a "lifetime" duration for the various materials (bags/rocks).	Support. Funding (SAR)

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan

SUBMISSIONS CLOSE: 28th September 2021

No.	NAME	NATURE OF SUBMISSION	KEY ISSUES
		Nearly every beachside private property in Siesta Park has a seawall barrier installed at owner's expense with no financial contribution from the C of B. The suggestion of additional rates (SAR) is an unnecessary impost.	
57	Cameron Prentice	Refer to Submission 18 in Attachment D.	Distribution of costs and benefits. Funding (SAR).
58	Shelley and Gary OBrien	Refer to Submission 19 in Attachment D.	Distribution of costs and benefits. Planning controls. Use of beach and foreshore areas. Integrated erosion protection.
59	Ron Agland	Refer to Submission 20 in Attachment D.	Distribution of costs and benefits. Planning controls. Shortening Siesta Park groyne.
60	Adrienne Meakins	Refer to Submission 21 in Attachment D.	Distribution of costs and benefits. Funding (SAR). Finished floor levels. Planning controls. Use of beach/access Support for integrated erosion protection.
61	David O'Mahony	My wife and I have now lived at our property at 410 Caves Rd, Siesta Park on a permanent basis for over 29 years. We have experienced 29 Winters at this location and so we believe we have a better than reasonable understanding of Winter erosion issues at Siesta Park. We are also a part of the 9 Lot Purple Title which it appears is a problem for the Coastal Management plan. Please see below my comments: 1. I still cannot follow why, throughout your reports, you would treat Siesta Park differently from any other beach/coastal areas throughout the City of Busselton. I can assure you that people walk on and along this stretch of beach on a regular basis, with several entry points for the general public. Within the reports it refers to sand drift issues being one reason (why you would differentiate the area from others), which I find very hard to understand. 2. In the event that the Purple Title is an issue, you can be assured the Owners would or will work with the City of Busselton to achieve an outcome that both benefits the Owners and the many users of Siesta Park beach. Given the option it is evident that most walkers will prefer to walk along the coastal beach, when compared to a reserve adjoining the beach. 3. We understand that this report will take a period of two to four years to compile and finalise, this is far too long of a delay for items that need attention urgently. In relation to the Purple Title, we have evidence that the timber structure, installed on the beach some 60 years ago now, has in the past worked extremely well in trapping sand and creating a wide beach. This has in addition also assisted with minimising storm damage.	Distribution of costs and benefits. Use of the beach and foreshore areas. Integrated erosion protection. Funding (SAR).

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan

SUBMISSIONS CLOSE: 28th September 2021

No.	NAME	NATURE OF SUBMISSION	KEY ISSUES
		It seems logical, that at our cost, we be given the opportunity to reinstate this structure/s with timber or bags, of course as agreed and approved by the City of Busselton along with adjoining Landowners at our cost. We ask is it not possible to experiment and suggest that Siesta Park -Marybrook may well be the perfect place to start. Consultants in the area of coastal erosion are essential, however as evident at Port Geographe it can often be trial and error (regardless of the employment of coastal erosion experts). I understand the Siesta Park Holiday Resort would also be keen to implement a different structure system -in my option the Tickles (Owners of the Resort Park) have more knowledge on erosion control by way of experience than most would or could possibly have in this area. 4. I am not sure that the application of a monetary levy, to be spent on erosion control, would work when as property owners are not allowed to defend our own properties. 5. The idea or suggestion that we should eventually evacuate and offer our land up, beyond 2070, to the benefit of others, is a little hard for Siesta Park-Marybrook property owners to swallow. 6. The catching of sand in the Siesta Park-Marybrook area can only be of benefit to the coastline set to the East in storms, so the suggestion that it is detrimental is more than confusing. In summary we would like to work with the City of Busselton, and other departments, on creating an acceptable outcome that benefits all parties, with the opportunity in the short term to reinstate some of the old erosion control barriers, already proven to work and at our own expense. (Have strong evidence) Look forward to see the final outcome to protect the Geo bay coast.	
62	Steve Palmer	Following the presentation made by myself at the public meeting we wish to express our concern with the proposal to create a hard sea wall in the Siesta Park region. We have already created a sea wall that was engineered to council and government agency requirements and approvals, and also entered into a legal agreement with the Shire that we are fully responsible for this sea wall and our own property, which a number of other residents I believe have also done. In addition the shire has licensed property owners to conduct sea walls to protect from coastal erosion in the event of a sea level rise. The data that the authorities are working on appears to date back to 2012 and longer and in fact in this time there has been no evidence of sea level rise. We have been residents there for 21 years and prior to that I witnessed from a young boy holidaying adjacent to this area the original diversion drain which contains the outflow of the Carbunup River being effectively managed by a timber basket weave structure which protected the beach from erosion. Over the years this timber structure was not maintained and effectively was gradually removed, which as a result during specific flood events with a strong northerly storm the river is diverted hard against the beach front and erodes the beach sand as the river flows parallel to the beach - as has occurred this last winter. We support the replacement of a short structured wall to channel the flooding winter flow further out into the ocean to replicate the timber structure that proved very effective in maintaining the beach front from erosion.	Integrated erosion protection. Funding (SAR).

SUMMARY OF SUBMISSIONS

PROPOSAL: Draft Coastal Hazard Risk Management and Adaptation Plan
SUBMISSIONS CLOSE: 28th September 2021

No.	NAME	NATURE OF SUBMISSION	KEY ISSUES
		We recommend no further action be taken to create rock sea walls which have been proven to fail to protect the beach in many countries overseas and can contribute to further erosion of the beach. It also restricts public access to the beachfront and creates a personal injury hazard due to the rough nature of the rock structure, leading to a substantial diminishing amenity to the public and local residents. With the recent advances in green energy and the commitments of worldwide governments to the 2050 Paris protocol it is likely that the benefits of this will halt and potentially reduce the warming of the ocean and substantially alter the rate of sea level rise. We therefore recommend that council should concentrate its efforts in protecting public assets centred more around the town and the concentration of the population as this small group of approx 40 residents at Siesta Park that have insurance to protect against sea invasion and any moves by the council to alter this status may affect this insurance capability. We are sure that councillors do not want to diminish the protection of this insurance when the sea level rise is questionable at present and adequately protected against erosion with the licenced geo fabric walls and the legal caveat agreements between the owner and the Shire. It would be inequitable to the rate payers for multimillion dollar expenditure on a sea wall in this area which is questionable as to its future requirements for the protection of such a small number of properties extending from the Carbunup diversion drain to the Siesta park holiday resort. The long term consequence of the rock walling at Siesta Park was dramatically displayed with the erosion of the holiday camps on the foreshore and the need for further protection groynes at great expenses by council and the camps.	

SUBMISSION 1

Submission: Coastal Hazard Risk Management and Adaption Plan (CHRMAP), Draft, February 2021

I do not support the CHRMAP in its current form.

Our property at 1 Smith Street, Marybrook is located ~ 142m back from the MHWM, consistent with other properties in the vicinity. There is a significant buffer of coastal reserve with significant vegetation between us and the beach. Our property was not inundated by TC Alby in 1976, considered a 1 in 200 year storm event. There is significant public access to the beach via Smith Street which families holidaying at the 4 Seasons Holiday Park use extensively.

The draft CHRMAP in its justification states:

> *"The absence of a substantial foreshore reserve in parts of Marybrook means that protection from inundation is not practicable – hence the accommodate strategy proposed. Also, the pattern of land tenure, limited public access and absence of public facilities means there is little broader public benefit in coastal protection in this area."*

While this may be true for properties at the Eastern end of Marybrook and further to the East in Siesta Park, it is not true for our property. **A one size fits all approach to properties in Marybrook is not justified.**

The City should take a more nuanced approach in planning for uncertain future outcomes rather than a highly conservative approach based on the lowest common denominator. Our property should be afforded the same protection as similar properties located elsewhere in Geographe Bay. The draft plan indicates that a seawall will be constructed between Molloy Drain and Lennox Drain and this should be lifted over time to 3.5 - 3.8m. Together with beach groins this would provide protection for a significant portion of this section of Geographe Bay. There would seem to be ample beach reserve to cater for both in the immediate vicinity of our property and I believe this is an appropriate planning response. I don't think it is realistic to assume that Government (State or Local) will abandon property owners in ~ 50 years time.

I have read the Damar report available on the City of Busselton's website and I have also reviewed information on coastal change from Geoscience Australia.

- The Geographe Bay coastline has been subject to coastal accretion for ~ 2500 years and accretion is still occurring and is expected to continue, at least for many decades to come even based on the "high case" assumptions for sea level rise. This long term sediment supply is a major offset to any potential impacts of climate change.
- Over the last 30 years there has been on average an accretion rate of 2.5m / year to the beach in the vicinity of our property.
- The coast in the vicinity of 1 Smith Street Marybrook is modelled to be the least effected by erosion of any location along Geographe Bay.

On the basis of the evidence available it is not appropriate for the City to apply the onerous planning provisions proposed in the draft CHRMAP. I understand the City needs to develop long term strategies do deal with potential long-term risks. However, the City needs to recognise that being overly conservative manifests itself in substantial negative impacts on private property owners for risks that may or may not eventuate later this century, well into next century, or indeed not at all.

I do not support the following provisions being applied to our property:

- *Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).*
- *Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.*

I do not agree with the "key rationale" statement with respect to 1 Smith Street Marybrook:

> *The absence of a substantial foreshore reserve in parts of Marybrook means that protection from inundation is not practicable – hence the accommodate strategy proposed. Also, the pattern of land tenure, limited public access and absence of public facilities means there is little broader public benefit in coastal protection in this area. As such, it is considered that the costs of protection should be borne by the benefiting landowners.*

I do not understand and request further clarification of the provision:

> *Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.*

I would support the following planning provisions similar to those proposed for Quindalup, which has properties of a similar nature to our own:

- *Establish minimum FFL for habitable floor space at 3.0m AHD.*
- *Provide the option for people to establish FFL for habitable space at 3.8m and calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).*
- *Plan on the basis that a seawall will be established that over time will be raised up to a level of 3.8m and that groins will be constructed as required to afford protection well into the 22nd century as a minimum.*

I would urge Council to conduct further consultation with the Community on this important issue prior to finalising the plan given the significant implications for rate payers.

Dale Harris
Phone: 0419 198 357

Summary

- ***Our Property - 1 Smith Street, Marybrook***
  - ***~ 142m setback from MHWM and sits behind the High Scenario Storm Event line.***
  - ***Significant coastal reserve and vegetation between our property and the beach.***
  - ***Did not suffer inundation from TC Alby (a 1 in 200 year storm event)***

- ***Significant public use of the beach with holiday makers at 4 Seasons Holiday Park accessing via Smith Street.***

- ***Geographe Bay has been subject to Coastal Accretion for ~ 2500 years. Coastal accretion is still occurring today and is predicted to continue for decades to come.***
  - ***Long term sediment supply is a major offset to potential impacts of climate change.***

- ***The Damar report shows that Marybrook has the amongst the highest accretion levels and lowest potential erosion risk of any part of Geographe Bay.***

- ***The climate has been changing for millions of years and is subject to long term natural cycles.***
  - ***Evidence models have over predicted mankind's impact on the climate and under estimated the natural drivers.***
  - ***Making decisions today on what might happen in 50+ years based on modelling is fraught.***

- ***A "highly conservative" government approach equates to a potentially aggressive, punitive and unjustified outcome for property owners.***

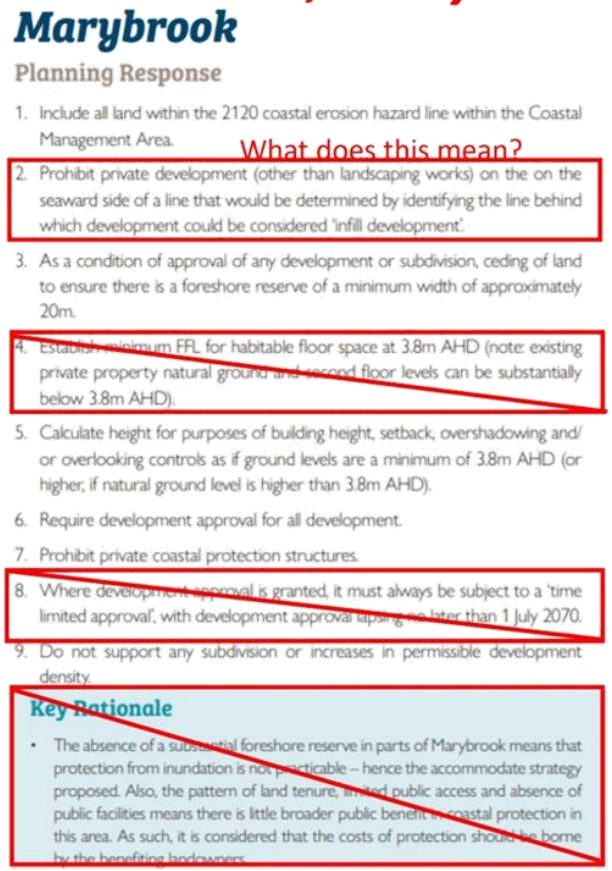
- ***Our property should be treated in the same manner as similar properties along Geographe Bay and provided the same level of protection. We should be all in this together.***

We do not support the proposed planning responses in their current form as they apply to our property at 1 Smith Street, Marybrook.

- ***Requiring a FFL of 3.8m AHD will impose significant costs, may not be practicable and is unnecessary.***
- ***Restricting development approvals to 2070 is not warranted and has a significant negative impact on property owners.***
- ***Substantial foreshore reserve, access to beach and 4 Seasons Holiday Park does warrant protection of Marybrook in vicinity of Smith Street.***

We would support:

- ***Seawall and groyne protection being implemented progressively to support long term protection.***
- ***Requiring a FFL of 3.0m AHD with the option to go to 3.8m.***
- ***On going monitoring and measurement of coastal accretion / erosion with report back to residents periodically (say every 10 years). This will allow property owners to make informed decisions.***



Marybrook

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.

What does this mean?

2. Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).
6. Require development approval for all development.
7. Prohibit private coastal protection structures.
8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
9. Do not support any subdivision or increases in permissible development density.

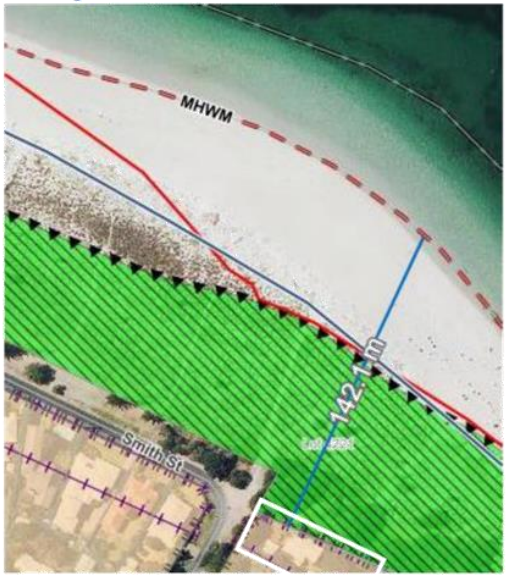
Key Rationale

- The absence of a substantial foreshore reserve in parts of Marybrook means that protection from inundation is not practicable – hence the accommodate strategy proposed. Also, the pattern of land tenure, limited public access and absence of public facilities means there is little broader public benefit in coastal protection in this area. As such, it is considered that the costs of protection should be borne by the benefiting landowners.

Our Property - 1 Smith Street Marybrook



- *~ 142m set back from MHWM*
- *Wide coastal reserve*
- *Extensive vegetation including peppermint trees and other native tress and shrubs*
- *Public access used by holiday makers staying at 4 Seasons Holiday Park*



Photos looking from balcony towards the beach showing coastal reserve and extensive vegetation






Our property sits behind the "100 Year High Scenario" Storm event line

- *Our property - 1 Smith Street. FFL @ ~ 1.9m*
- *Smith Street Properties are located behind the high scenario 1996 +10% Storm Scenario*
- *Our property suffered no inundation from TC Alby*



VEGETATION LINE DEC 2008 AERIAL PHOTOGRAPHY			
LOW SCENARIO	JULY 1996 STORM EVENT	+0.4m SEA LEVEL RISE	100 YEAR TIME FRAME
MEDIUM SCENARIO	JULY 1996 STORM EVENT +10%	+0.9m SEA LEVEL RISE	100 YEAR TIME FRAME
HIGH SCENARIO	JULY 1996 STORM EVENT +10%	+1.1m SEA LEVEL RISE	100 YEAR TIME FRAME

Risk Profiles Are Different





Marybrook in proximity to Smith Street

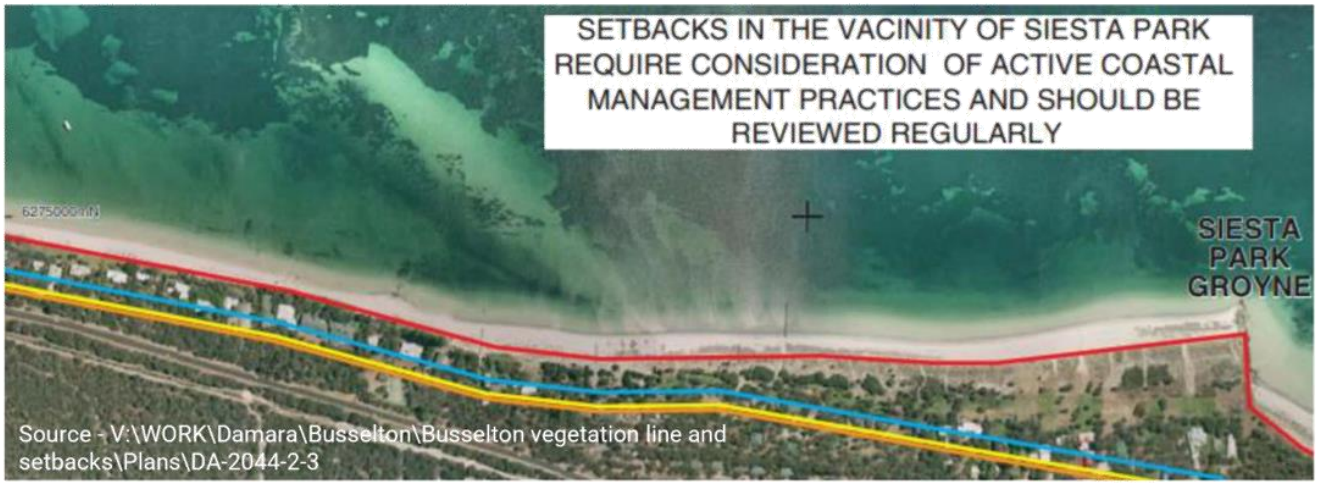
- Wide Coastal Reserve, Wide Beach
- Properties substantially set back
- ~ 140 – 160m back from MHWM
- Little evidence that beach has suffered erosion at all in the last 50 years



East towards Siesta Park

- No Coastal Reserve
- Narrow Beach
- Properties in some cases are on the MHWM

Siesta Park properties inside the "100 Year High Scenario" Storm event line



VEGETATION LINE DEC 2008 AERIAL PHOTOGRAPHY				
LOW SCENARIO	JULY 1996 STORM EVENT	+0.4m SEA LEVEL RISE	100 YEAR TIME FRAME
MEDIUM SCENARIO	JULY 1996 STORM EVENT +10%	+0.9m SEA LEVEL RISE	100 YEAR TIME FRAME
HIGH SCENARIO	JULY 1996 STORM EVENT +10%	+1.1m SEA LEVEL RISE	100 YEAR TIME FRAME

Properties to the East towards Siesta Park

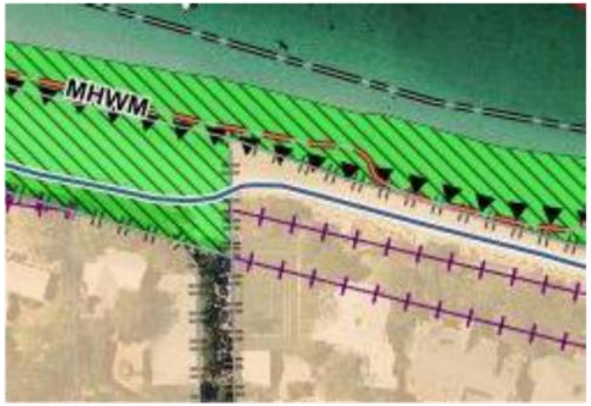


- On the beach with no coastal reserve
- Little to no set back to MHWM









"The prevailing large-scale process occurring along Geographe Bay is accretion which has been occurring for a several thousand years"

Damar Report

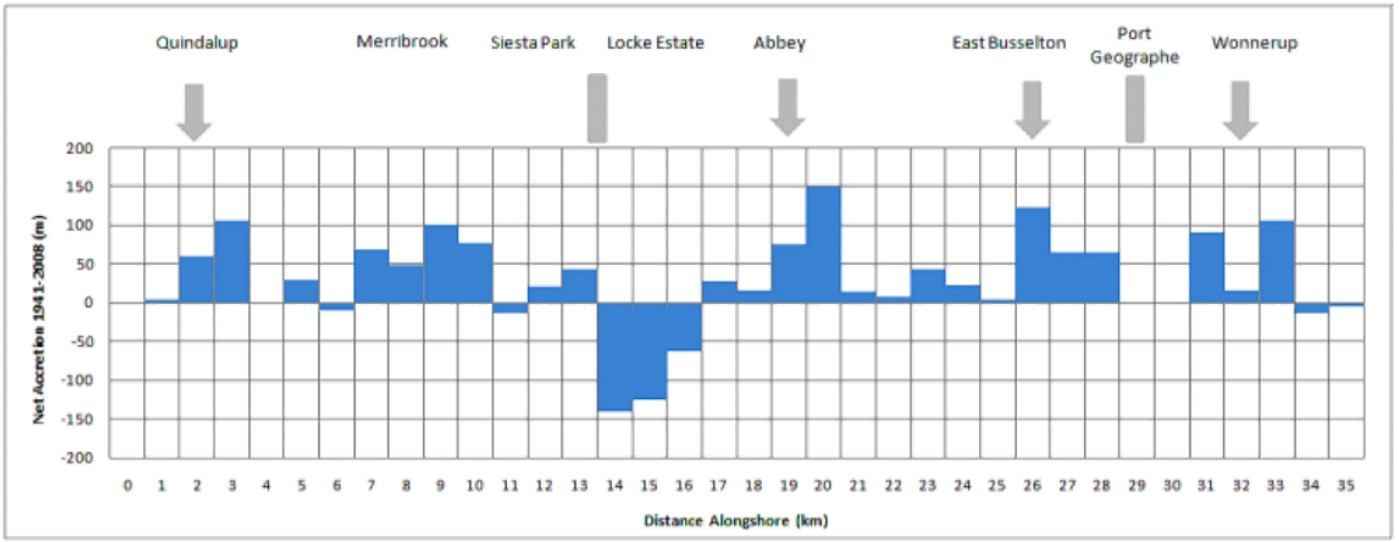
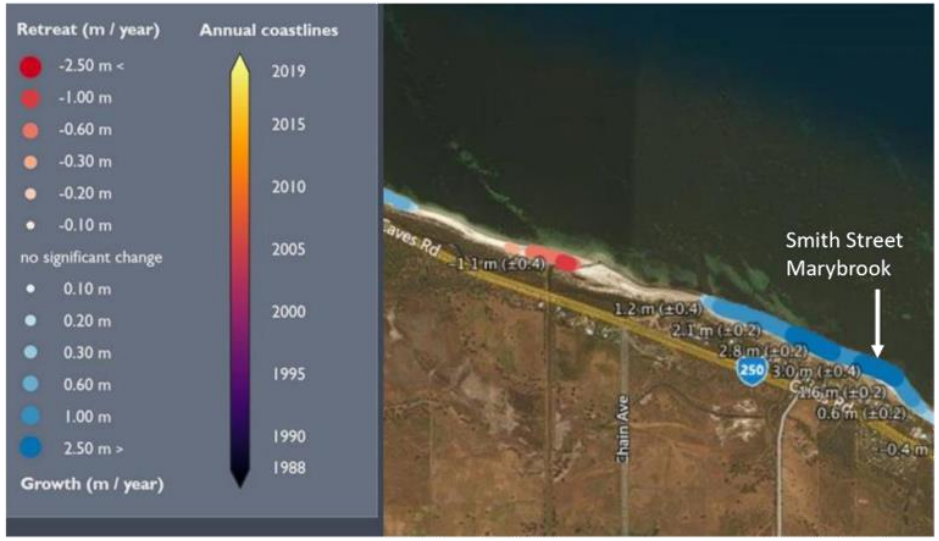


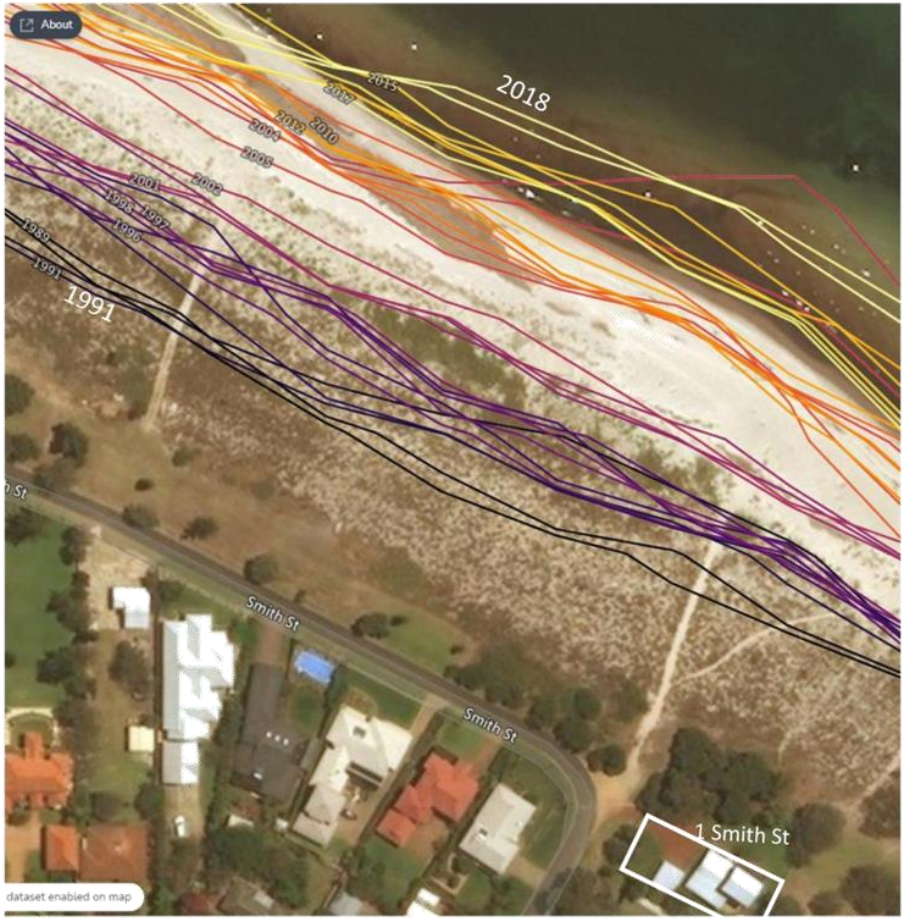
Figure 5-7: Shoreline Change from 1941 to 2008

Table 6-1: Alternative Sediment Budget Derived from Aerial Imagery

Location	Sand Feed	Change	Transport
Dunsborough-Quindalup	Dunn Bay Bar 40-50,000 m^3 p.a.	Accretion 15-20,000 m^3 p.a.	Eastwards 20-30,000 m^3 p.a.
Toby's Inlet-Merribrook		Accretion 15-20,000 m^3 p.a.	Eastwards 10-15,000 m^3 p.a.

Significant accretion over the last 30 years at Smith Street, Marybrook





In Geographe Bay accretion is predicted to continue for may years

Damar Report

"Evidence to describe the evolution of Geographe Bay over geological time frames is available from sediment analyses. **These confirm that the shore of Geographe Bay has been progressively accreting for approximately two and a half thousand years."**

"The **general trend of accretion over the last two thousand years** is anticipated to slow, and between **50 to 80 years from now** (see Section 9.5), is likely to shift towards an erosive trend as sea level rise progresses."

"It is evident from previous investigations and historic aerial photography that the Geographe Bay foreshore as a whole has **been accreting over the last 70 years"**

"Historical aerial photographs show that **the average accretion distance has been approximately 28m**"

" . . the historic mean sea level change has been **comparatively small**, with **0.15m** observed mean **sea level rise over the 20th Century**"

"From 1993 to 2000, mean annual sea level rose approximately 0.2m, but **only produced minor general erosion, with 0.5m average from Dunsborough to Wonnerup"**

Damar Report – Accretion expected for at least the next 55 years and possible for more than 100 years

Table 9-5: Balance of Supply and Demand over 100 Years

Scenario	Low	Medium	High
Average Supply	250 m^3 per m	210 m^3 per m	190 m^3 per m
Average Demand	170 m^3 per m	290 m^3 per m	330 m^3 per m
Difference	+80 m^3 per m	-80 m^3 per m	-140 m^3 per m
Shoreline Change	12 m accretion	12 m erosion	20 m erosion
Switch to Erosion*	> 100 years	70 years	55 years

Modelling indicates that Marybrook is least effected in the future

Damar Report

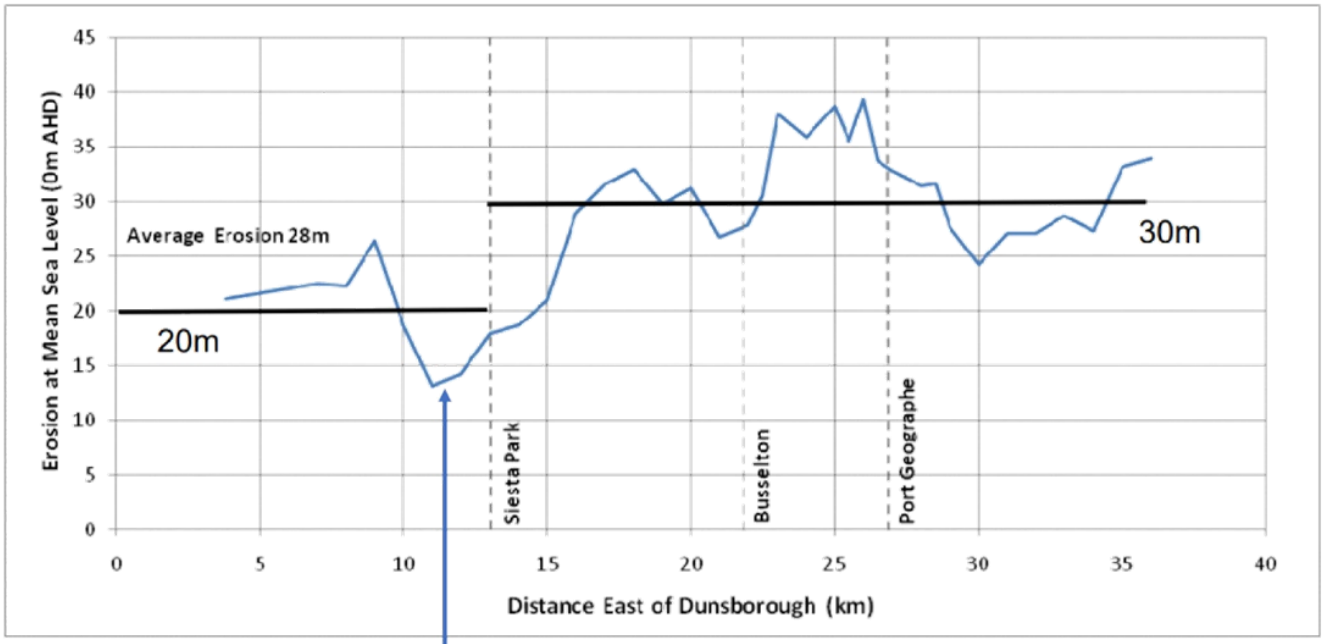


Figure 9-1: Cross-shore Erosion Distances Calculated using SBEACH

~ Location Smith Street – Marybrook
Lowest modelled erosion levels

Damar Report: "Over the 100 year time frame considered, the long-term sediment supply will act as a major offset to the erosive effect of climate change."

Table 9-1: Chronic Setback Allowance for Dunsborough-Quindalup

Climate Scenario	Existing	Low	Medium	High
S2 Allowance	0m	0m	11m	20m

Marybrook One of Least Effected Areas by Rising Sea Levels

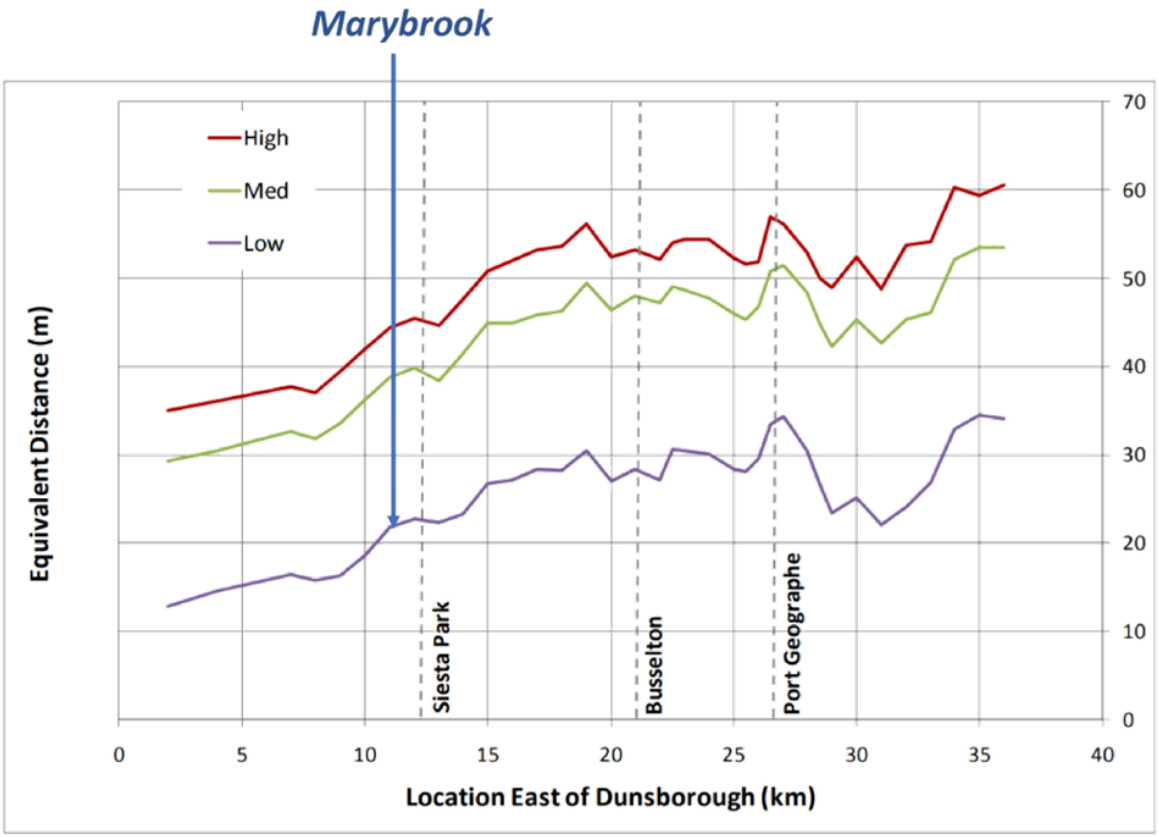


Figure 9-2: Erosion Volume Derived from SBEACH Modelling

Government Conservatism Equates To Substantial Damage to Property Owners

Marybrook

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).
6. Require development approval for all development.
7. Prohibit private coastal protection structures.
8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
9. Do not support any subdivision or increases in permissible development density.

What does this mean?

In place?

Does the science really support such onerous imposition on personal property rights?

Conservative from Council and State Government perspective.
BUT
Highly Aggressive, Punitive and Unjustified from Property Owners perspective.



There is adequate room to accommodate a seawall and combined with a groyne protect the majority of houses between Molloy and Lennox drains.



Key Questions

- *What happens in 2070?*
  - *If you have an existing house on your block which remains in place to 2070?*
  - *If you redevelop at some stage?*
  - *If you have not suffered any impact? Will you extend approval?*

- *Over the remainder of this century surely the State and City can protect all properties with a significant coastal reserve in front of them. Why single out one particular group? Should be "all in this together"*

- *Are there any changes proposed on certificates of title? What happens at time of sale of property?*

- *Why the rush to put in onerous and punitive planning controls now?*

  - *Property owners can make their own judgements on risk. The information is available.*

  - *Any impact, if at all, is many decades away. A new house built in the next ~ 20 years now will be an old depreciated house in 2070.*

  - *Modelling over such a long time frame is inherently uncertain.*

Appendices

Adaptation Pathway

Current - 2040

P Erosion Hazard
PROTECT Keep option of managed retreat possible post 2070

A Inundation Hazard
ACCOMMODATE

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).
6. Require development approval for all development.
7. Prohibit private coastal protection structures.
8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
9. Do not support any subdivision or increases in permissible development density.

Infrastructure / coastal management response

Subject to resolution of land tenure and access issues -

1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Station Gully Drain to a point somewhat to the west of the Molloy Drain, continuing from a point somewhat to the east of the Molloy Drain to a point somewhat to the east of the Lennox River Drain.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. Caves Road may also need to be closed to traffic..

Financial response

Subject to resolution of land tenure and access issues, and implementation of an integrated protection strategy, consider applying a Specified Area Rate to fully fund works required to protect properties from coastal erosion hazard.

Overview

Marybrook*

- Northeast- facing wide sandy beach (narrowing to the east) with the Molloy Drain and Lennox River Drain outlets.
- Includes the 'Deadwater' – the easternmost section of Toby Inlet dissected by Station Gully Drain.
- Public access to the beach becomes increasingly constrained between Birl Elbow and the Lennox River Drain.
- There is no continuous public foreshore reserve in the eastern section of this Management Unit.
- There are some private coastal protection structures.

Adaptation Pathway

2040 - 2070

Erosion Hazard
PROTECT Keep option of managed retreat possible post 2070

Inundation Hazard
ACCOMMODATE

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection for Molloy Drain and Lennox River Drain outlets will be required and is a recommendation of the CHRMAP.

Emergency management response

As per 'Current - 2040'.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

Erosion Hazard
TO BE DETERMINED

Inundation Hazard
TO BE DETERMINED

Responses

Planning Response

To be determined.

Infrastructure / coastal management response

To be determined.

Emergency management response

To be determined.

Financial response

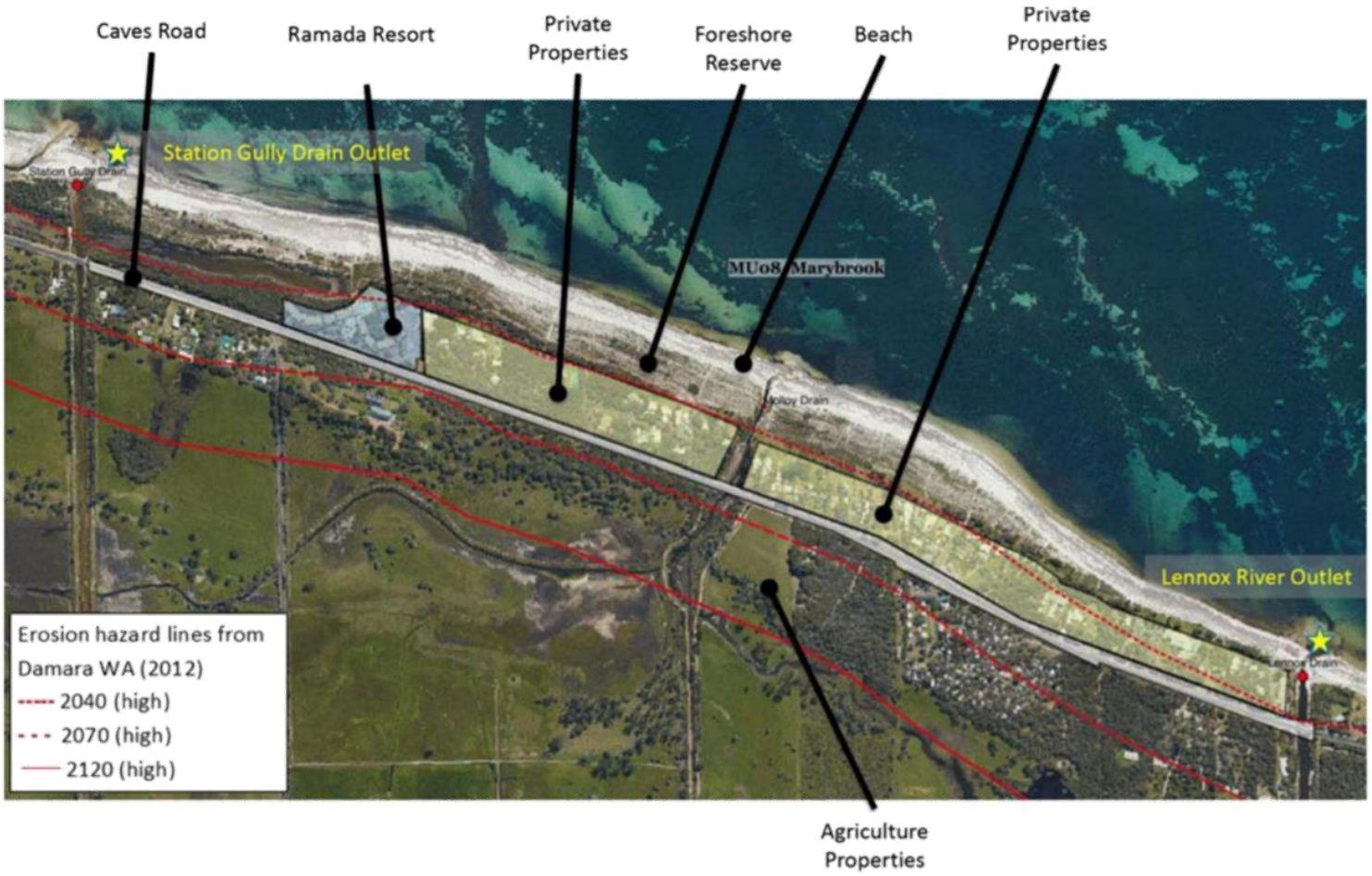
To be determined.

Key Issues

- Vulnerable to coastal erosion and coastal inundation.
- Absence of a substantial foreshore reserve at the eastern end of the Management Unit.
- Land tenure and limited public access.

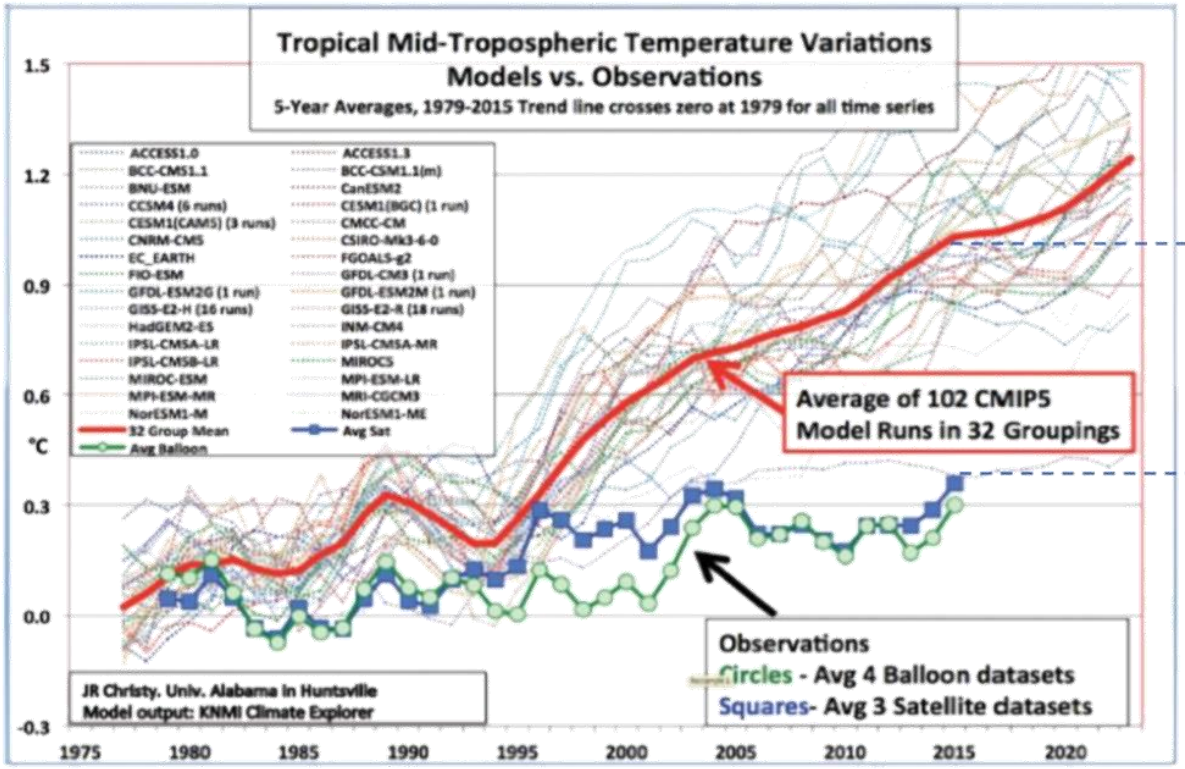
Key Rationale

- The absence of a substantial foreshore reserve in parts of Marybrook means that protection from inundation is not practicable – hence the accommodate strategy proposed. Also, the pattern of land tenure, limited public access and absence of public facilities means there is little broader public benefit in coastal protection in this area. As such, it is considered that the costs of protection should be borne by the benefiting landowners.
- Private coastal protection structures have the potential to cause unintended off-site impacts (such as protection on one property increasing erosion elsewhere) when implemented in an uncoordinated manner. An integrated approach, led by the City, however, would likely result in protection at lower overall cost and with less unintended consequences.
- Because there are not substantial developed areas inland of the narrow strips of private property along the coast, some of the issues that would arise with retreat strategies elsewhere would also not arise here; certainly not to the same degree. Once the planned Vasse-Dunsborough Link is built, the importance of Caves Road as a transport route would also diminish significantly. For those reasons, it is seen as appropriate to provide for potential retreat from this section of the coast in the longer-term. The adoption of such a strategy would provide flexibility for future decision-makers (albeit less certainty for landowners).


Caves Road
Ramada Resort
Private Properties
Foreshore Reserve
Beach
Private Properties
Station Gully Drain Outlet
MU08 Marybrook
Lennox River Outlet
Erosion hazard lines from Damara WA (2012)
2040 (high)
2070 (high)
2120 (high)
Agriculture Properties

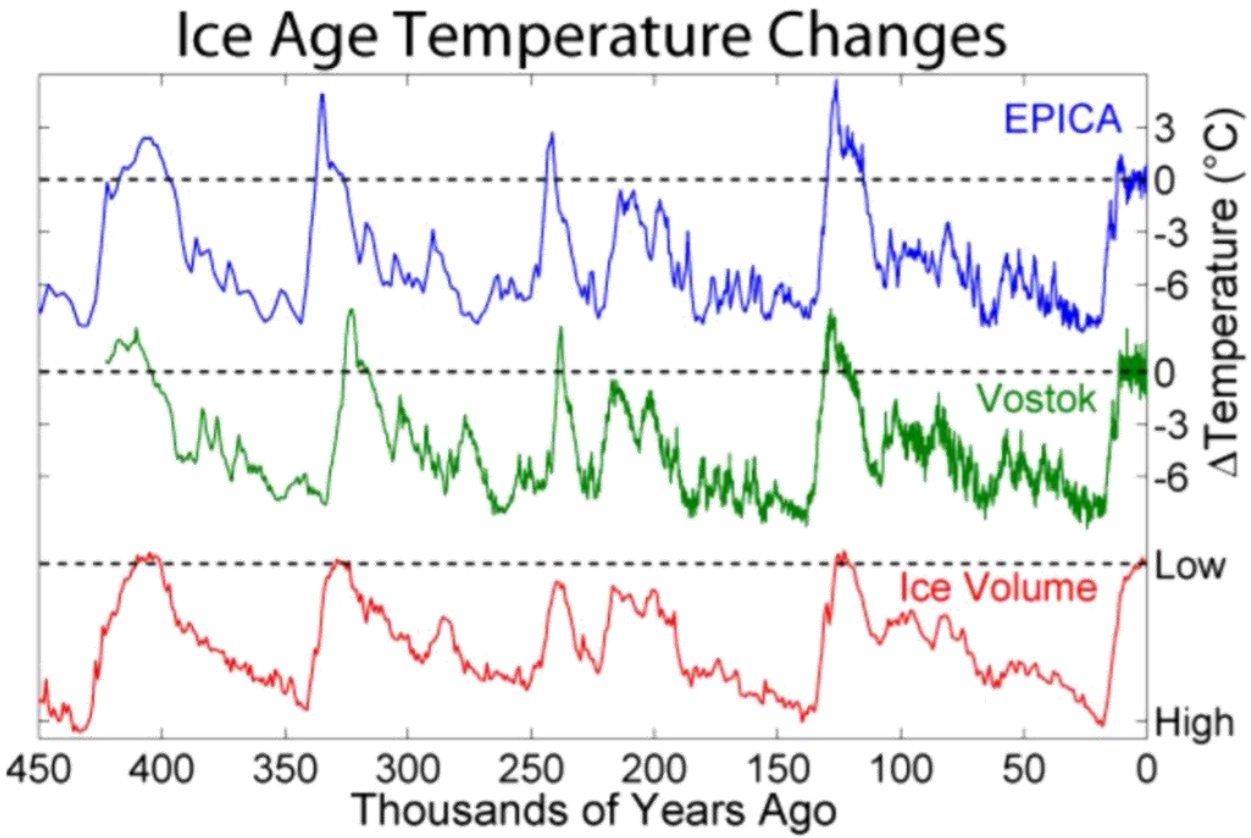
Observed increases in temperature are significantly lower than predicted by climate change models

Tropical mid-Troposphere trends



Models underestimate the natural drivers of climate change

The climate is variable long term . . . . We are currently "in between" ice ages



Submission: Coastal Hazard Risk Management and Adaption Plan (CHRMAP), Draft, February 2021

SUBMISSION 2

I do not support the CHRMAP in its current form.

Our property at 1 Smith Street, Marybrook is located ~ 142m back from the MHWM, consistent with other properties in the vicinity. There is a significant buffer of coastal reserve with significant vegetation between us and the beach. Our property was not inundated by TC Alby in 1978, considered a 1 in 200 year storm event. There is significant public access to the beach via Smith Street that families holidaying at the 4 Seasons Holiday Park use extensively.

The draft CHRMAP in its justification states:

> *"The absence of a substantial foreshore reserve in parts of Marybrook means that protection from inundation is not practicable – hence the accommodate strategy proposed. Also, the pattern of land tenure, limited public access and absence of public facilities means there is little broader public benefit in coastal protection in this area."*

While this may be true for a small number of properties at the Eastern end of Marybrook and further to the East in Siesta Park, it is not true for our property and for the vast majority of the Marybrook coastline. **A one size fits all approach to properties in Marybrook is not justified.**

The City should take a more nuanced approach in planning for uncertain future outcomes rather than a highly conservative approach based on the lowest common denominator. Our property should be afforded the same protection as similar properties located elsewhere in Geographe Bay. The draft plan indicates that a seawall will be constructed between Molloy Drain and Lennox Drain. This should be lifted over the next century to 3.5 - 3.8m, subject to on going assessment of actual and forecast changes in costal dynamics. Together with beach groins this can provide protection for a significant portion, if not all, of this section of Geographe Bay. There would seem to be ample beach reserve to cater for both in the immediate vicinity of our property and I believe this is an appropriate planning response. I don't think it is realistic to assume that Government (State or Local) will abandon property owners in ~ 50 years time.

The community values survey in the City of Busselton strongly supported the retention, wherever possible, of a continuous beach and foreshore along Geographe Bay.

I have read the Damar report available on the City of Busselton's website and I have also reviewed information on coastal change from Geoscience Australia.

- The Geographe Bay coastline has been subject to coastal accretion for ~ 2500 years and accretion is still occurring and is expected to continue, at least for many decades to come even based on the "high case" assumptions for sea level rise. This long term sediment supply is a major offset to any potential impacts of climate change.
- Over the last 30 years there has been on average an accretion rate of 2.5m / year to the beach in the vicinity of our property.
- The coast in the vicinity of 1 Smith Street Marybrook is modelled to be the least effected by erosion of any location along Geographe Bay.

On the basis of the evidence available it is not appropriate for the City to apply the onerous planning provisions proposed in the draft CHRMAP. I understand the City needs to develop long term strategies do deal with potential long-term risks. However, the City needs to recognise that being overly conservative manifests itself in substantial negative impacts on private property owners for risks that may or may not eventuate later this century, well into next century, or indeed not at all.

I do not support the following provisions being applied to our property:

- *Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).*
- *Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.*

I do not agree with the "key rationale" statement with respect to 1 Smith Street Marybrook:

> *"The absence of a substantial foreshore reserve in parts of Marybrook means that protection from inundation is not practicable – hence the accommodate strategy proposed. Also, the pattern of land tenure, limited public access and absence of public facilities means there is little broader public benefit in coastal protection in this area. As such, it is considered that the costs of protection should be borne by the benefiting landowners."*

I do not understand and request further clarification of the provision:

> *Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.*

I would support the following planning provisions similar to those proposed for Quindalup, which has properties of a similar nature to our own:

- *Establish minimum FFL for habitable floor space at 3.0m AHD.*
- *Provide the option for people to establish FFL for habitable space at 3.8m and calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).*
- *Plan on the basis that a seawall will be established that over time will be raised up to a level of 3.8m and that groins will be constructed as required to afford protection well into the 22nd century as a minimum.*

I would urge Councillors to conduct further direct consultation with the Community on this important issue prior to finalising the plan given the significant implications for rate payers. This should include forums where property owners can directly engage with Councillors on this very important issue.

Dale Harris
Phone: 0419 198 357

Summary

- *Vast majority of properties along the Marybrook Coast are set well back with a significant coastal reserve that would support protection structures being established similar to other parts of Geographe Bay*

- *Our Property - 1 Smith Street, Marybrook*
  - *~ 142m setback from MHWM and sits behind the High Scenario Storm Event line.*
  - *Significant coastal reserve and vegetation between our property and the beach.*
  - *Did not suffer inundation from TC Alby (a 1 in 200 year storm event)*

- *Significant public use of the beach with holiday makers at 4 Seasons Holiday Park accessing via Smith Street.*

- *Community values survey in the City of Busselton strongly supported the retention, wherever possible, of a continuous beach and foreshore.*

- *Geographe Bay has been subject to Coastal Accretion for ~ 2500 years. Coastal accretion is still occurring today and is predicted to continue for decades to come. Long term sediment supply is a major offset to potential impacts of climate change.*

- *The Damar report shows that Marybrook has the amongst the highest accretion levels and lowest potential erosion risk of any part of Geographe Bay.*

- *The climate has been changing for millions of years and is subject to long term natural cycles.*
  - *Evidence models have over predicted mankind's impact on the climate and under estimated the natural drivers.*
  - *Making decisions today on what might happen in 50+ years based on modelling is fraught.*

- *A "highly conservative" government approach equates to an aggressive, punitive and unjustified outcome for property owners.*

- *Our property should be treated in the same manner as similar properties along Geographe Bay and provided the same level of protection. We should be all in this together.*

Marybrook Coast Line

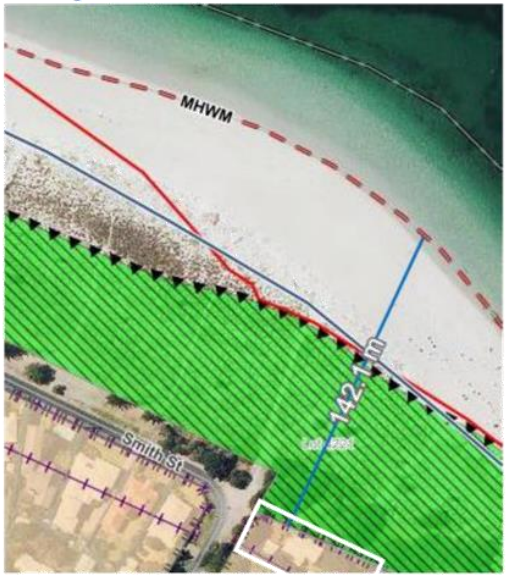
- ***Majority of the coastline has properties well set back with wide coastal reserves that would support protection.***
- ***Over time could negotiate arrangements with the relatively small number of property owners at the Eastern end to enable protection of the full length of Marybrook Beach.***



Our Property - 1 Smith Street Marybrook



- *~ 142m set back from MHWM*
- *Wide coastal reserve*
- *Extensive vegetation including peppermint trees and other native tress and shrubs*
- *Public access used by holiday makers staying at 4 Seasons Holiday Park*



Photos looking from balcony towards the beach showing coastal reserve and extensive vegetation






Our property sits behind the "100 Year High Scenario" Storm event line

- *Our property - 1 Smith Street. FFL @ ~ 2.0m*
- *Smith Street Properties are located behind the high scenario 1996 +10% Storm Scenario*
- *Our property suffered no inundation from TC Alby. (1 in 200 year storm surge event)*



Marybrook V Siesta Park - Risk Profiles Are Different!





Marybrook in proximity to Smith Street

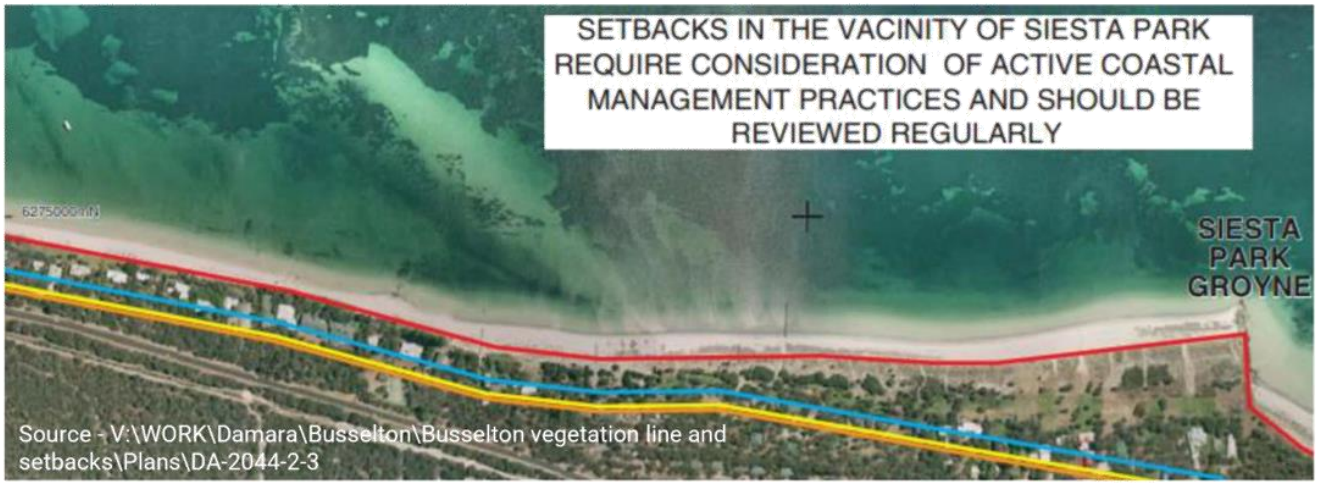
- Wide Coastal Reserve, Wide Beach
- Properties substantially set back
- ~ 140 – 160m back from MHWM
- No evidence that beach has suffered erosion at all in the last 50 years.



Siesta Park

- No Coastal Reserve
- Narrow Beach
- Properties in some cases are on the MHWM

Siesta Park properties inside the "100 Year High Scenario" Storm event line



VEGETATION LINE DEC 2008 AERIAL PHOTOGRAPHY				
LOW SCENARIO	JULY 1996 STORM EVENT	+0.4m SEA LEVEL RISE	100 YEAR TIME FRAME
MEDIUM SCENARIO	JULY 1996 STORM EVENT +10%	+0.9m SEA LEVEL RISE	100 YEAR TIME FRAME
HIGH SCENARIO	JULY 1996 STORM EVENT +10%	+1.1m SEA LEVEL RISE	100 YEAR TIME FRAME

Siesta Park

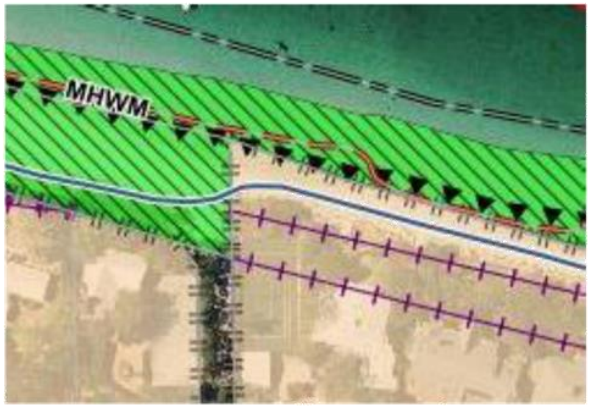


- On the beach with no coastal reserve
- Little to no set back to MHWM









"The prevailing large-scale process occurring along Geographe Bay is accretion which has been occurring for a several thousand years"

Damar Report

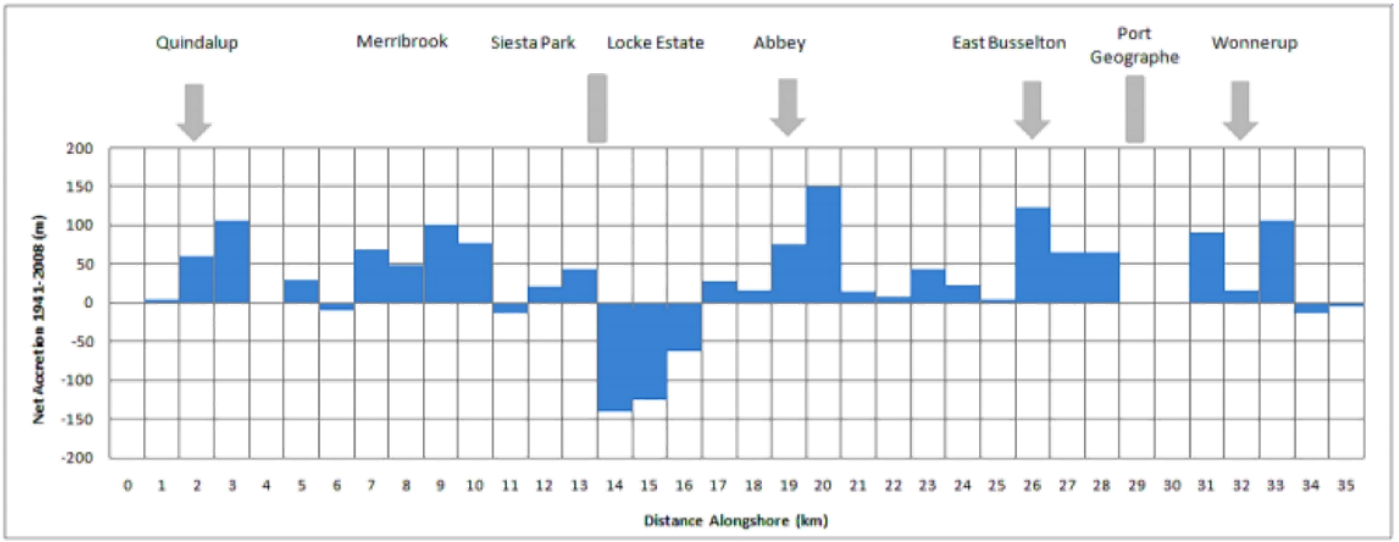
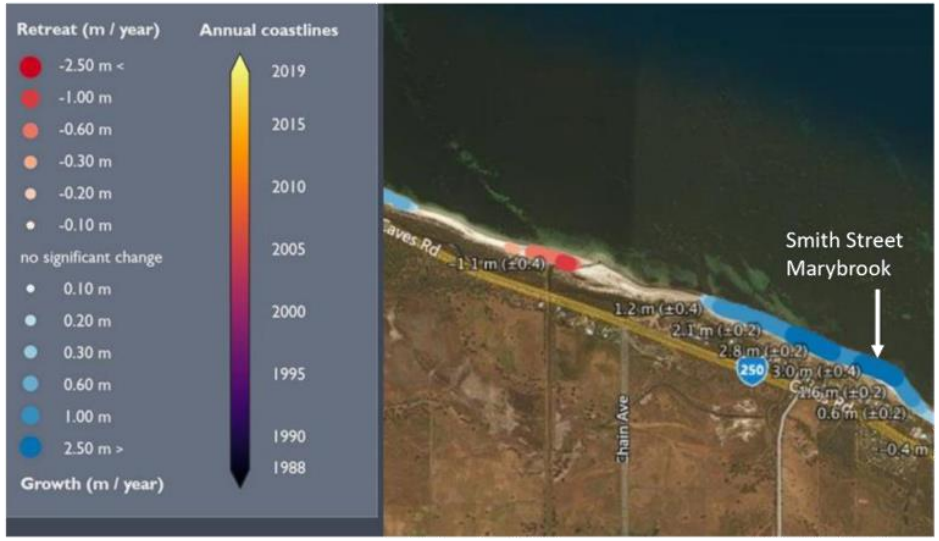


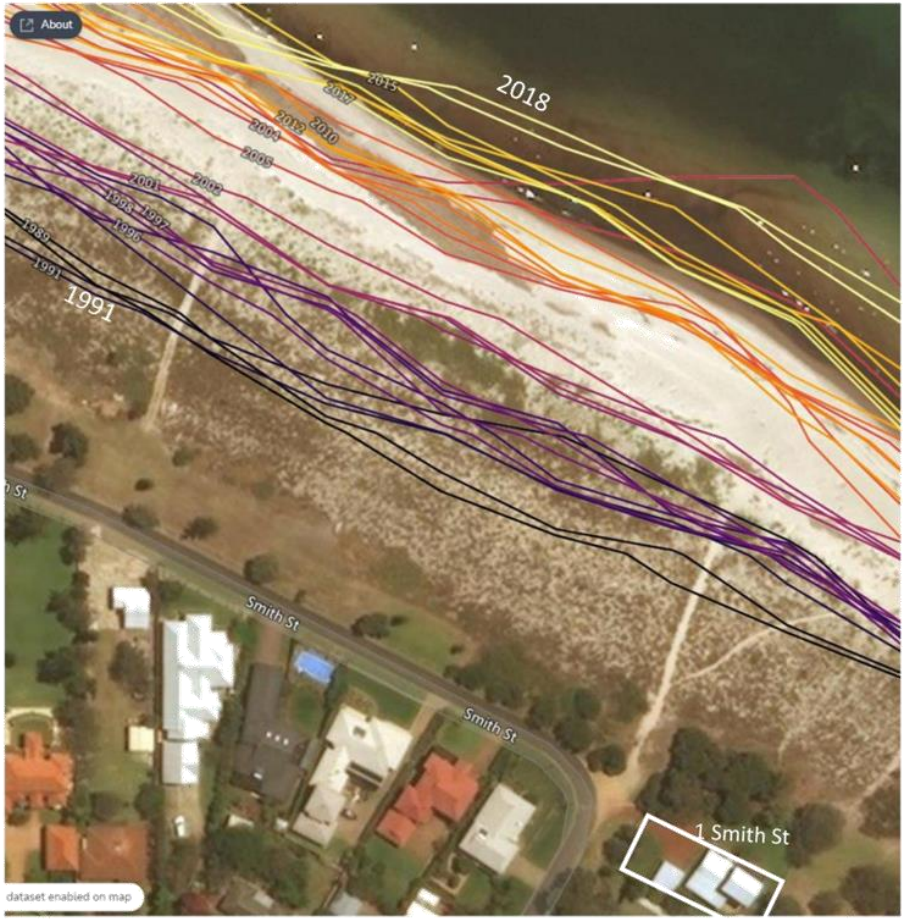
Figure 5-7: Shoreline Change from 1941 to 2008

Table 6-1: Alternative Sediment Budget Derived from Aerial Imagery

Location	Sand Feed	Change	Transport
Dunsborough-Quindalup	Dunn Bay Bar 40-50,000 m^3 p.a.	Accretion 15-20,000 m^3 p.a.	Eastwards 20-30,000 m^3 p.a.
Toby's Inlet-Merribrook		Accretion 15-20,000 m^3 p.a.	Eastwards 10-15,000 m^3 p.a.

Significant accretion over the last 30 years at Smith Street, Marybrook





In Geographe Bay accretion is predicted to continue for may years

Damar Report

"Evidence to describe the evolution of Geographe Bay over geological time frames is available from sediment analyses. **These confirm that the shore of Geographe Bay has been progressively accreting for approximately two and a half thousand years."**

"The **general trend of accretion over the last two thousand years** is anticipated to slow, and between **50 to 80 years from now** (see Section 9.5), is likely to shift towards an erosive trend as sea level rise progresses."

"It is evident from previous investigations and historic aerial photography that the Geographe Bay foreshore as a whole has **been accreting over the last 70 years"**

"Historical aerial photographs show that **the average accretion distance has been approximately 28m**"

" . . the historic mean sea level change has been **comparatively small**, with **0.15m** observed mean **sea level rise over the 20th Century**"

"From 1993 to 2000, mean annual sea level rose approximately 0.2m, but **only produced minor general erosion, with 0.5m average from Dunsborough to Wonnerup"**

Damar Report – Accretion expected for at least the next 55 years and possible for more than 100 years

Table 9-5: Balance of Supply and Demand over 100 Years

Scenario	Low	Medium	High
Average Supply	250 m^3 per m	210 m^3 per m	190 m^3 per m
Average Demand	170 m^3 per m	290 m^3 per m	330 m^3 per m
Difference	+80 m^3 per m	-80 m^3 per m	-140 m^3 per m
Shoreline Change	12 m accretion	12 m erosion	20 m erosion
Switch to Erosion*	> 100 years	70 years	55 years

Modelling indicates that Marybrook is least effected in the future

Damar Report

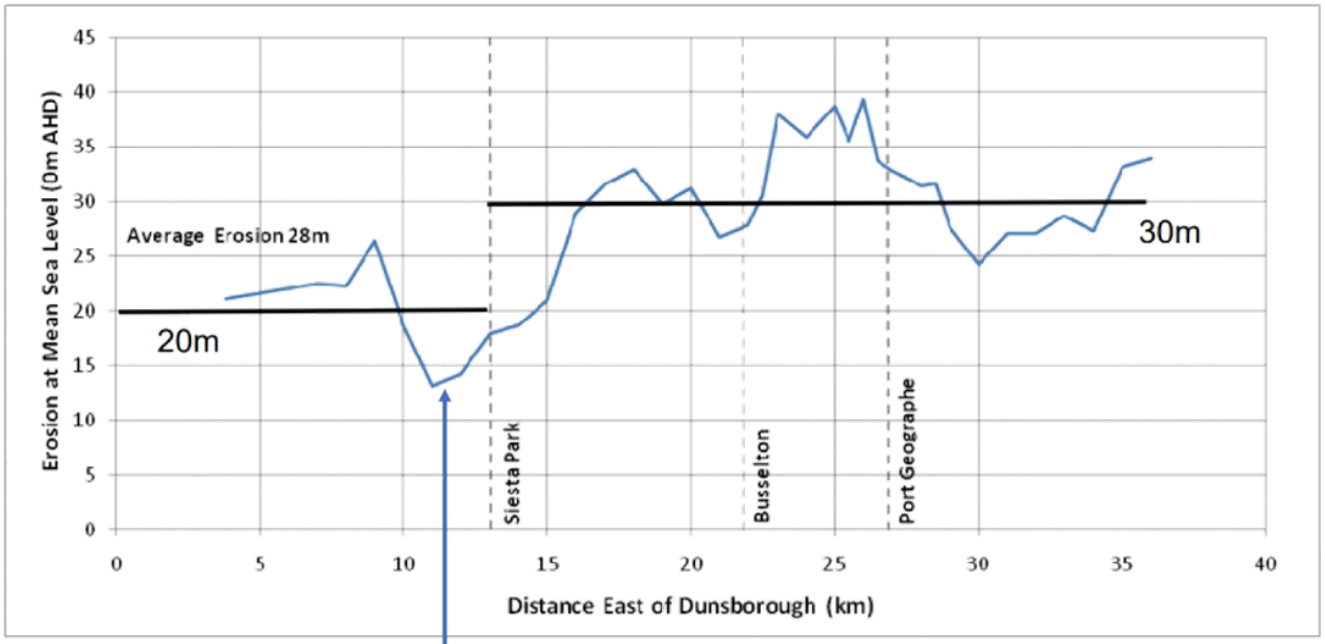


Figure 9-1: Cross-shore Erosion Distances Calculated using SBEACH

~ Location Smith Street – Marybrook
Lowest modelled erosion levels

Damar Report: "Over the 100 year time frame considered, the long-term sediment supply will act as a major offset to the erosive effect of climate change."

Table 9-1: Chronic Setback Allowance for Dunsborough-Quindalup

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Marybrook One of Least Effected Areas by Rising Sea Levels

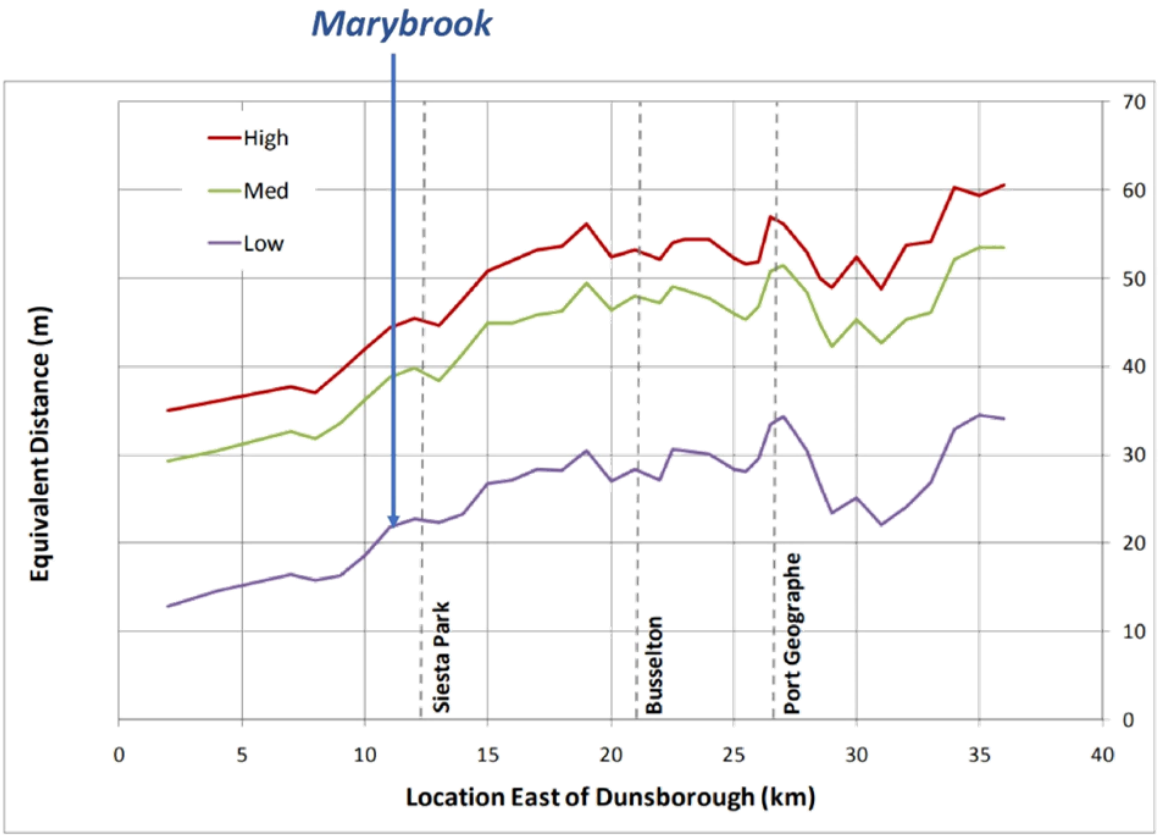


Figure 9-2: Erosion Volume Derived from SBEACH Modelling

Government Conservatism Equates To Substantial Damage to Property Owners

Marybrook

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).
6. Require development approval for all development.
7. Prohibit private coastal protection structures.
8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
9. Do not support any subdivision or increases in permissible development density.

What does this mean?

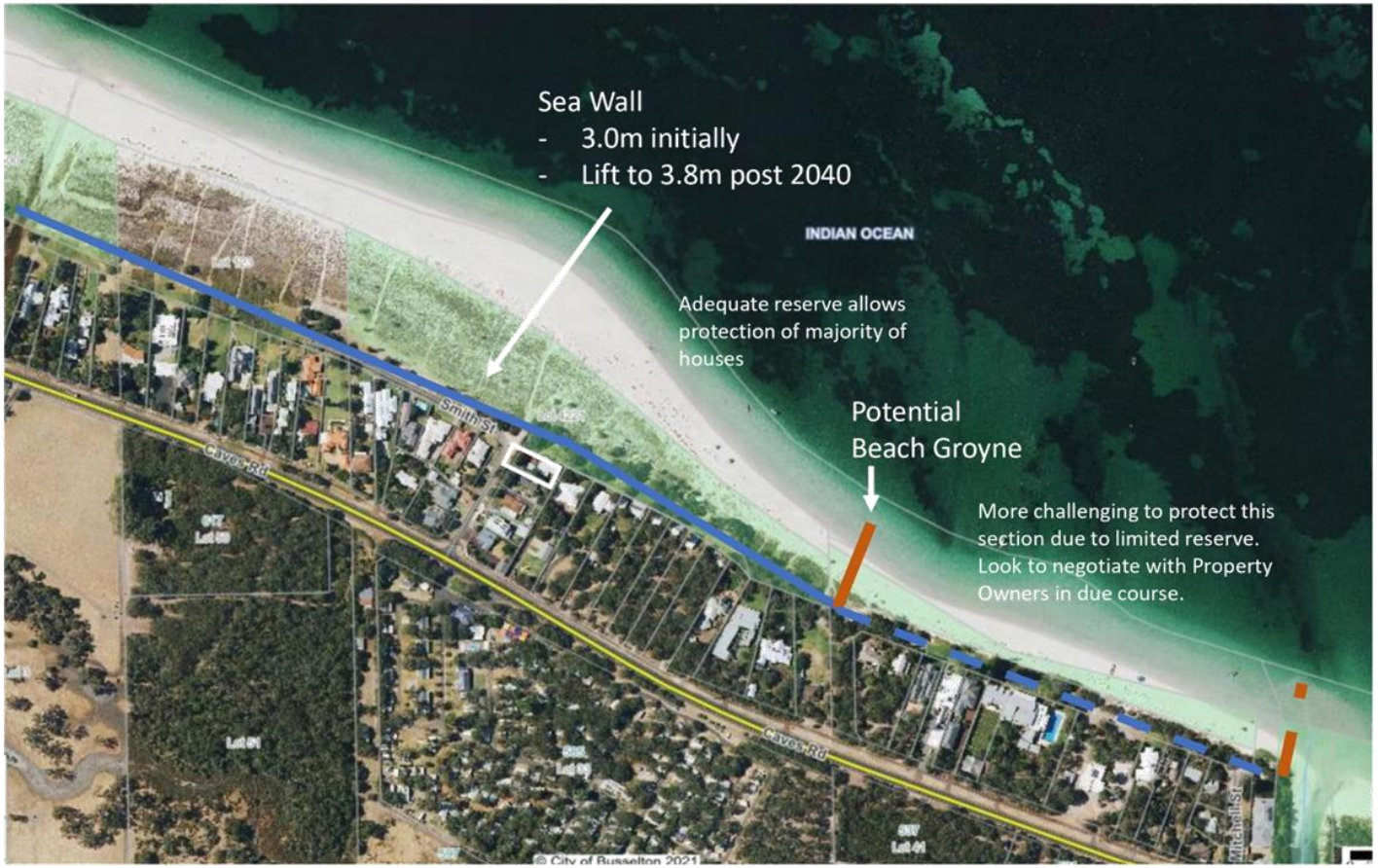
In place?

Does the science really support such onerous imposition on personal property rights?

Conservative from Council and State Government perspective.
BUT
Highly Aggressive, Punitive and Unjustified from Property Owners perspective.



There is adequate room to accommodate a seawall and combined with a groyne protect the majority of houses between Molloy and Lennox drains.



Key Questions - General

- *What happens in 2070?*
  - *If you have an existing house on your block which remains in place to 2070?*
  - *If your existing house reaches end of life or is damaged / destroyed by fire for example?*
  - *If you redevelop at some stage?*
  - *If you have not suffered any impact? Will you extend approval?*

- *Over the remainder of this century surely the State and City can protect all properties with a significant coastal reserve in front of them. Why single out one particular group? Should be "all in this together"*

- *Are there any changes proposed on certificates of title? What happens at time of sale of property?*

- *Why the rush to put in onerous and punitive planning controls now?*

  - *Property owners can make their own judgements on risk. The information is available.*

  - *Any impact, if at all, is many decades away. A new house built in the next ~ 20 years now will be an old depreciated house in 2070.*

  - *Modelling over such a long time frame is inherently uncertain.*

- *What is the basis for the following statement in section 6.0 of the CHRMAP?*
  "The model allows for the indexation of costs at 2.5%, except for sand to be used for beach nourishment which, beyond 2023, is indexed at 5% (sand supply and availability is likely to become limited and more costly over time)."

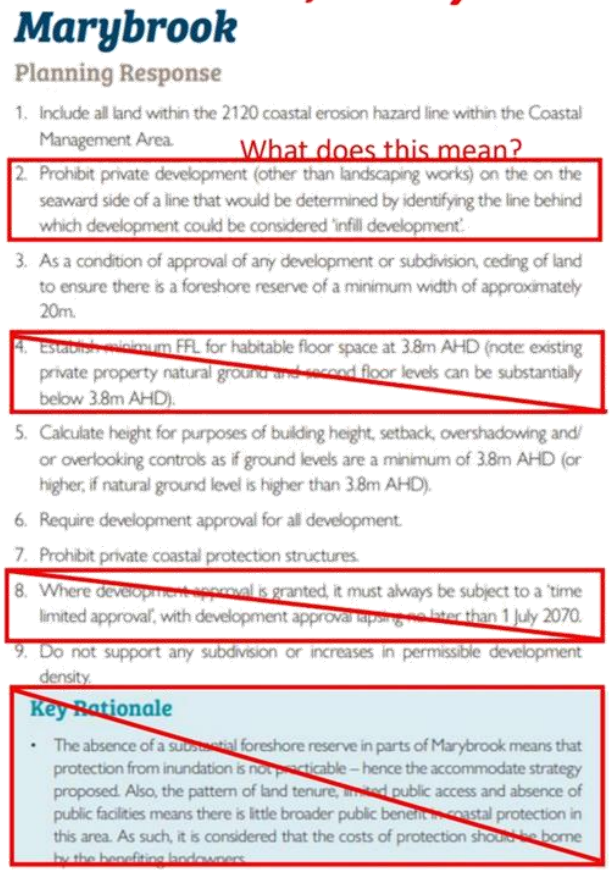
- *Will compensation be paid for the impact on property values due to the onerous planning restrictions imposed?*

We do not support the proposed planning responses in their current form as they apply to our property at 1 Smith Street, Marybrook.

- ***Requiring a FFL of 3.8m AHD will impose significant costs, may not be practicable and is unnecessary.***
- ***Restricting development approvals to 2070 is not warranted and has a significant negative impact on property owners.***
- ***Substantial foreshore reserve, access to beach and 4 Seasons Holiday Park does warrant protection of Marybrook in vicinity of Smith Street.***

We would support:

- ***Seawall and groyne protection being implemented progressively to support long term protection.***
- ***Requiring a FFL of 3.0m AHD with the option to go to 3.8m.***
- ***On going monitoring and measurement of coastal accretion / erosion with report back to residents periodically (say every 10 years). This will allow property owners to make informed decisions.***



Marybrook

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.

What does this mean?

2. Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).
6. Require development approval for all development.
7. Prohibit private coastal protection structures.
8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
9. Do not support any subdivision or increases in permissible development density.

Key Rationale

- The absence of a substantial foreshore reserve in parts of Marybrook means that protection from inundation is not practicable – hence the accommodate strategy proposed. Also, the pattern of land tenure, limited public access and absence of public facilities means there is little broader public benefit in coastal protection in this area. As such, it is considered that the costs of protection should be borne by the benefiting landowners.

Appendices

Adaptation Pathway

Current - 2040

P Erosion Hazard
PROTECT Keep option of managed retreat possible post 2070

A Inundation Hazard
ACCOMMODATE

Responses

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).
6. Require development approval for all development.
7. Prohibit private coastal protection structures.
8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
9. Do not support any subdivision or increases in permissible development density.

Infrastructure / coastal management response

Subject to resolution of land tenure and access issues -

1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Station Gully Drain to a point somewhat to the west of the Molloy Drain, continuing from a point somewhat to the east of the Molloy Drain to a point somewhat to the east of the Lennox River Drain.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment

Emergency management response

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. Caves Road may also need to be closed to traffic..

Financial response

Subject to resolution of land tenure and access issues, and implementation of an integrated protection strategy, consider applying a Specified Area Rate to fully fund works required to protect properties from coastal erosion hazard.

Overview

Marybrook*

- Northeast- facing wide sandy beach (narrowing to the east) with the Molloy Drain and Lennox River Drain outlets.
- Includes the 'Deadwater' – the easternmost section of Toby Inlet dissected by Station Gully Drain.
- Public access to the beach becomes increasingly constrained between Birl Elbow and the Lennox River Drain.
- There is no continuous public foreshore reserve in the eastern section of this Management Unit.
- There are some private coastal protection structures.

Adaptation Pathway

2040 - 2070

P Erosion Hazard
PROTECT Keep option of managed retreat possible post 2070

A Inundation Hazard
ACCOMMODATE

Responses

Planning Response

As per 'Current - 2040'.

Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection for Molloy Drain and Lennox River Drain outlets will be required and is a recommendation of the CHRMAP.

Emergency management response

As per 'Current - 2040'.

Financial response

To be determined subject to further investigation and progress at State level towards identification of sustainable, equitable and efficient funding of coastal adaptation.

Adaptation Pathway

2070 - 2120

Erosion Hazard
TO BE DETERMINED

Inundation Hazard
TO BE DETERMINED

Responses

Planning Response

To be determined.

Infrastructure / coastal management response

To be determined.

Emergency management response

To be determined.

Financial response

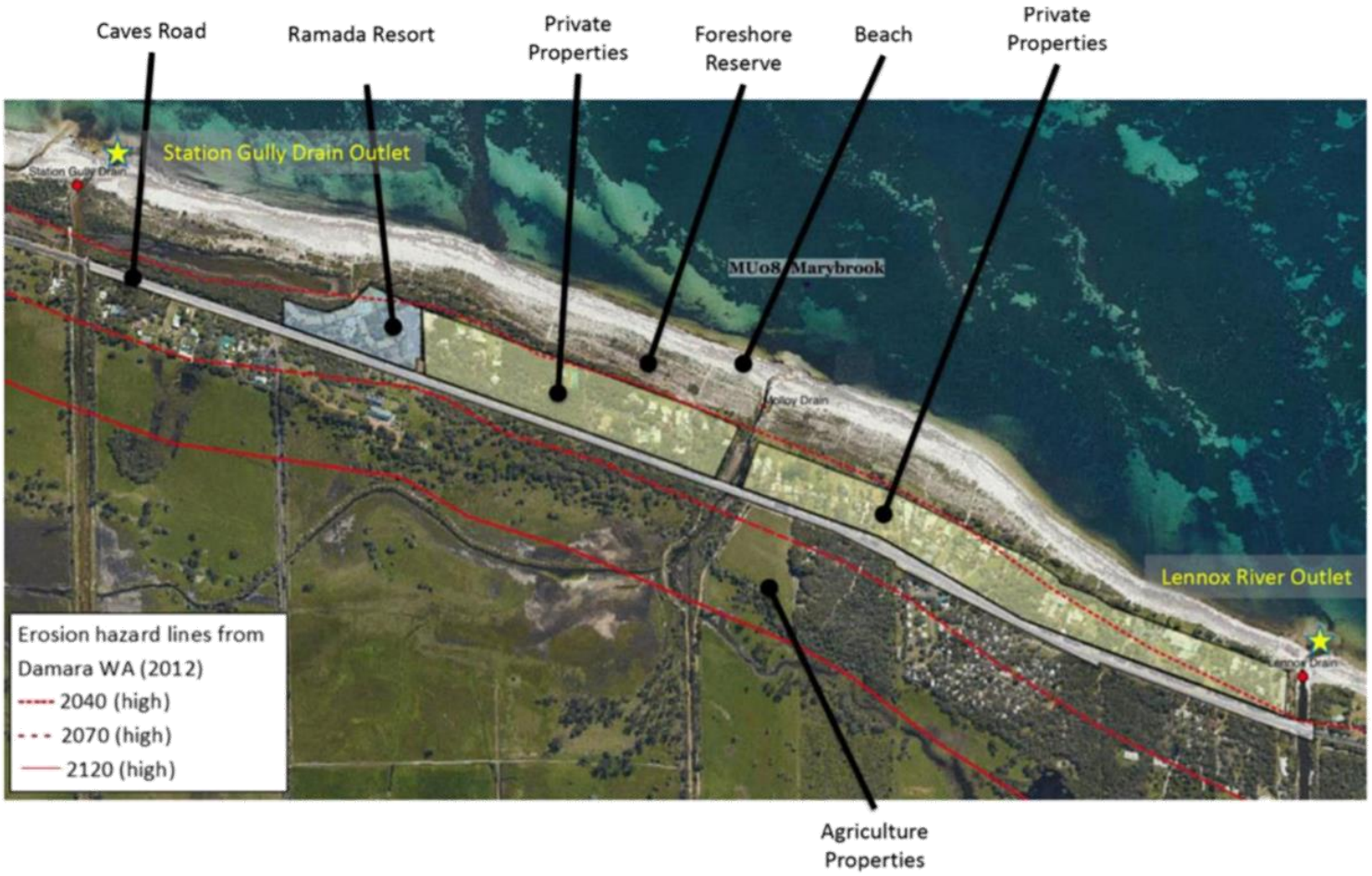
To be determined.

Key Issues

- Vulnerable to coastal erosion and coastal inundation.
- Absence of a substantial foreshore reserve at the eastern end of the Management Unit.
- Land tenure and limited public access.

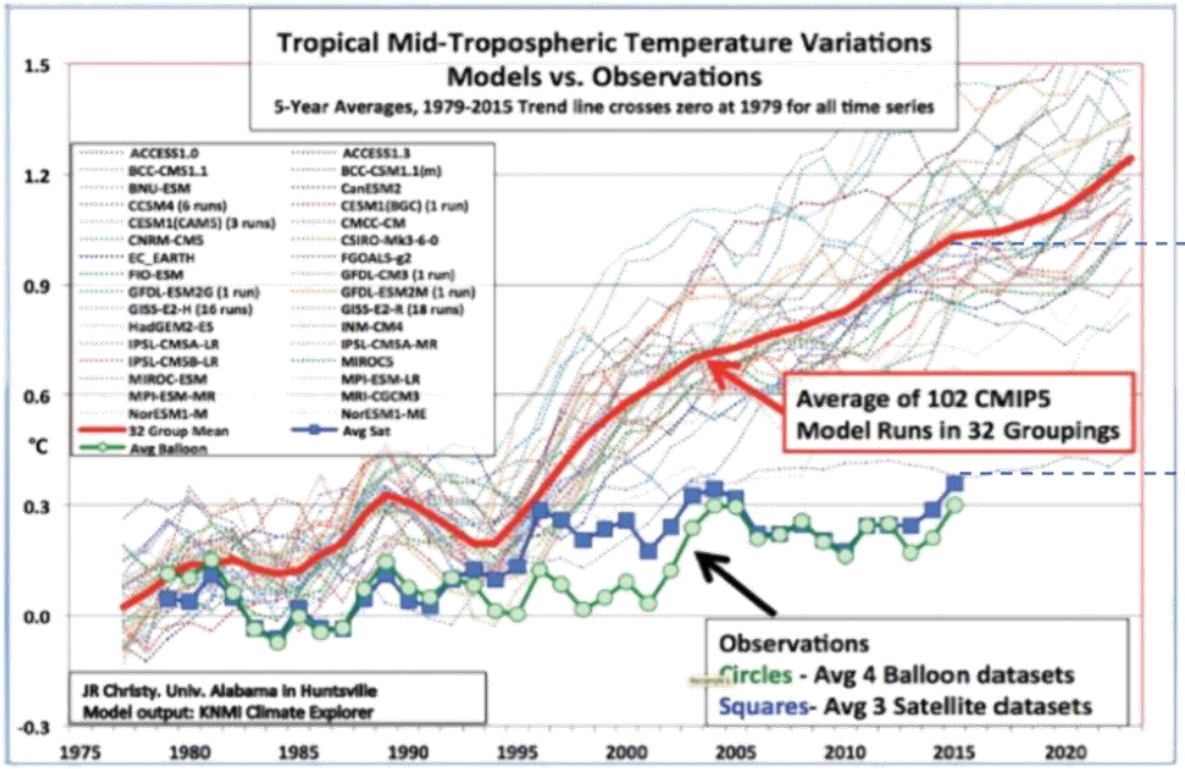
Key Rationale

- The absence of a substantial foreshore reserve in parts of Marybrook means that protection from inundation is not practicable – hence the accommodate strategy proposed. Also, the pattern of land tenure, limited public access and absence of public facilities means there is little broader public benefit in coastal protection in this area. As such, it is considered that the costs of protection should be borne by the benefiting landowners.
- Private coastal protection structures have the potential to cause unintended off-site impacts (such as protection on one property increasing erosion elsewhere) when implemented in an uncoordinated manner. An integrated approach, led by the City, however, would likely result in protection at lower overall cost and with less unintended consequences.
- Because there are not substantial developed areas inland of the narrow strips of private property along the coast, some of the issues that would arise with retreat strategies elsewhere would also not arise here; certainly not to the same degree. Once the planned Vasse-Dunsborough Link is built, the importance of Caves Road as a transport route would also diminish significantly. For those reasons, it is seen as appropriate to provide for potential retreat from this section of the coast in the longer-term. The adoption of such a strategy would provide flexibility for future decision-makers (albeit less certainty for landowners).


Caves Road
Ramada Resort
Private Properties
Foreshore Reserve
Beach
Private Properties
Station Gully Drain Outlet
MU08 Marybrook
Lennox River Outlet
Erosion hazard lines from Damara WA (2012)
2040 (high)
2070 (high)
2120 (high)
Agriculture Properties

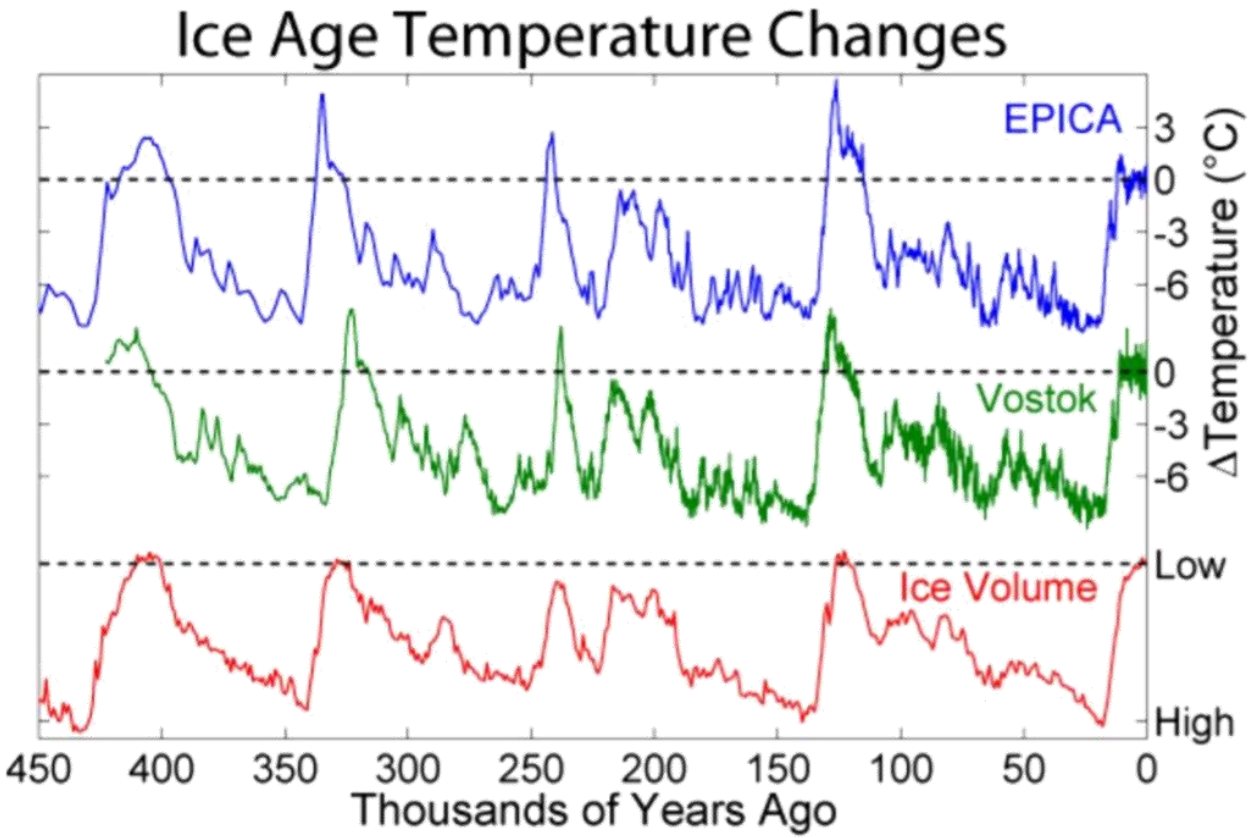
Observed increases in temperature are significantly lower than predicted by climate change models

Tropical mid-Troposphere trends



Models underestimate the natural drivers of climate change

The climate is variable long term . . . . We are currently "in between" ice ages



SUBMISSION 3

Written Submission to Busselton City Council

By

Port Geographe Land Owners Association

on

Coastal Hazard Risk Management and Adaption Plan [CHRMAP]

August 16, 2021

Introduction

This submission by the Port Geographe Landowners Association (PGLOA) responds to an opportunity to provide commentary on the draft Coastal Hazard Risk Management and Adaption Plan (CHRMAP) released in January 2021.

Landowners at Port Geographe have a pecuniary interest in coastal matters as the Special Area Rate they pay goes exclusively to coastal management. As Port Geographe is one of the jewels in the crown of the City of Busselton, PGLOA also takes a wider community view on matters that may indirectly relate to Port Geographe.

It is accepted that in planning along the coastal zone, the City of Busselton is required to take into consideration the guidelines within State Coastal Planning Policy SPP2.6, of the State Planning Commission.

Consequently, CHRMAP 2021 identifies areas and assets that could be potentially impacted by coastal erosion and inundations due to storm events and projected sea level rise (over the next 100 years), and makes recommendations for an adaptation framework.

Background

PGLOA made a submission to the City of Busselton on 17 December 2018 in respect of the proposed Structure Plan for the Newport (Aigle Royal) development, to which SPP2.6 was to be applied to developments that were already in train.

That submission noted the guidelines for SPP2.6 *inter alia* attempted to prescribe finished floor levels of 3.8m AHD. That figure was calculated as the sum of the 500-year Average Recurrence Interval (ARI) of 2.9 metres to cover storm surge, plus 0.9 metres, being one of several Intergovernmental Panel on Climate Change (IPCC) projections of sea-level rise to the year 2110.

The PGLOA submission of 2018 argued that a 100-year ARI, as is adopted by the WA Water Corporation, is more appropriate than the 500-year ARI. In respect of sea-level rise, it was also argued that the adoption of the upper bound of the worst-case scenario of the IPCC CMIP model was an unwarranted application of the precautionary principle, whereas the median of the most likely case was more appropriate. That median figure was 0.38m AHD by 2110.

It is relevant to note that satellite altimetry in the period 1993 – 2020 indicates global sea-level rise of 0.34mm/year, or 0.34 m per century, with no evidence of acceleration. Moreover, the most obvious reference marker for Geographe Bay is the 51-year tide records for the Port of Bunbury which indicates a mere rise of 1.22mm/year, equivalent to **0.12 metres per century** (Haig et al, 2011).

Finished Floor Levels

The determination of 3.0mAHD for FFLs for the Port Geographe Precinct is most welcome and supported by PGLOA.

We have previously expressed concern that the prescription of 3.8m AHD for future residences in Port Geographe would disrupt current and future development plans, tarnish the image of Port Geographe and destroy landowner wealth, for no beneficial outcomes. The unfortunate uncertainty of the last two years has indeed stalled development at Port Geographe. We now understand developments will resume with the resolution of this issue.

CHRMAP 2021 also aims to prohibit private development (other than landscaping works) on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'. (Note – currently seeking clarification on this ambiguous statement.)

In the wider residential and commercial areas of Busselton City, which mostly lie 1.5m – 2.5m AHD, we note that CHRMAP 2021 recognises it is not practical to lift existing developments to 3.8m AHD. It is also noted that the city has been applying 3.0mAHD on sites directly adjoining the coast for around the last 20 years on the basis of technical advice from the (former) Water and Rivers Commission. We wonder why this could not have been applied to Port Geographe three years ago. Nevertheless, we consider the agreed determination is a positive step forward, and are deemed acceptable for almost all of the eleven coastal management units around Geographe Bay, as well as Port Geographe. This determination is set for that next 20 years.
We see the setting at 3.0mAHD, not so much as a compromise, but a recognition of the flaws in the Guidelines to SPP2.6.

10-year Review Periods

We acknowledge the wisdom of undertaking reviews at 10-year intervals to re-assess risk and management options (Recommendation 7, P57). These reviews are to take into account new information as it emerges. We urge that such reviews focus on the actual measurements for global temperature and sea-level trends, as well as time-series data directly relevant to Geographe Bay. By the threshold year of 2040 (the end of the first 'adaptation pathway'), there will be 60 years of real data, equating to two climate periods.

Erosion control

It is possible the erosional threat to the Geographe Bay coastline is over stated in the CHRMAP document. Page 12 acknowledges that Geographe Bay coastline has been generally accreting since historical records of 1941, with some "local variations". Rates of accretion are in fact, phenomenally rapid. The added sediment has come not from coastal erosion or river input, but from the off-shore continental shelf, and is brought ashore by storm-driven wave action. Long-shore drift is simply the dispersal route for the enormous influx of sand added into the system. It can be argued that any increase in storm activity or rising sea level will **increase** the rate of accretion and build-up of dunes.

We therefore dispute the statement on P54 that "the most pervasive hazard for most of the City's coastline in the Study Area, especially over the short to medium term, is coastal erosion".
The abundant use of groynes, which is mooted to increase in future years, is questioned. It seems pointless to attempt the stabilise long-shore sand movement when such movements are an integral part of the accretionary dynamics of Geographe Bay.

It is indeed appropriate that CHRMAP recommends further study to specifically investigate local geomorphological influences on coastal erosion risk (P21). Some members of PGLOA have the technical competence to contribute to these studies.

Protection Strategy for Port Geographe

We are comforted that CHRMAP 2021 advocates retention of:

- public foreshore reserve and recreational assets.
- residential, tourist and commercial properties.
- marina infrastructure.
- Layman Road and other local roads/utilities.

It is worth remembering that the present revetment is already 3.4m AHD, and Port Geographe residential area is higher than anywhere else in Busselton.

We note a future feasibility assessment of storm surge protection of the marina entry channel is planned for the year 2040. This may be useful, but we see no need to provide funds for this in the interim.

Concluding Statements

1. PGLOA is pleased to see a resolution of the FFL issue at a reasonable 3.0m AHD, which should enable developments at Port Geographe to recommence.
2. The formally scheduled 10-year CHRMAP reviews should focus on actual climate measurements of both global and local significance.
3. There is a need to review the use of groynes with a better understanding of sediment dynamics of Geographe Bay.
4. Overall, we see CHRMAP 2021 as a useful overarching concept plan that informs, but does not dictate, other planning instruments of the City of Busselton.
5. State Coastal Planning Policy SPP2.6 is an outdated document.

SUBMISSION 4

Siesta Park Holiday Resort
368 Caves Road
Busselton 6280
ABN: 36 008 743 440

24th August 2021

CHRMAP SUBMISSION - PART 1

INTRODUCTION
Siesta Park Holiday Resort must be one of the largest remaining single land holding stakeholders that front Geographe Bay in the City of Busselton. Our family now has had 75 years and 4 generations of ownership and management experience including dealing with significant coastal erosion and inundation issues along the way including working out how to successfully deal with it and protect our property. We provide accommodation and facilities along a 400m of beach frontage for a few thousand Perth and WA country families annually who have always (pre Covid) made up say 95% or more of our total bookings, with hundreds of families making this a tradition and have been coming for a number of generations (up to their 4th and 5th generations in a number of instances) and I know they are very much hoping that this opportunity can continue for as long as possible.

SUBMISSION IN TWO PARTS
The subject and task of the CHRMAP (hereafter referred to as "the report") for Busselton is extremely important and is something that I feel we can make significant contributions to. The subject and amount of information that I would like to put forward is considerable and to do this effectively I have broken my submission into two parts -

- The first part will be focused on the content of the report including what I agree and disagree with etc and is intended to deal with things that will assist to allow the report to be finalised and adopted.
- The second part is largely a case study of how we propose to deal with the future erosion and inundation issues at Siesta Park plus makes suggestions for our surrounding areas. I expect that the information that I present in this part will further explain and support some of the general comments that I have made in Part 1.

PART 1 - REVIEW OF THE DRAFT CHRMAP (the report)

LIMITED SCOPE OF MY SUBMISSION
Firstly, my submission is limited to the parts of the report that relate to the soft coastline of Geographe Bay, from Dunsborough to the Forrest Beach with a particular concentration on the discussion and recommendations that have been drafted for the Siesta Park area plus the areas of Marybrook and Locke Estate adjacent to us, that the report has grouped us with on occasions, given that we share many characteristics and subsequent recommendations.

1.2: OBJECTIVES
I generally agree with the objectives but with regards to the 3rd objective - *To provide for sustainable public coastal foreshore reserves and access to those reserves,* I suggest that wording be expanded to recognise beaches too. ie: *To provide for sustainable public coastal foreshore reserves and beaches and access to them.*
I am unsure if this objective is intended to be all about maintaining access to install and maintain coastal protection infrastructure for example or if it is referring to the reserves as an amenity for the public or both. Regardless of this, the beach is the main and the most utilised amenity within the whole of the Bay whether that be to freely and simply walk it or when necessary be used as the easiest access way to get to any coastal protection infrastructure, on whoever's land it is on.
The significance of this is that there is a recurring theme in the report that unless a continuous and wide coast reserve exists nothing can be done and this is something that I disagree with and is something that the authors of the report will need to work through and learn to deal with whether they like it or not. And for the record Siesta Park Holiday Resort has a continuous and meaningful public coastal foreshore reserve in front of it.

1.3: STUDY AREA BROKEN INTO MANAGEMENT UNITS

The Bay has been broken into 15 pieces from Duns to Forrest Beach largely using familiar coastal locality names and boundaries. I appreciate that this has been done so that the report can be drilled into for discussion and analysis of particular parts however this is resulting in some oversimplification of complex areas.

For example, in the case of the Siesta Park MU it is evident in the report and at the CIS on 5th August that the area is most notorious and overwhelmingly thought of for the say 1km strip of land running from the Lennox drain mouth and back towards Busselton with discussion concentrated on topics including private land running to the beach, promotion of SAR to construct groynes and likely scenario of retreating from this area before all others. The fact is that half of the 2.6km Siesta Park area is fronted by reserves plus there is coastal stability, dunes and is amongst the highest land fronting the Bay, but the MU classification lobs us all in with the worst case 1km assessment.

Another example where this comes through is that all of Forrest Beach has gained a relatively high (compared to Siesta Park, Marybrook and Locke Estate) priority to be protected beyond 2070 due to its proximity to the Wonnerup Estuary. It is reasonable to say that the first 2.5km from the inlet mouth to the east carries this status but after that the last 3km holds no such status so again over simplified and basically incorrect assessment is the result. I trust that the failings of the draft report in this regard will be addressed so that each MU correctly assessed and the report can be delivered with better credibility and usefulness.

2.5: HISTORICAL SHORELINE CHANGES

The reports description from 1941 is simple and in an overall sense accurate however I know that at least for our property there was very significant erosion going on from the time our family arrived here in 1946 up until the 1970s before accretion started to become more common and more easily achieved including with groynes. The most logical explanation for this is that at about this time the prevailing winter storm weather systems was starting to noticeably abate to the benefit of our region of Geographe Bay as they started to arrive later in the year, duration of each event shortened on average and their prevailing direction revolving more westward. This has been brought about by the dropping down of the low-pressure systems that travel around the globe below Australia and converge with continental highs to generate build up storm fronts. This links to another thing that the report would do well to note is to also recognise the shoreline change experienced prior to 1941 which can be gained from title deed surveyed lengths that were measured to HWM. For example, our property's original 1895 title shows that the western boundary was 198m between Caves Rd and HWM but today is 120m thus 80m or 40% of the property has been lost to the ocean. This occurred in the first perhaps 50 years while for the last 50 years of our property's 126 years recorded history have been relatively stable and very capable of accretion when managed well. This is particularly relevant I believe when it comes to a discussion about "sand nourishment" and the potential success of groynes as a hard protection mechanism to hold and stabilise coastline as we consider the added complication of expected sea level rise. I will raise this topic again when dealing with those aspects of the report.

3.0: WHY DOES THE CITY NEED A COASTAL ADAPTATION STRATEGY

I agree with the resolution to deal with the likelihood of sea level rise in advance of it happening and thus continue to develop our protection infrastructure accordingly. The only proviso that I see is that the approach be staged and strategic. I see it as initially setting up protection infrastructure to carry us through to 50 years out (to allow for say 45cm of sea level rise) would seem reasonable and this infrastructure should be installed with the ability to raise/bolster the existing measures once the need is revised for the following 50 years.

3.1: COMMUNITY AND STAKEHOLDER ENGAGEMENT

Being in the tourist accommodation industry and as a resident of Siesta Park I believe the community values survey has totally missed recognising what beaches, coastal reserves and other public access type facilities are important to the visitors who come to our area. The survey may have included a few non-resident holiday home owners but it seems no holiday makers who utilise accommodation and facility properties like ours were approached and this has been to the detriment of the assessment of our area with a relatively low use/importance and equity judgements handed down by this draft report. This low rating assessment is shared by Marybrook and the Locke Estate which together with Siesta Park involves the Ramada Resort, Four Seasons Caravan Park, ourselves at Siesta Park Holiday Resort and the 16 campsites at the Locke Estate. Together we would cater for in the region of 15 to 20 thousand families a year and I estimate that 95 percent or more are from Perth or country WA (pre Covid too). These holiday making visitors inject a lot of well received income into our community and indirectly pay their way in rates as we do on their behalf (via

GRV rates calculation). Quite obviously, I sincerely hope that the report will be adjusted to address this shortcoming and all key rationale and recommendations adjusted accordingly. If necessary, I am prepared to contact some of our guests and give them an opportunity to answer questions such as were given to those surveyed in 2018 so this can be blended into the findings and recommendations of the final report. Another aspect that the community survey and the report as far as I can see has missed recognising is the FUTURE importance of some of our currently relatively low traffic coastal reserves and beaches. The Siesta Park Reserve for example runs along 600m of Geographe Bay and is quite ignored in the report but will surely be a fantastic and highly valued public access reserve and amenity in the future for the residents of Vasse and all the other new residents yet to move to the mid bay hinterland region in particular, over the next 100 years which is the time frame/scope of this report. Hopefully therefore future needs and opportunities can be better identified and recognised in the report.

4.0: WHAT ARE THE COASTAL HAZARDS AND HOW ARE THEY IDENTIFIED
I appreciate the modelling and the AHD targets for the 3 timeframes that have been set and passed down by SPP 2.6 and all of my comments and suggestions to follow are designed to factor this in correctly.
I agree with the identification of the two categories of erosion hazard being Erosion and Inundation but I do not agree with the combining of the two protection methods into one – at least for the majority of our bay and outside of the high traffic and commercialised town centre areas. This is the topic of 4.2.5 in the report and I make further comment below about this plus there will be more detail in Part 2 of my submission.

5.1.1: EQUITY
With regards to Equity I am very supportive of the principle however as I have expressed above (3.1) and in other parts of my submission but I take issue with how this equity assessment has been handled and I sincerely hope that this is taken seriously and rectified. Perhaps a generally more constructive and forward-thinking approach would be to foster a more "we're all in this together type approach". In any case at Siesta Park Holiday Resort we will continue as we have for the last 75 years, to put our hand up voluntarily and significantly as referred to in section 6.0 below.

5.1.2: COASTAL FORESHORE RESERVATION + 5.1.3: RIGHTS AND REPONSIBILITIES
As I have already indicated at 1.2, I see a fixation on gaining control over a continuous coastal reserve throughout the Bay and if this is not achieved the report stymies and does not propose any realistic resolution as to how progress a sensible plan of consistent coastal management through these areas which for all of our sakes is important. Whether the City and State Government like it or not they will need to develop a workable way through this which is likely and realistically not to hinge on the total crown ownership and control of a continuous and meaningful width of coastal reserve that is often referred to in the report. I agree this is a challenge and in the second part of my submission I hope to offer some comments and relatively simple suggestions on this topic in the spirit of advancing the thinking on this.

5.2: ADAPTATION HIERARCHY
I agree with the assessment made and support the Protection for most of the coastline from Dunsborough to Forrest, with perhaps the exception of the last 3km of Forrest Beach that I discuss in greater detail elsewhere.

5.2.4.1 Soft protection + 5.2.4.2 Hard Protection
As indicated above my family is very familiar with dealing with significant erosion and inundation (cyclone Alby) at our property and we have now had much experience in the use of both soft and hard methods of protection to combat it.

Hard Protection
In Part 2 of my submission, I will provide a good level of detail about the use of hard methods for erosion protection (that complement effective but separate inundation protection) relevant to our own property and within our area. But for now and for the purpose of helping to refining this report I would simply like to express my general agreement with the principles as to usefulness of groynes and sea walls. Importantly, these mechanisms appear to have now gained general community acceptance as they are now reasonably well understood and trusted and the tools of choice to tackle erosion issues on our soft coast. Before I leave the topic of hard protection mechanisms for now, I would like to make the following points –
A: I will be proposing the separation of the erosion protection structure from the inundation protection for our own property and the immediate surrounding area and the same principles can be apply to the reminder of Geographe Bay (perhaps not all) in varying degrees.
B: I find the idea of detached breakwaters and beach nourishment by say dredging and pumping offshore sandbars for example as highly risky, extremely expensive, totally unnecessary and something that the

general community is likely to regard as environmental vandalism and would fight against. I am glad they are not being suggested.

Soft Protection

With regards to the use of Soft protection or beach nourishment from land based supplies I will largely deal with that part now. My comments are in two parts as this relates to A: Erosion and B: Inundation -

A: Beach Nourishment in response to EROSION – The reports description of the use of sand nourishment as a response to erosion plus to minimise downdrift effects from new protective capital works (such as groynes) is accurate and a sensible continuation of this approach is acceptable but I offer the following comments to help ensure that an overreliance or unnecessary use does not creep into future management practices and in doing so create some irreversible negative issues for our community. In keeping with the report, it is our experience that sand nourishment is a short-term solution and when sand is being poured onto the erosive area of beach to protect an asset this cannot be regarded as long-term solution and quite bluntly any ongoing works along these lines are virtually a waste of time and waste of a finite land based resource that also has great purpose to build future roads and elevate new suburban housing areas and building pads etc. What nature and coastal processes have to offer in terms of sand supplies and the power it possesses to assist us reapportioning and manicure sand within the coastal process system is awesome and with respect, man and our machines cannot ever hope to match this. We are fortunate that in our area of the world and more specifically our area of WA the entire coast from Cape Naturaliste to Sharks Bay is limestone based with absolutely massive sand supplies onshore and offshore that in one way or another travel in a various short and long loops up the coast and then transported back to where they came, possibly decades or centuries later. The accreting and building Dunsborough sand bar is a good example of the sand supply and feed that has been made by Nature to feed the downdrift soft beaches of the Bay. Put short we have a lot of sand to work with and sand nourishment should be restricted to what it is useful for, which is as a band aid. I understand that it is important, particularly with consideration of the other regions up the coast above us, that we are not seen to be greedy in this regard, to which I would point out that there are a number of great opportunities now where Nature can be harnessed and then left to its own devices to effectively move sand from one beach/dune system and distribute it to another with effectively no net gain/loss of sand held on beaches between Dunsborough to Forrest Beach. A present example of this thinking is – look at the accretion point at Broadwater (stretching say 1.5 to 2km depending on your approach) that holds “surplus to requirement” sand whereas downdrift to the east there is a 1.2km section of coast between Margaret Street to the western end of the Busselton foreshore seawall which is presently under serious threat from erosions and requires help. The amount of surplus sand in the Broadwater area might be say 3 or more times the amount that is required at the suffering and threatened 1.2km section and sensible use of groynes in this stretch will effectively encourage Nature to effectively move the required sand from the “surplus to requirement” area to the under-threat area so a plan of protection can begin. The true checks and balances and reduction in breadth of the dunes in the Broadwater area may not become apparent for many more years but by not protecting a portion of the seaward edge of the Broadwater area Nature will be allowed to run its own course in this regard. To safeguard the Broadwater area a predetermined safe defendable line needs to be set at the outset and only when and if Nature ever erodes the shoreline to this line the low profile seawall and possible groynes are installed to secure it and prevent any further erosion.

This methodology can be applied throughout our Bay.

B: Beach or Dune Nourishment to resist INUNDATION

In Part 2 of my submission, I will be including a description of how we propose to separate the protection mechanisms for Erosion and Inundation that in the case of our property would be about 37m apart between their crests. At the front line there is a low-profile sea wall incorporated into the front edge of the primary dune at around 2.8m AHD to protect and secure the naturally building dunes behind for the next 50 years at which time raising and other adjustments would be relatively simple if deemed necessary. Then 37m behind this we would raise up through “beach nourishment” if you like the lawn/old natural coastal dune running parallel to the coastline from what is now 3.35m up to 3.7m to conservatively cater for the next 50 years of expected sea level rise on top of 2.9m AHD ARI events. Like with the low-profile sea wall in front the inundation mound may be increased in height after 50 years.

While on the subject of inundation I would like to make sure it is recognised that events like Cyclone Albay are NOT erosion events as such and in fact in the case of our property the surging ocean (wind and intense low pressure driven) carried about 100mm of sand and seaweed plus all sorts of debris up to the highest storm surge line and dumped it there before retreating as quickly as it came. Thus a cyclone event like Alby is rather an accretion event although the landscape is somewhat smeared and rounded. With regards to a Tsunami (associated with no storm drive wind or low pressure system) we have not seen one that has breached the primary dune and thus I am unsure of the exact effect but logically this would not be a significant erosion or accretion event.

The point that I am making in this section is that whatever bund/dyke is created to prevent inundation it is most advantageous to separate it from the erosion protection mechanism and in doing so place far less stress and engineering requirement on the higher inundation resistant structure. Generally, a stabilised sand mound at the rear of a natural beach system and in coastal reserve or on private land will be all that is required especially where public access and facilities are low key, which is a fair description for the majority of the foreshore of the Bay for well into the foreseeable future. It is worth noting that at the foreshore of the highly developed and committed Busselton beachfront the method of protection has been to establish the singular high sea wall in front of which there is no natural beach system or dunes etc. This is acceptable and arguably appropriate under the circumstances and given the commercialisation of the area but in no way should this be regarded as the preferred model for other areas where a far more cost effective, natural and environmentally sensitive methods can be employed as outlined. Hopefully this methodology can be recognised and gain a place in the report alongside the other suggested sea wall structures as we for one will be talking to the City about how we can personally become involved in upgrading the coastal erosion protection structures along the 400m of coastline/foreshore reserve in front of our property.

GEOSYNTHETIC CONTAINERS AND ROCK

The report leaves the option open for both to be utilised but I take this opportunity to offer a serious word of reservation as to the continued use of the Geotextile sand containers.

The geosynthetic containers/bags are made of polypropylene and polyester non-biodegradable fibres and could very conceivably become another very significant form of marine pollution if they are not responsibly managed from cradle to grave. I shudder at the thought of the regime of having to recover them before the end of their design life and before they are lost into the environment. Hopefully they can be recycled. Over the past 5 years or so we have already collected half a dozen of these torn and emptied containers that have washed their way down the beach from the area where sometime around 2008 the City determined that the private landowners install no more rocks to protect their properties and instead only be allowed to install the geotextile fabric containers from then on.

Consider also that when a base container in a tallish stack is compromised the others above start to crumble and sag etc leading to faster degradation and compromise of the whole structure. I have pictures of more bags in our local strip that have developing holes and in the process of being compromised plus I noticed recently at Emu Point, Albany a whole patch of ragged 2.4 cubic meter Geotextile containers washing around at the highly problematic western end of the rock wall there and they were looking like they were ready to flutter off into King George Sound and the Southern Ocean at any time. Anyway, without going on any further about what should be self-explanatory, the most important thing to note with regards to the wording of the report is that the option to use suitable sized and selected rock MUST BE kept and hopefully strengthened as the preferred and environmentally responsible building material for any frontline protection infrastructure particularly for the low-profile sea wall. For our groynes at Siesta Park, we will continue to maintain the existing timber ones which are a great option for us while I recognise that for the City and its contractors they are now obviously comfortable and experienced in installing the Geotextile containers and this may be the best way for them to proceed in many instances as long as they are careful to monitor them for wear and tear and replaced before greatly compromised and lost to the environment.

5.3: MULTI CRITERIA ANALYSIS

I appreciate that this MCA was a requirement of CHRMAP guidelines but this MCA seems to have limited purpose, perhaps given the commonality between the 15 MU's between Dunsborough and Forrest Beach? I do note however that Forrest Beach and Bunkers Bay do get scored as having some sort of partial split up between Protect and Retreat by 2040 but there is no explanation about this that I can see as to what this means. The recommendations do not seem to reflect this either so can the report please make this clear.

6.0: FINANCIAL CONSIDERATIONS

I will leave it for others to dissect and analyse this section other than to say –

- I agree with the resolution that concludes that it is less expensive/greater benefit to stay and protect rather than retreat with possibly a few exceptions/opportunities in the future and as I have dealt with in elsewhere in my submissions.
- If a simpler and what I believe is a far more cost-effective approach is adopted, involving separation of the erosion and inundation protection (see 5.2.4.1) in the majority of the Bay (ie: outside of the relatively small areas of high traffic and commercialisation) then the cost benefit of staying and protecting will only heighten.

I instead look forward to working with the City and getting into the job at hand as it relates to our property and when it comes to the construction and supply of materials for any sensible and agreed erosion protection structures along the 400m beachfront of our property, I sincerely look forward to meeting with the

City in due course with the Part 2 of my submission on the table and discuss how we can together and help each other implement the plan.

7.0: RECOMMENDATIONS
Firstly I will make a few comments about a few areas outside of Siesta Park and our immediate neighbouring areas and then at Part F I make comment about the recommendations as they relate to Siesta Park.

A: Forrest Beach
I can see no significant justification for spending any significant public funds in protecting the last 3km of coastline in the City boundary to Forrest Beach. I believe this proposition to be accord with the principal considerations that have been presented in the report. This point carries on from earlier comments above regarding part 1.3 and further to this a moratorium on any future development in this zone should be considered unless perhaps of a demountable nature. Realistically steps like this should have been taken years ago especially since the establishment of Port Geographe Marina in 1997 and the realisation of the subsequent downdrift issues including much vulnerability and uncertainty. Anyway, looking forward perhaps some sensible rock based "set and forget" groynes and low-profile sea wall are justifiable at some later stage but to have the whole of Forrest Beach held at a higher level of protection importance than the Marybrook, Siesta Park and Locke Estate seems almost ludicrous and greatly undermines the credibility of the report.

B: Port Geographe Marina
It is pleasing to see that the report recognises the potential for storm surge protection plus parallel flushing system which has been a logical suggestion for years. I cannot understand why this has been put on the agenda for some time after 2040 although I do note that says that the report will recommend that preliminary design and costings be done straight away. I offer a few comments about this concept that you might pass over to the appropriate person –
Marina to have locked gate reasonable deep into the mouth of the leading groynes to give ability to close in advance of storm surge that threatens buildings and infrastructure inside the marina.
Arriving boats when gate is closed to tie up in temporary outer sheltered are within the heads of the marina. Something along the lines of Cullen Bay marina with lock in Darwin however for Port Geographe only one gate should be required given our different purpose and small astronomical tide range.
As well as using a gate to hold back threatening storm surges the gate could and should be used on a regular basis as a very powerful tool and force to help keep marina entrance clear by managing it along the following lines –

- *Close the gate when marina is as full of normal spring tide water as possible.*
- *Then when tide on outside is reaching its lowest point (say 6 hours later) open the gate and allow the torrent of water to help blow any sand and weed out of the marina entry, helping to keep the channel open.*
- *This practice might take place once a month for say 6 months of the year from June to November say and the bimonthly Dec to May. ie: Relative to dead seagrass and sand accumulation that needs to be cleared.*

The regular use and purpose as described would help justify its installation and naturally ensure it is maintained and functional for any significant storm surge or any rare but extremely threatening 100-500 ARI event.

C: East Busselton
The Port Geographe Marina with its leading heads into the ocean act as an extremely large groyne that has effectively been the salvation for the once troublesome and eroding area to the west and it is still catching and holding sand and progressively moving towards saturation and stabilisation. As is evident now, this coastal feature is effectively the biggest backstop that East Busselton could ever wish for and this will be the case for as long as the weather systems move in the same direction and the rocks are left in place. As such little needs to be done with regards to erosion protection for some time and to some point say back to at least Ford Road, considering also the 5 rock groynes that are buried in the dunes and are there for all time to help deal with any future erosion that might ever expose them and still with a safe buffer to Geo Bay Rd. Thus, inundation protection is the main job to focus on for this area and similar to other areas blessed with breadth this need be no more than a raised sand dune between Geo Bay Rd and the beach. Consider that any erosion protection works that are placed on the beach in the near future are still likely to be buried as the Port Geo groyne has not yet fully saturated and stabilised.

D: Areas to the east of Abbey

With reference to the 2014 report *Coastal inundation modelling for Busselton, Western Australia, under current and future climate* and Page 8 in particular this is a very good reference as to what areas are most prone to inundation which is largely reflective of AHD topography (screen shot below).

When all is considered including the density of development amongst our coastal localities, the present average FFL, the natural ground AHD, the roads and services that are on and in the ground etc I agree with the report that from Abbey eastwards future sea level rise and inundation issues pretty well can only be dealt with at the foreshore. Where breadth allows, I suggest separating the erosion protection from the inundation protection to get a more effective result with the added benefit that this will be far less expensive and natural.

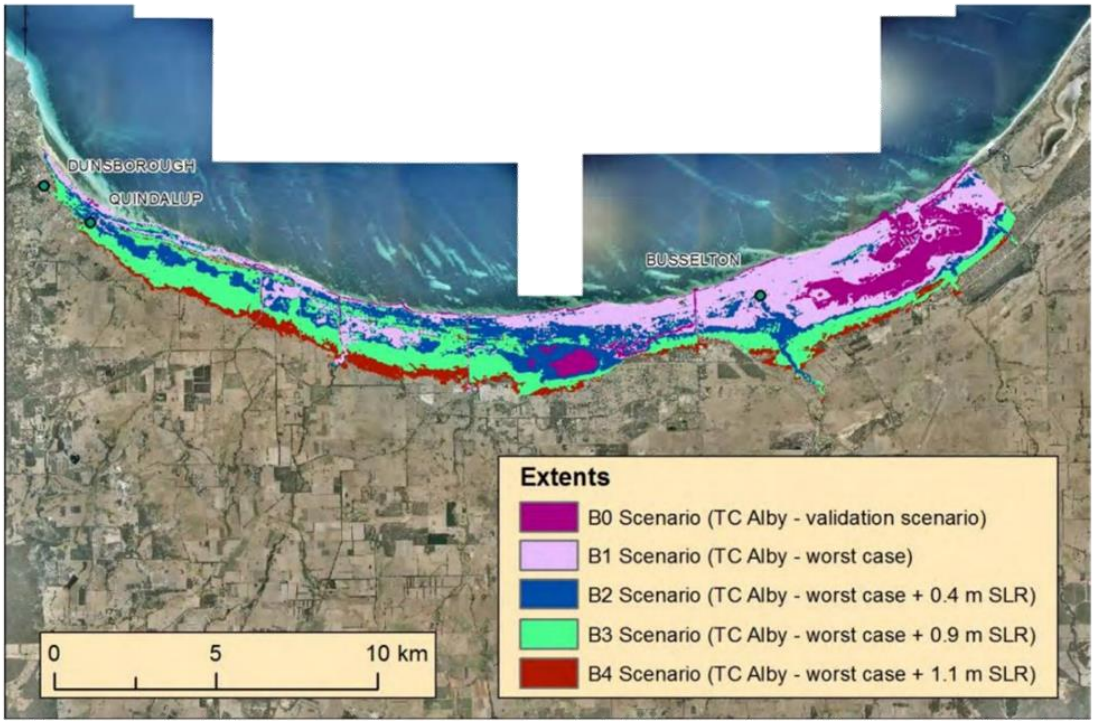


Figure 2. Validation (B0), TC Alby worst case (B1) and worst case plus sea-level rise (B2 to B4) scenario

E: Areas to the west of Abbey

These areas are fortunate to have reasonable natural AHD ground height with many buildings already quite high (FFL generally ranging between 3 to 4m AHD I expect) plus there are far less roads and services that are on and in the ground. The main game here is to achieve consistent and effective erosion protection (again involving the low profile seawall and complementary groynes, fit for purpose and initially installed to cater for the first 50 years of sea levels rise). Then with regards to inundation protection, in many cases residents will be able to manage the inundation issues themselves on their own properties although a community guide plan might encourage a coordinated approach on this so we are all working towards a common goal which might include –

- Any new building to have minimum FFL of 3.8m AHD (unlike what can generally be achieved east of Abbey).
- Work towards nourishing and building up a defined strip of coast in front of the housing (on private land and in coastal reserve) to act as an inundation barrier and further prevent damage to properties in the event of a 100 - 500 year ARI.

When you come to Quindalup and west we start getting back to smaller lots with more in ground services and I am more unsure of the FFL and they have backdoor flood potential through Toby's Inlet. In deciding what protection works are to be done the same principles apply as to elsewhere while also recognising that this area is presently quite stable and generally accreting as recognised above in discussion about points 2.5 and 5.2.4.1. I think the current profile throughout the area is very suitable and natural and if the City

were keen and obliged to lock in a plan it should simply be to install the low profile wall along front edge of existing primary dune and only plan to install groynes if a problem starts to develop in the future. For inundation protection again no more required other than high sand dune line that would logically lie on seaward side of Geo Bay Road and any housing and set back at least say 40m behind low profile erosion protection seawall.

When it comes to Dunsborough Townsite (with "soft coast" starting at Bay View Crescent heading east) the road and buildings are quite close to the HWM in places and although I have suggestions, I will desist from making any prescription other than to say similar principles apply to this area as has been applied in other areas in the Bay. In developing a plan, special circumstances should be considered including that this is a relatively densely populated area with higher demand and traffic on the foreshore reserve compared to the remainder of the Bay other than Busselton town foreshore area plus the relatively shallow offshore water, with very shallow outer sandbar parallel to beach 550 to 650m offshore and finally connecting to beach 600m west of Elmore Road. As many have suggested, perhaps this offshore sandbar is showing us where Nature will develop a new dry shoreline in the years to come? Whether this comes to pass or not the developing bar is reflective of the change is prevailing weather systems as described in 2.5 above.

F: SIESTA PARK and the areas either side of MARYBROOK & LOCKE ESTATE

My intention here was to make comment on the recommendation for the Siesta Park but as I have started to try to do this, I found two substantial problems that made this very difficult –

Firstly, I am promoting and totally believe in the separation where possible of the erosion protection and the inundation protection structures as I have referred to within my submission and as I will provide greater detail about in the second part of my submission. The report however proposes to integrate these mechanisms into a singular seawall type structure (one of 4 types Pages 29-33) to deal with both erosion and inundation. Importantly I note on page 21, point 4.2.5 - that SPP 2.6 required the risks of erosion and inundation be evaluated independently but the authors of the report explain that they have consciously chosen to combine them as one and it appears that the one wall design principle was borne.

As supported by the SPP 2.6 I strongly suggest that the report revisit this and look very seriously at separating the protection mechanisms where possible and as suggested. I can tell you with all sincerity that this is the strategy that has worked for our property and to cater for sea level rise it only needs to be raised accordingly. If you ask anyone who walks the Siesta Park beach very few would even know of the patches of low-profile rock that are buried in the primary dune and the modest timber low profile groynes that lie beneath below their feet. The only time they are exposed is when most of us are tucked away sheltering from a storm or when they are exposed but typically covered in 1 to 3 meters of wracked seagrass in the early frame of winter. Everything we have in place can quite easily be built higher well in advance of any further expected sea level rise in a staged approach and in a very environmentally respectful and pleasant way.

Secondly, I find that the recommendations have been drafted based on a negative can't do approach that is directed at the worst-case section of coastline in Siesta Park but has virtually ignored the majority of the coastline where far more and easier opportunities exist. This stereotyping makes it nearly impossible to talk constructively about the recommendations which have little direction or offer little hope to residents. In addition to this, at some of the community forums since the launch of the draft report the provisional undertaking to build a seawall the entire length of Siesta Park appears to have now been retracted meaning that they have degraded to another level of can't do and loss of hope for residents and anyone else who relies on the City.

Perhaps the only thing that remains as a positive in this regard is the installation of one or more groynes (again subject to land and tenure issues) which in a positive sense is in fact the first thing that needs deploying and again my Part 2 submission will make some constructive suggestions regarding this topic.

Until the recommendations are redrafted to reflect the facts and hopefully adopt a positive can-do approach, it seems a pointless exercise to continue trying to make further comments on them at this stage other than to make direct comment on four of the proposed planning responses (PR) –

PR 6: "*Require development approval for all development*"

Not sure exactly what types of development this would affect but in any case once a plan is evolved that allows for our area to be protected to the same extent as other areas, then I expect that the same approval requirements would apply.

PR 7: "*Prohibit private coastal protection structures*"

If a structure is built in accordance with a sensible and agreed plan and if a private person pays for or contributes to it, why would it be in the interest of the community for the City to prohibit this?

PR 8: "*Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070"*
Again once a plan is evolved that allows for our area to be protected to the same extent as other areas, then I expect that the same time limits would apply.

PR 9: "*Do not support any subdivision or increases in permissible development density."*
The residential area currently operates under a R2.5 density restriction (4000 sqm) that allows for onsite wastewater treatment via an ATU and then onsite irrigation/disposal, so why deny a property that may currently be 8000sqm from subdividing. Similar to above, once a plan is evolved that allows for our area to be protected to the same extent as other areas, then logically only standard planning controls should apply.

CONCLUSION
The report does well to stand up and decide to protect our developed areas rather than retreat and I am glad and feeling comfortable to see the promotion of groynes and seawalls as the chosen mechanisms to achieve what is required. I feel we are very lucky in Geographe Bay given the current and foreseeable prevailing weather systems that are favourable for accretion and the chosen methods will serve us very well. Some good work has been done with groynes in particular that has now gained general community understanding and acceptance for which I am thankful to the City for their part in this as this will allow this report to now progress in a relatively supported rather than hindered way in this regard.
If the truly worthy shortcomings and restrictions currently contained within the report, that I and others will raise, are acknowledged with corrections and deletions of parts best dealt with by a successive process I think you would have a leading document to allow the community to get underway with the task to hand.
I would like to see the report as simple and fundamental as it can be and not overprescribe and enter the business and detail of what can and should be left to subsequent steps and this will help avoid the serious risk that it will spend a protracted time in draft form and with no guarantee of a good result.
Even while the draft report is making passage towards endorsement we can get on with the job of preparing more area specific case studies and developing a 100 year plans that will satisfy the CHRMAP requirements and that will be the subject of what I will present in Part 2 of my submission which I will provide before submissions close on 24th September.

If you have any questions or would like to discuss any aspect, I would be glad to be involved and other than that I look forward to the final draft being delivered.
Thankyou for your considerations.

Regards,

Greg Tickle
Siesta Park Holiday Resort

SUBMISSION 5

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28TH September 2021

CHRMAP SUBMISSION - PART 2

INTRODUCTION

Following on from my Part 1 submission dated 24th August I now submit my Part 2 series of submissions as per the contents below.
Any references to my Part 1 submission and to particular point (consistent with the CHRMAP document points) are abbreviated to P1 1.0 for example.
Any references to the draft CHRMAP will be hereafter referred to as "the report".

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1: CASE STUDY OF SIESTA PARK HOLIDAY RESORT AND PLAN TO PROTECT FROM EROSION AND INUNDATION.

1.1: DELAYED

As advised in my P1 submission it was my intention to provide a detailed case study in due course but this has been delayed due to –

- A serious lack of transparency in the CIS process involving the meetings that were held with the residents of Siesta Park and Marybrook, that left us with far more questions and bewilderment than answers.
- The need to then self-educate ourselves as to what the proposed Planning Responses together with the Infrastructure/Coastal Management Responses mean for the 6.7km stretch of coast made up of Marybrook, Siesta Park and the Locke Estate.
- Once we interpreted the landmark nature of the proposal contained within the draft report and the massive implications for not only ourselves but the whole community, we have all gone into survival/damage control mode. This was the topic of the conversation that I have already had with COB Strategic Planner in a 40-minute phone call on 21st September.
- Following our self-education and discovery process, I have had to turn my attention instead to writing the additional submissions that I furnish now to defend our own property and other residents and business owners from this attack on our pristine beach frontage, including the fore dunes and substantial infrastructure and our ability to protect and continue to reside and run our businesses on it. In good faith I will still make a number of positive and forward-thinking suggestions.
- The period between the 2nd CIS meeting and the close of submissions has been less than 4 weeks, which given the gravity of the enormity is of the proposal is an indictment itself. This period has been totally inadequate to be able to properly deal with all of the issues that are constantly arising.

Thus, for now please refer to Part 1 Submission generally and in particular to Point 5.2.4.1 Soft protection + 5.2.4.2 Hard Protection as to how I intend to protect our own property.

With regards to who I propose would pay for erosion and inundation protection as generally described in Part 1; I will be proposing that the COB supply from its own rock and sand pits the materials that we will require to undertake sensible and agreed works. Then at our end we will install the infrastructure using our own machinery and experienced operator/s all at our own expense and of no significant burden to the COB, that should require no special budgetary allowances and any inputs by the COB. This should be able to be blended into the City's day to day operations.

2: THE COMMUNITY CONSULATION PROCESS FOR RESIDENTS AND BUSINESSES OF SIESTA PARK AND MARYBOOK

2.1: INTRODUCTION

As discussed and agreed with COB Strategic Planner on 21st September, there is unfished research and facts to submit in the weeks following the submission closing date of 28th September, which has been less than four weeks since the confused and bewildered residents and business owners of Marybrook and Siesta Park left their Community Information Session process that took place in two parts on the 5th August and the 2nd September.
Very importantly, at no time did any Councillor or the Mayor or any outside member of the public to my knowledge, other than the few COB staff, witness what was delivered at these specially convened sessions. The Community Information Session process has not only exposed a blatant disregard and arrogance towards the people and businesses who will be drastically and directly affected by these proposals, but this also shows disrespect to the intelligence and inclusiveness of the wider community and their right to likewise be educated and have the opportunity to express their democratic view as to their agreeance or otherwise to the truthful proposals contained within the report.
We understand that the COB expects to push on with its ambitious time frame and have a finalised report forwarded to Council by the 8th December for its approval. Therefore, if the wider public are going to be given any realistic opportunity to be educated and have any input to the decision-making process this will have to be through the media and Council questioning and alike.
The process that the COB has employed, which has sought to marginalise the people of Marybrook, Siesta Park and the Locke Estate has been stunning and I trust that democracy can defend itself to ensure much unnecessary damage is avoided both now and in the future.

With regards to the two CIS meetings held on the 5th August and 2nd September, in the absence of any Councillors, Mayor or any member of the general public outside of the immediate residents of Siesta Park and Marybrook, may I submit a copy of my own meeting notes, as sent to our planners by email on each of the following days of each respective CIS meeting.

2.2: COPY OF MEETING NOTES sent by email to COB Director Planning and Development Services at 9.19 am 6th August.

Morning Paul

I got up this morning to put a bit more work into my CHRMAP submission and found myself firstly thinking of the meeting last night. As I started writing some notes of my own, I thought that perhaps yourself and Matt might appreciate some feedback as you consider your future moves with the mob in our area as follows -

It is unfortunate but what I have generally experienced that when a sensitive topic is put up to a public meeting, like the one held last evening with the Marybrook and Siesta Park property owners, they can be and are often dominated by a lot of negative comment and their value is limited other than getting a feel for the number of issues and the level of dissatisfaction. I thought you did a very good job overviewing the CHRMAP report and having now read the report quite thoroughly and carefully over the past week, I appreciate the direction and proactive approach of the CHRMAP and would rather have private rational and positive discussion with the authorities to progress and work towards our common goals and I look forward to this.

Having said that and for what it's worth with regards to the Siesta Park area in particular, I found at the meeting and in the report –

- *The is a lack of recognition for the stable areas that have dunes etc, including from the Siesta Park groyne to say our properties western boundary, while the discussion was focused on the properties like that in the strip from the Lennox River to Siesta Park Jetty Groyne (at Dave O'Mahoney's). At the meeting broad brush comments were made that there was no reserve and no beach within which to build a seawall or other beach works and that land tenure issues are a major inhibitor. This is not the case for much of the coast that we were there to talk*

about and two people spoke at the meeting to make this point (one from Smith Street and one from the eastern most property on Siesta Park Road) and I agree. In actual fact over half of the Siesta Park MU (the eastern portion) is fronted by meaningful reserve that can be worked within to create containment seawalls and or groynes if the desire and ability exists. As for the Marybrook MU there is very significant sand accretion and developing dunes over the majority of that MU and perhaps only the last few hundred meters east of Smith Street to the Lennox drain lacks significant dunes and ample opportunity again to create containment seawalls and or groynes if the desire and ability exists.

- *There was a lack of recognition for any public facilities and I recall a slide that pretty much stated that there is none. In actual fact between ourselves and the Siesta Park reserve you will find what I would argue are a couple of the at least VERY important public facilities. Starting with the Siesta Park reserve this area fronts say 600m and is already a favourite and quiet spot for many. The value is great and although currently relatively undeveloped offers the public very valuable access and I hope to see ablutions, parking, lawn, bbq's etc in the future. A bit like a mid-bay Meelup if you like for the people of Vasse and all other locals and visitors to our area. Then with regards to our holiday park that we have been operating since 1946, we might be privately owned but I hope our property is recognised and valued as a public access facility. We have 40,000 client records on our system (with computer booking system starting in 2002) which is fair to say 95% representative of family groups and we pretty well exclusively cater for Perth and country WA people. There seems to be a fixation on the needs and opinions of local residents and I hope more consideration can be given to the needs of our visitors to our region remembering that most of us came to the area as a visitor in the first place.*
- *Other than that, there was quite a lot of discussion with regards to special area rating and alike. From my perspective as long as the true principles of equity are followed that is absolutely fair and fine from our perspective but at the meeting it was looking like many were feeling they were going to get little or nothing in terms of erosion protection yet be charged a lot. I know that is not the plan if you go back to the document but the way things unfolded that is how it came across if you think about.*

Anyway, just thought you might appreciate the feedback and I will furnish you with my full submission as soon as I can and look forward to catching up on the 27th this month.

As a side issue – I also notice that there are works going on at the mouth of the Lennox drain/river this morning. I gather they are being undertaken by Water Corp and might be in response to request from City or DOT? Anyway, looks like the contractors are having a battle and you might be hearing some more about that. Have attached a couple of pics for your interest.

On that particular issue – this is ongoing and needs a tailored fix, something like what is at Margaret Street and Abbey drains in a broad sense. If a sensible plan was evolved, I would not be surprised if the nearby residents would be supportive of a suitable structure and some might well assist financially and/or in kind to achieve a positive result for all concerned. Everyone can be a winner..

Regards,

Greg Tickle







2.3: COPY OF MEETING NOTES sent by email to COB Director Planning and Development Services plus Manager Strategic Planning at 12.39pm 3rd September.

Good afternoon Paul and Matt,

Thank you for the meeting last night which was a good opportunity to hear from Matt Eliot and Stuart Barr, with their combined oceanographer and coastal engineering experience, who touched on a range of issues as they see them both locally (more Stuart's expertise) and more generally/globally (more Matt's expertise). May I offer the following observations and comments -

As far as discussing solutions for our area nothing definite was said and similar to the CSI on 2nd August, the majority of discussion was about the under threat 1.2km section of Siesta Park that lies towards the east of the Lennox drain mouth which includes the 400m section where the engineers and the City perceive that they have insurmountable issues including the HWM land tenure issue.

Stuart and Matt did not propose any particular methodology or structures to be employed for our area and the Stuarts presentation concentrated on slides showing various works and structures both installed at Siesta Park and elsewhere in the Bay. Towards the end of the meeting the conversation had effectively moved back to concentrate on the land tenure issues and reasons as to why groynes may possibly not be an option for at least this section of coastline and I notice that Stuart threw in the added complexity of the involvement of DPIRD (as is a common issue for all everywhere in the Ngari Capes Marine Park) with regard to any thought of installing groynes. I am not sure how this discussion was intended to be interpreted but it came across like in the first CSI, to offer little or no hope for this area as it was simply just too hard to deal with. Again, while the concentration of discussion focussed on this worst-case section of coastline the remaining majority section was largely ignored and little conversation was had as to what positive actions are being proposed there. There was some discussion as to the height of a wall and references were made to 3.8m and then moderated and accepted 3.4m heights at Port Geographe and then suggestions that perhaps 3m might in fact be enough. This was interesting but the proposed alignment remains unknown and it was stated that these details are likely not to unfold for a few years.

I heard members of the public calling for at least two things –

- *That the diversity of the Siesta Park and Marybrook areas be recognised and dealt with respectively and*
- *Given the level of uncertainty and non-committal to any realistic plan, that is only increasing if anything, that the final CHRMAP cannot impose any new planning controls until an agreed and sensible plan of coastal management related to sea level rise is evolved. Very realistically and by your own summation Paul, it seems increasingly likely that such a crystalised plan will not exist before the draft report is put up to Council.*

Looking forward; I hope that everything that is considered from here on is based on up-to-date facts and with this in mind can the following be considered -

1: If possible, may I and others if they wish, please have an electronic copy of the slides and presentations made by Matt and Stuart as there is some information contained with their reports that I would like to refer back to as I prepare any future submissions.

2: Whenever Shorecoastal, DAMARA or any other contractor or government agency update to the 2011 report on Busselton Coastal Protection, I request that -

- *Whoever is responsible come and see us as we have 4 groynes and other important infrastructure that this 2011 report and now the draft CHRMAP misses recognising. This is particularly relevant given the additional complications that are now being added in by the existence of the Marine Park (DPIRD) and our structures need to be officially recognised.*
- *Additionally, I request that a more accurate description be given to the Siesta Park area including that -*
    - *The Siesta Park Groyne, built by the PWD in 1965 and 1967, protects 19 properties plus about half of the width of the Siesta Park Holiday Resort that abut coastal reserves plus now that sea level rise has been modelled, it also proctors another 20 residential lots that lie between Siesta Park Road and Caves Road.*
    - *Of the total 2.6km of coastline within the Siesta Park starting from the Lennox drain and going east –*

- *The first 400m involves 11 properties with hard northern boundaries and there is a coastal reserve in front and where the City could quite simply install its own coastal protection infrastructure.*
- *The next 400m involves 12 properties also with hard northern boundaries and for perhaps all but one or two properties a slim coastal reserve exists in front of these properties where again the City can work towards installing coastal protection infrastructure, although this presents a somewhat greater practical challenge than the first 400m.*
- *Then there is a PAW for amenity access and infrastructure management.*
- *The next 355m involves 9 dwellings exist as tenants in common on a purple title with a HWM northern boundary existing around 15m on average north of the current HWM. The City needs to work hard on how to work around or work with "Tenants in common" as the landowners as how to protect this section.*
- *The last section before Siesta Park Holiday Resort involves a single dwelling on a 52m frontage green title, again with HWM title and the original surveyed HWM surveyed boundary currently being about 22m forward of the present day HWM. Like for the above The City needs to work hard on how to work around or work with landowners as how to protect this section.*
- *From this point going east the remaining 1.4km is fronted by Siesta Park Holiday Resort, then 19 private residences and finally the Siesta Park Reserve. All properties have hard northern boundaries and are fronted by significant coastal reserve.*

3: With regards to the facts about the Siesta Park Groyne, if the engineers or the City would like to know the factual history of it including who initially approached the Public Works Department and how its two part construction (1965 - 50 yards and 1967 - 100 yards added) became one structure rather than two or three shorter structures, plus other information then I would be happy to present it. Over the years a number of people have peddled various spurious assumptions and others have mimicked them in good faith with the criticisms often directed towards ourselves and our property and it's about time anybody who proposes to alter it let's say simply works on the basis of fact. When I say this, this has little to do with what was said last night and more to do with what has been said by past politicians and reports that become important references for subsequent processes and recommendations. I would be happy to bring the information that I hold on this to a meeting with city officers so this topic may be better understood and factually dealt with. As a small example I note Stuart referred to groyne as being 150 meters whereas it is 150 yards or 137m.

As I have been preparing my Part 2 submission, I have been talking to surveyors about pre 1941 shoreline mapping and in doing so have modified my Part 1 submission accordingly and conservatively. Please find a copy attached. I plan to load this adjusted Part 1 as a new document (with possible further modifications if further facts are uncovered) at the time I submit Part 2. By then I hope to have gained access to any records of shoreline associated with the 1892 title of Sussex Location 5 - at least when it was first subdivided which occurred in 1935 or before. I have questions with the Battye Library and am working with local surveyors and Landgate to see what factual additional information I can glean for the purposes of being as informed as we can be in this regard to make as educated decisions as possible in this CHRMAP process.

Again, thank you for organising the 2nd CIS.

Regards,

Greg Tickle

3: MANAGED RETREAT and TIME LIMITED PLANNING CONTROLS

3.1: FOR MARYBROOK, SIESTA PARK AND LOCKE ESTATE and OTHER AREAS

The draft CHRMAP clearly predetermines the future of the 6.7km strip, including Marybrook, Siesta Park and the Locke Estate, with the process of Managed Retreat effectively starting from day one through the combination of proposed Planning Response (numbers 3, 6, 7, 8 and 9) together with inferior Infrastructure / Coastal Management Responses – that fail to protect "fore dunes and infrastructure" for the privately owned areas. Then there is the notation about the shortening the Siesta Park Groyne with maintenance works scheduled for 2025/25. This is the topic of section 5.3 so I will leave this topic for now and continue with some constructive comments about maintaining current opportunities and Managed Retreat.

With regard to the reports goal of maintaining the opportunity to possibly gain access to the sand supply held within the 6.7km section of Marybrook, Siesta Park and the Locke Estate, as a future feed to the east, virtually no special new planning controls are required and this opportunity can always be available as mentioned in P1 7.0 (D) and I will expand now –

- Without deep sewerage, development is limited to R2.5 so virtually no new beachside subdivision and/or housing can take place so these three suburbs are currently in limbo so to speak.

With regard to the concept of Managed Retreat I have the following points to offer –

- Considering the 40m principle/trigger introduced in the Advisian Report: *Coastal Adaptation Strategy (30/9/2020)* see 4.3.5 and building on this I have some suggestions –
    - If someone was to build a new home and it was closer than 40m to the HSD then they have a time limited planning DA but if they choose to drop it back to more than 40m away from the HSD and they satisfy infill (if neighbours are that far back) then why not give them approval in perpetuity?
    - Note that if this principle is to be practical, then the measurement needs to be taken from the building itself and not the lot boundary.
    - Then with regards to the measurement itself, if 40m is not enough, then fine make it 50m or even more. In actual fact, the measurement should be relative to the likelihood and significance of the erosion threat and may be specific to each particular area/site through relevant assessment. It should also be considerate to the inundation threat too of course and what opportunity there is to mitigate that on site through FFL at 3.8 or above.
- There is strong reason to suggest that limited time planning would be most appropriate for housing east of Abbey where the exposure to storm and surge is greater and natural ground AHD is lower. As quoted above, the Advisian Report: *Coastal Adaptation Strategy (30/9/2020)* is quite good on this through section 4.3 in particular.
- At the end of the day as long as time limited planning controls are applied sensibly throughout the entire COB then I see no peculiar problems for this 6.7km of coast and the COB will be prudently keeping all its options open. Ultimately it will be the future custodians of our area as to how they decide to sensibly and equitably deal with the options that we leave them. To be clear, what is currently being suggested however in terms of planning controls in our area is neither sensible or acceptable.

For now, the most important thing as said above is to get on with protecting all beaches and creating stores in all locations and give our future generations as many options as possible.

If we preserve broad beach sand supplies throughout the entire Bay and troubles arise in the east then it may be the decision of future generations to as a first step start pulling the boards gradually on many of the beaches in the western sector of the Bay and release sand to flow to the east and this could likely go on for many decades before any sections of housing need be abandoned.

Consider also that if our dominating northern hemisphere giant populations in particular, find a way through the carbon emission/greenhouse issues we might come through to the other side unscathed which highlights another reason not to predetermine our future and start picking winners and losers now and start an unnecessary plan of destruction.

Producing a document of possible sea level rise mitigation strategies might give some guidance to people when they are considering to invest in a new house on a beachfront block and the warning might come with no liability to government if it gets taken by erosion. A promotion and move towards component/demountable type housing might be the result and something that people will naturally gravitate to when feeling uncertain about an area or a particular site.

As a final word Marybrook, Siesta Park and the Locke Estate are not examples of a Narabeem NSW or a Seabird and that is not likely to be the case either as the weather that we are receiving is only getting gradually tamer as the frontal systems drop further with ongoing climate change. Believe it or not I see the changing weather is good for us looking north across Geographe Bay. Sea level rise will not be good for anybody but the further you are in the Bay to the west the easier the ride. The places that should have time limited planning if any are towards the east where they have greater exposure to storm and swell.

New works like those at Abbey will naturally fill in time with patience and all existing sand stores should be preserved and not sacrificed to hastily make new downdrift works look good quickly. Any moves like this are a setback to the common cause in the time race we are all in.

4: PREPARATION FOR SEA LEVEL RISE

4.1: SAND STORES AND SINKS

It is logical that the more sand resource that we can hold and store on all of our beaches in the Bay the better we will be prepared and the more insurance and options the community will have to combat and make choices with regards to future sea level rise.
Any excess to requirement sand that is held on beaches in the western sector of the Bay will be the most valuable tool to, preserve in the event of sea level rise because when each grain that is finally dislodged by natural erosion, or by man, then starts its littoral drift to the east and then spends a far greater passage and time in our system, furnishing the various beaches along the way as it effectively works its way through the Bay before finally exiting our system eastward.

4.2: SAND FEEDS - WHAT DO WE KNOW AND WHAT NEEDS TO BE DONE

From what I have read, I am yet to find any substantial information about sources of sand feeds to our beaches and it would appear that far more work needs to done as to understanding what feeds we in fact have before anyone can make predictions of when it might run dry, which is what Dr Matt Eliot briefly mentioned and can be expected to start to happen in 30 or 50 or 70 years (or alike), during his presentation on the 2nd September.

I suggest that –

- Greater research needs to be done with regards to identifying and quantifying sand feeds into Geographe Bay including the sand that comes to us via the Capes Current
- What is the explanation for example as to where the sand comes from that is accumulating on the massive Dunsborough Sand Bar? Perhaps that build is something to do with the Capes Current bringing sand from our southern regions and flows S to N past Cape Nat with prevailing swell and storms pushing it around the corner and down the coast and through the Bays starting with Bunkers?
- Do the large offshore sandy areas in the outer areas of Geographe Bay (like from 10m out to 35m) gradually make their way to our coastline driven by swell and current, to help feed our inshore sandbars and become beaches?
- More works could be done to quantify what volumes of sediment comes from the carbonate fixing organisms that grow on our healthy seagrass meadows. Likewise what other sediment creating corals and other organisms do we have on our limestone reef outcrops that may also add to the supply of sand?
- Have we engaged with State Planning and DOT to see how much sand we are effectively allowed to store in sinks in Geographe Bay. The more the better and remember we have state significance as the most attractive and popular recreational area for the fast growing populations of our own region plus we are hosts to those who visit from our Metropolitan and country regions.

In support of the points above I note the extract below from COB Coastal Management Program 10 Year Plan (2020 – 2030) point 6.4, page 33 (released October 2020).
This quite clearly confirms that we know little at this stage about the various sources and volumes of sands and sediment feeds that make their way to our sand bars and beaches so nothing can be said with any certainty or authority in this regard.
It follows that at this stage no drastic plan of managed retreat, like what the report proposes, can be justified on the opinion of any person who believes that all sand feeds will simply dry up sometime within 100 years, as this relies on inadequate and incomplete research with any supposed evidence being effectively baseless at this stage, as I understand it.

The reality is that sea level rise issues have not even yet begun and conditions for building beaches are as good as they ever have been, as I have mentioned in P1 2.5 that *"we are in a relative accretion cycle for some time to come it seems"* so we should concentrate on taking advantage of this window of time and while these opportunities are relatively abundant and consolidate our positions.

What obviously does need to be done however, is for a sensible plan of further research to better understand all sand feeds and sediment feeds and supplies that interact with Geographe Bay and as time goes by, we and our future generations will be able to make progressively better and far more educated decisions that involve this important aspect when considering sea level rise.

The following is extract from : COB Coastal Management Program 10 Year Plan (2020 – 2030) point 6.4, page 33 (released October 2020)





Busselton Coastal Management Program (2020 -2030)

6.4 Coastal Investigations

Research of Geographe Bay Sediment Dynamics

A collaborative research study is proposed into the potential alongshore and biogenic supply of sand to the beach and nearshore system within Geographe Bay. This follows from previous work by Searle and Logan (2) and a number of separate projects undertaken by the University of Western Australia and Curtin University. The particular focus on this proposed collaborative research project would be:

- The nature, quantity and variability in alongshore supply of material into the primary sediment cell around Cape Naturalist.
- Alongshore transport rates within Geographe Bay.
- Biogenic supply of material to the nearshore system.
- The nature, quantity and variability in onshore supply of material to the coast through transverse sand bars.

Coastal Inlet Dynamics.

4.3: PROACTIVE GROYNING AS A METHODOLOGY TO SECURE THE BAY

Proactive groyning as a methodology, as described in the attached letter to the then Chief Coastal Engineer at DOT in 2000, is worthy of serious consideration and is still totally relevant now. Over the past 21 years, many more groynes have been installed and Port Geographe has thankfully for Busselton created massive consolidation so I suggest some well-considered proactive groyning program starting from somewhere around Ford Road and working west could be employed to finalise and the secure the whole Bay hopefully before sea level rise might become a real issue.

Given that Port Geographe has been allowed to build since reconfiguration and 2013 this has effectively substituted the Wonnerup groyne that I suggested in my 2000 suggestions, and the consequence has been the erosion sufferance for Wonnerup. It could be a strategy to still install a fairly substantial and long groyne at a location east of Port Geographe, perhaps in the vicinity of the Wonnerup inlet that would not only help stabilise the area westward but could become a future sediment sink and potential source of sand for remedial beach works back to the west in the future.

5: DEFENCE AGAINST THE ONGOING DENIGRATION OF SIESTA PARK GROYNE AND THE PLAN TO SHORTEN IT

5.1 INTRODUCTION

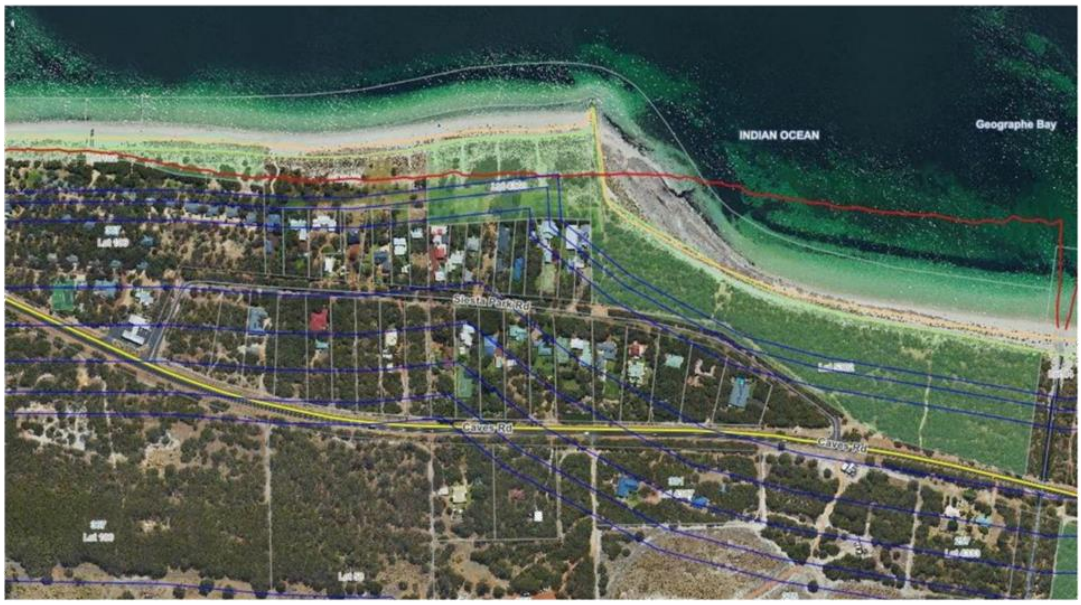
The continuous soft coastline within Geographe Bay that we need to consider how to protect, is the 38km section of coastline starting at Bay View Crescent and running east to the COB boundary at Forrest Beach. The section from BV Cres and Siesta Park groyne is 13km and then it is 25km to the COB boundary. Thus the Siesta Park Groyne built in 1965 and extended in 1967, exists about exactly 1/3 the way through this soft coastline section of Geographe Bay in which the littoral drift system moves sand progressively from west to east mainly along the shoreline.

Since taking over the primary responsibility for coastal management for our area from the DOT, the COB have as far as I am aware, been almost exclusively consulted by the same two private coastal engineers who work two separate businesses (Damara WA Pty Ltd and Shore Coastal Pty Ltd) but also work in partnership under the business Seashore Engineering formed in 2012.
With regards to the opinion and attitude towards the Siesta Park groyne both coastal engineers plus the COB Director of Planning have developed a dogmatic and familiar line of denigration and attack which appears to come through in every coastal report or opportunity. As offered before and most recently in a copy of my email to our Director of Panning on the previous page, I wish to set the record straight on a number of fronts with regards to this important piece of infrastructure.

Please see highlighted words from 2.3 above, as sent to our COB planners on the 3rd September following the concerning CIS meeting the previous evening. The following report will carry on from where those words leave off –

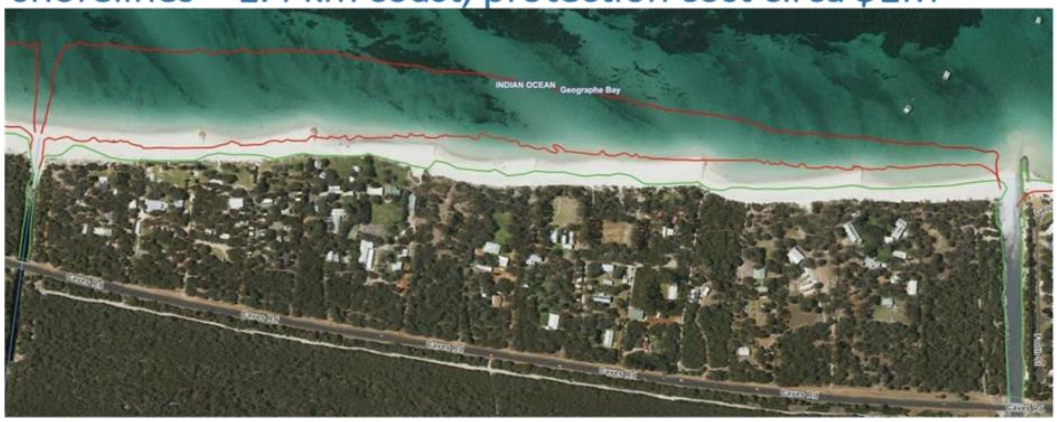
5.2: CIS EXAMPLE OF EXAGERATED/MISREPRESENTATION OF EROSION CAUSED BY GROYNE

The following is slide 5 that was put up in COB's presentation on 5th August.
The slide carries no information about what dataset the red line belongs to or what date the photograph was taken. It was used to indicate how much erosion has taken place downdrift of the groyne. Given the way the slide has been prepared, with the COB controlled reserves highlighted, the **distance from the northern edge of the reserve out to the red original HWM is 165m** (when scaled off) and this is put forward as indicative of what erosion the groyne is responsible for.

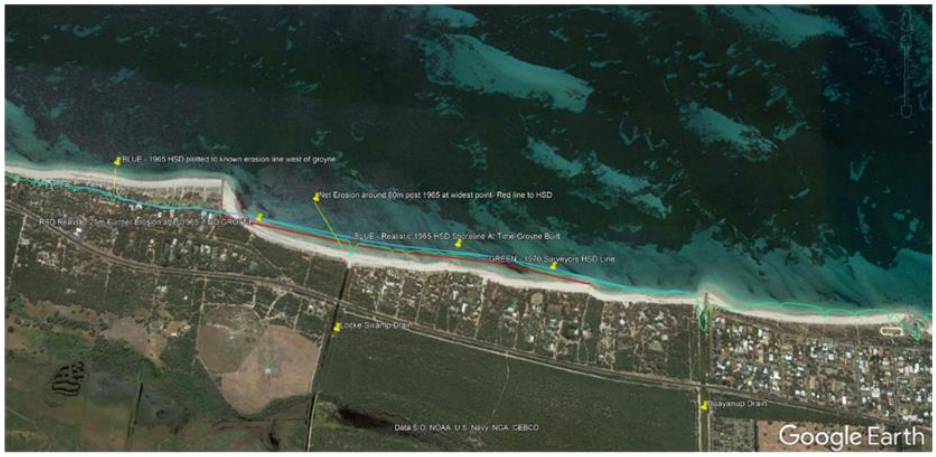


When you go to slide number 20 below, it is obvious that the red line on the slide 5 above is a 1941 shoreline, which is 24 years before the installation of the groyne in 1965.

Locke Estate – Jan '21 photo, with 1941, 1975 & 2016 shorelines – 1.4 km coast, protection cost circa $1M



Now please go to the next picture which carries 1970 surveyor supplied Google Earth image (.rtf file) in green and I have as accurately as possible plotted the 1965 shoreline in blue. The red line is 25m shoreward of the 1965 and is a conservative additional erosion line had the groyne never been installed. Google Earth is my mapping tool.



In conflict with the CIS slide information, I put forward the following information as a very good interpretation of how much erosion might be attributed to the Siesta Park Groyne. To explain the lines and the distances -
A: **The *GREEN - 1970 Surveyors HSD line*** has been supplied by our professional surveyors who acquired the aerial survey photograph to Landgate and then mapped it and provide the data which I imported. We may yet go to Landgate to have a closer physical look at what other survey images they have in case they do in fact have something closer to 1965.
B: **The *BLUE - 1965 HSD plotted to known erosion line west of groyne*** that is plotted in front of the existing houses and the holiday resort, is factually where the HSD line got to in 1965 before the groyne was installed. This alignment is confirmed by photos and personal knowledge of various people who lived in this area at that time. Additionally the green 1970 HSD line, as supplied by surveyors, runs right alongside for this section because after the groyne was installed there was relatively little erosion at the houses at the base of the groyne while up at our holiday park it took

time to saturate and protect us, so we did get some more erosion for a few years and as such the green line is a little behind the blue a little in this area.
C: **The *BLUE - Realistic 1965 HSD Shoreline At Time Groyne Built* line running east from the groyne** to the east across the front of the Locke Estate is a very fair alignment of the coastline in 1965. It allows for 15m or thereabouts of erosion, at the widest point, in front of the 1970 line supplied by the surveyors.
D: **The RED Realistic 25m Further Erosion after 1965 if NO GROYNE** is a conservative allowance for erosion that can be expected to have taken place had no area on this area of coast have ever been protected. Ie: No large Public Works Groyne/s or any other.

Note: "Erosion line" "Treeline" and "HSD" (Horizontal Shoreline Datum) are all the same under the circumstances of extreme erosion that was happening at this time. I will refer to all as HSD.



This picture was taken from near to where the base of the groyne is today looking west up to the holiday park within a few years of the groyne being constructed.

5.3: SOME FACTS

5.3.1: REALISTIC EROSION - NO MORE THAN 60m AT WIDEST POINT

The slide presented at the CIS meeting of 5th August is typical of how the groyne has been portrayed for decades now and on this occasion the suggestion was a 100m + exaggeration.
Hopefully what I have submitted can be accepted and the erosion that the groyne is directly responsible for can be spoken about in terms of up to 60m in the future.
If necessary, we will continue the search for an aerial survey that gets as close as possible to the 1965 build date but I feel the work done is sufficient to satisfy a reasonable person who has a knowledgeable understanding of this subject, including the erosion cycles that we have historically experiences in this area.
In the future if a full review was to be done on the groyne I look forward to bringing out many valuable records to assist, as we have offered to share with the COB and others over the years, but to no avail.

5.3.2: ACCRETION AT FIRST 1km OF THE LOCKE ESTATE SINCE 1988 AT LEAST

Since 2014 the CSIRO have been progressively making available satellite imagery that can be used for many purposes including monitoring beaches for erosion and accretion. The latest CSIRO product is called Digital Earth Australia (DEA) which became available sometime around 2019 I believe and it can be loaded to tell the story for all beaches in Geographe Bay back to 1988. https://maps.dea.ga.gov.au/#share=s-DEACoastlines&playStory=1
The story for the beaches at the Lock Estate can be viewed via the DEA link above. It shows that for the beaches along the Locke Estate, in summary –

- The first 1km immediately east of the groyne has been accreting since 1988 which proves that significant sand bypassing has been happening for at least 33 years now.

- The second 1km stretch of coast east of the groyne, has been under moderate erosion pressure since 1988 but in 2014/15 the new groyne field of 6 groynes is doing very well to stop any further erosion and generate significant accretion again. This is very obvious when you visit the site and the DEA site shows the accretion trend if you drill in.

5.3.3: RECENT GROYNE WORKS AT ABBEY FILLING NICELY

After the installation of two new groynes at the western end of Abbey, as the first stage of a 3 stage Coastal Adaptation plan (see page 46 of The COB Coastal Management PROGRAM 10-year plan (2020 – 2030), I inspected those a few days ago and they have filled nicely indicating once again sand feed is readily available. I have added a couple of pics.





5.4: PLAN TO SHORTEN SIESTA PARK GROYNE AND BY HOW MUCH ??

5.4.1: Policy and works program already in place

The key documents to consider here are –
1: The COB Coastal Management PROGRAM 10-year plan (2020 – 2030) *release date October 2020*
2: Advisian Coastal Adaptation Strategy *release date 30 September 2020*

In the two documents above, you find –

- **In The COB report 1 above, see *table 4.6 Coastal Protection Structures* on page 27**. You will see that this is an abridged version of the full 2015 GHD Condition Assessment Report that is displayed in the **Existing Physical Erosion Controls table on page 153 of the Advisian report number 2 above**. The following table summarises the information that pertains to item number 13 – Siesta Park Groyne and its assessment is as follows –

Source: Condition Assessment Report – GHD, 2015

Number – ID - Description	**Number 13 - 8.7 - Siesta Park Groyne**
Type	Groyne
Material	Rock - Lateritic Ironstone
Length in meters	Not stated
Year Of	1965 - 1967
Assumed Management Aut	City of Busselton
Structural Rating	Poor/Fair
Function Rating	Marginal
Predicted Original Design Refurbish Design Life	50
Theoretical Remaining Design Life	3 yrs
Estimate of Actual Remaining Useful Life	Greater than 5 yrs
Suggested Actions	Action Required
Structure Importance	HIGH
Maintenance Priority	HIGH

Given the assessment date of 2015 it means that –

- The ***Theoretical Remaining Design Life*** **for this structure expired three years ago at the end of 2018.**
- The ***Estimated Actual Remaining Useful Life*** **is between 2020 and 2025**. This statement of fact is deduced by comparison to other assessments which include others who carry a rating of greater than 10 years.

In response to the conclusions of this table, I believe any reasonable person who has any understanding of what lateritic ironstone is, would realise that to the contrary of what this assessment says the groyne has a useful life of well over 100 years, especially the submerged (under sand) parts that will no doubt be there for many centuries, unless removed by man. The only thing that might need to be done for example is to tidy up the rocks that sit above the sand level on occasions, on an as needs basis. If required we could engage the services of any number of qualified civil and/or coastal engineers to make their own assessment that can be compared to the GHD assessment.

Question: How did GHD come to assessment that they have for the Siesta Park Groyne?

The significance of this will become clear when it is added to the proposed *Planning Responses* and the *Infrastructure/Coastal Management Response* for Marybrook, Siesta Park and The Locke Estate and I will come back to that later.

Then in the COB report 1 documents you then also find on pages 43 to 47 plus pages 55 and 56 the following –

- on pages 43 to 47 these are a series of references stating how much erosion the Siesta Park Groyne is responsible for, with the claim stated on page 45 that - *The construction of the Siesta Park Groyne in 1965 interrupted the supply of sand to this management area, resulting in significant erosion, including recession of the coastline at Locke Estate* ***by hundreds of metres***.
- The descriptions on pages 45 and 48 clearly attempt to in addition, lay much responsibility and link any erosion experienced at Abbey and now extending to Broadwater 7km down the coast, to the Siesta Park Groyne.
- Then there is the scheduled maintenance of works planned for the Siesta Park Groyne that is displayed on pages 43, 55 and 56. Things to take particular note of include –
    - On page 43 note the following table –

Table 7.2 Quindalup to Siesta Park Coastal Management Actions

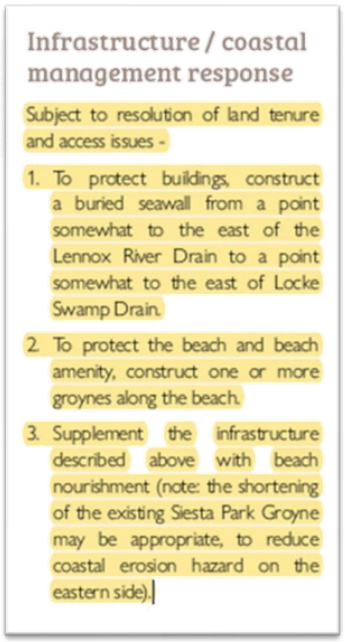
Year	Action
Annual	Beach Monitoring.
2 yearly	Detailed Aerial Beach Survey – first survey 2021/22.
10 yearly	PNP Hydrosurvey – 2021/22.
2025/26	Maintenance: Siesta Park Coastal Structures.

    - On Page 55 see **Figure 8.1 Coastal Management Program – Annual Budget** which allocates $820k for budgeted works in 2025/26. As far as we can detect there is no other significant works in other areas of the scope of this report (ie: within the areas that are the topic of this report) so we assume that much of the $820 is set aside for Siesta Park Groyne "Maintenance".

    - On page 56 if you blow up the seemingly illegible table **Figure 8.2 Coastal Management Program – Scheduled Works** to say 300% you can read the contents of the Figure 8.2 Coastal Management Program – Scheduled Works and you can see that the COB has allocated 6 months of time (September 2025 to March 2026 inclusive) to undertake any works. These works are truly SIGNIFICANT.

5.4.2: What the CHRMAP would allow to happen

If the draft CHRMAP were successful and the proposed ***Infrastructure/Coastal Management Responses*** are adopted, then the yellowed parts below would become planning policy and the following would become very possible from day one and when coupled to the COB Coastal Management PROGRAM 10-year plan (2020 – 2030), the following events may take place –



Infrastructure / coastal management response

Subject to resolution of land tenure and access issues -

1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Lennox River Drain to a point somewhat to the east of Locke Swamp Drain.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment (note: the shortening of the existing Siesta Park Groyne may be appropriate, to reduce coastal erosion hazard on the eastern side).

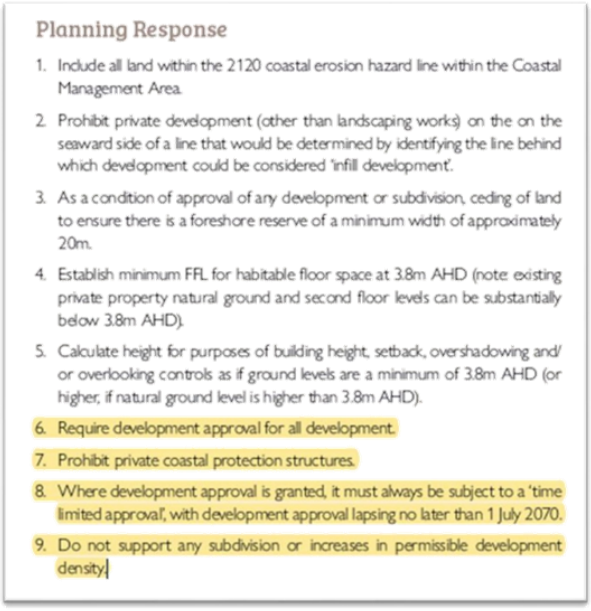
- In 2025/26 the Siesta Park Groyne is either fully removed, or perhaps enough might be left to protect only "buildings" and a "beach and beach amenity". This is unlike all other areas where <u>"fore dunes" and "infrastructure"</u> as well are to be protected until 2120

- Thus depending on however much of the groyne is removed, the now unprotected fore dunes would be allowed to erode as nature takes its course, unhindered. Then in the years to come as erosion approaches the buildings, if the COB decides to -
  - They might install a buried seawall may be installed to protect buildings? and
  - They might install one or more geofabric groynes to protect a beach and beach amenity?

- At any time from 2070 the COB may simply decide to call for Managed Retreat and any existing COB infrastructure removed.

Then add to this the following –

- If the draft CHRMAP were successful and the proposed ***Planning Responses*** below are adopted, the following would become planning policy. The highlighted yellow clauses <u>would cancel all opportunity for any private works to be carried out by owners as has been customary in the past</u>, so the area would become solely reliant on, and controlled by the COB for any protection as per the I*nfrastructure/Coastal Management Responses* as decribed above.



Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).
6. Require development approval for all development.
7. Prohibit private coastal protection structures.
8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
9. Do not support any subdivision or increases in permissible development density.

IN SUMMARY -

Under the scenario as desribed, it is obvious that the Managed Retreat from this area will have effectively begun in earnest when the groyne is removed or shortened in 2025/26 and the fore dunes and infrastructure is left unprotected to erode away and transport the sand eastwards.

By 2070 it is quite conceivable and almost expected that the derelict coastline would then be fit for no more than the final stage and implementation of Managed Retreat at the call of COB.

None of the above would be possible –

- **if the groyne is left in place,**

- **If private coastal protection, at the landowners expense and in accordance with an agreed plan, is allowed to continue.**

6 LATE SUBMISSION MATERIAL

6.1: SUBMISSION SUBJECT TO CORRECTIONS AND ADDITIONS

Given the time constraint offered by the COB of less than four weeks following the second CIS meeting on 2nd September, I have had to operate with great haste to collect information and work out how to articulate my findings into this this submission, so it is only reasonable that I have opportunity to replace this copy with an updated version at any stage ongoing, including any corrections and/or additions.

6.2: HISTORY OF EXAGERATION AND PLANNED DEMISE OF SP GROYNE

Going back to at least 2011, there has been a number of reports filed by Damara WA, Shore Coastal Consulting & Engineering and now Seashore Engineering that make numerous references to the Siesta Park Groyne. The exaggerations exposed as discussed in section 4, have been a feature throughout all reporting and of course the ongoing denigration and linking to erosion that effectively follows any erosion problems that has now spread up to Broadwater, some 7km east. Unfortunately, this has been allowed to influence COB coastal management policy and decision making, which is to the detriment of all COB residents.
I feel it may be of value to compile all reports into one file and highlight the parts relevant and make any comments that are worthwhile. This may become part of a subsequent update to my submission as mentioned above as this is another aspect that I have not had time to deal with under the circumstance.

Sign Off

Thank you for this opportunity to explain the concerns of my own family and our business and I trust that all will be accepted in good faith and the spirit in which it is intended. In writing this submission I have also considered the concerns of fellow residents and business owners, with whom we have spoken to in the past month and who would be directly affected plus there are also those members of the wider community who we have also spoken to, who are also very concerned as to how the COB is treating our whole community and these people include both local residents our visiting guests.
I trust that our community systems can sort through this issue and come up with a good outcome for all of our sakes.

Yours sincerely

Greg Tickle and family

SIESTA PARK
HOLIDAY RESORT

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SUBMISSION 6

23 September 2021

The Mayor, Councillors and
Planning and Strategic Policy Team
City of Busselton
2 Southern Drive
Busselton, WA 6280

By Email:

Paul.Needham@busselton.wa.gov.au
Matthew.Riordan@busselton.wa.gov.au
councillors@busselton.wa.gov.au

Dear Sir/Madam

City of Busselton – Coastal Hazard Risk Management and Adaption Plan 2021 – Further Submission to our Submission filed on 24 August 2021

We confirm that we are the registered owners of residential property located at 71 Siesta Park Road, Siesta Park (**Residence**). On 24 August 2021 we filed a submission **(Original Submission)** with the City of Busselton **(City)** in relation to the draft Coastal Hazard Risk Management and Adaption Plan dated February 2021 (**CHRMAP)** prepared by the City.

Further Community Information Session – 2 September 2021

We attended a further Community Information Session **(CIS)** for Siesta Park and Marybrook residents on Thursday 2 September 2021 **(September CIS)** run by the City in relation to the Draft CHRMAP. In particular, focusing on coastal impact, engineering and related environmental issues.

The September CIS was presented by Paul Needham (Director of Planning and Development Services for the City), Matt Eliot (Director Coastal Engineering at Seashore Engineering & Damara WA Pty Ltd) and Stuart Barr (Director and Principal Coastal Engineer at Seashore Engineering). During this presentation, a number of representations and statements were made by the presenters to the attendees. We deal with these and other matters which have come to our attention, which we consider relevant for the City to consider, below **(Further Submission)**. Before doing so however, we want to summarise some of the key issues in the Original and Further Submission, as well as put clearly the outcomes we are now seeking.

Summary of Some Key Issues

Our Original Submissions and these Further Submissions **(jointly Our Submissions)** clearly outline what we believe to be many shortcomings and failures in the Draft CHRMAP document and process, importantly they include (but are not limited to) the following:

- A significant failure by the City and Council to adequately complete Community & Stakeholder Engagement & Consultation in-line with the DPLH Coastal hazard risk management and adaptation planning guidelines July 2019 **(Guidelines)**.
- In respect of Siesta Park and Marybrook residents, the failure to consult and engage is elevated and includes a failure by the City to properly disclose and inform residents in relation to serious matters proposed.
- The City's decision to deviate, it appears, from many significant recommendations made including (but not limited) to those included in the CHRMAP Multi Criteria Analysis, Guidelines and the Advisian Report (referenced below) with no explanation or visibility behind the decision-making.

The artificial creation by the City of the Siesta Park and Marybrook MUs and blanket approach taken to them, despite marked differences within these areas and the risk profiles relating to areas within them.

- The failure to adequately identify and justify the reasons and supportable rationale for the different, inequitable and adverse approach taken in relation to Siesta Park and Marybrook (directly contrary to the recommendations of the Multi Criteria Analysis). This includes providing transparency and proper information and support for the purely economic and policy decision by the City to make these recommendations.
- The failure of the City to identify and appropriately recognize the direct and adverse impacts of its decisions to the residents of Siesta Park and Marybrook and justification for the proposed implementation of a Special Area Rate in those circumstances or at all.
- The significant inadequacies that we believe exist in relation to the Draft CHRMAP document released for comment and underlying process adopted it seems by the City. There are many examples outlined in Our Submissions located within the Draft CHRMAP and Advisian Report and other material where our view is that the modelling, data and information is either incomplete, not published, recommendations have not been undertaken, the veracity of information has been called into question or other perceived

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inadequacies. Based on what we have been able to review and consider, we believe that the process, documentation and transparency in the areas below are particular critical failings in this regard:

- Cost Benefit Analysis
- Hazard Identification
- Likelihood
- Level of Risk and Risk Matrices
- Adaptive Capacity and Asset Vulnerability
- Trigger Adaption Pathways
- Detailed inundation hazard mapping
- Erosion hazard lines are not compliant with the current requirements of SPP 2.6

- The City has not identified who the suitably experienced and qualified economist was who developed the CHRMAP financial model.
- Issues arising from the Coastal Management Plan 2020-30 (dealt with below) including an apparent plan to shorten and modify the Siesta Park Groyne and the lack of any identifiable protection work at all noted for this period. The proposal to shorten the Siesta Park Groyne seems to have been done with no modelling, consultation or rigorous fact checking we can identify. We also challenge and question various assertions made by Shore Coastal in the Coastal Management Plan around the alleged erosion created east of the Siesta Park Groyne. This issue which will clearly be the subject of challenge by the residents.
- The City has indicated that it is prepared to implement severe and significant Planning Controls in Siesta Park and Marybrook without proper engagement or consultation. This includes in respect of properties in the eastern section of the Siesta Park MU (where our Residence is located) in circumstances where the Advisian Report states that any Planning Triggers should only occur when *"Where the most landward part of the shoreline (Horizontal Shoreline Datum) is within 40 metres of the most seaward part of a structure's lot boundary"* and these triggers have not occurred, nor are they at risk of occurring at this stage.

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Requested Outcomes & Personal Matters

Before we deal with our requests to the City, we would like to make some submissions of a more personal nature.

As we noted in our Original Submission, we are long term residents of Busselton and are currently building our primary long term home in Siesta Park. It is notable to us that at no time during the development or building approval process did the City's planning department deem it appropriate to even mention the possibility of issues as are currently being proposed by the Draft CHRMAP in our area. Had we been aware, or even had an inkling, that this was how the City planned to approach these areas moving forward, we would certainly have reconsidered our purchase in this area. If we had purchased and sought development, then this would have been a very different house extension to what is now being built as well.

Further, we have purchased the property with the Siesta Park Groyne in place. If the City proceeds to make any changes to the Siesta Park Groyne which adversely affects our land and puts it at risk, then we anticipate that we and other effected residents would seek legal remedies.

Siesta Park is not a new development or housing estate. The community including our area has been in existence we think since at least the 1940s. Our cottage (which we are extending) was built in the late 1940's and we made a conscious decision to keep and renovate the original jarrah weatherboard cottage to retain this little piece of history. Siesta Park Road which borders our property is in fact part of the original Caves Road.

The City's approach would seem to be a "belts and braces" methodology and not justified in any manner we believe in the Siesta Park area and in particular where our Residence is located (with a large buffer currently between us and the ocean). Whether or not sea levels will rise, beaches will erode, 1 in 100 year storms will arrive are all a matter of some guesswork at least, despite the best modelling efforts. We are not denying their existence but the extreme approach taken by the City in our area is unjustified and unwarranted in these circumstances.

The Draft CHRMAP needs to rely on an extremely critical analysis of the underlying data and information. This document and the City's approach will plant the seed to a process which will have long lasting and extremely serious consequences for the areas it addresses, including Siesta Park. There are also real life and human consequences to us as a result of what is being proposed.

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There has also been a complete lack of empathy and realization of these matters in our view by the City to date. The statements made by Mike Archer in the article which appeared in the Busselton Dunsborough Mail on 22 September 2021 is a clear example. Not only did his comments fail to adequately reflect the true extent of the matters being proposed for Siesta Park and Marybrook (immediate planning controls and the like) the statements were made in such a manner as to appear lacking of a true understanding of the real and adverse effects on the residents directly in the firing line of these proposals.

We are also in the dark really as to what would happen next if the City adopts the CHRMAP proposals, in terms of how the City would intend to implement these immediate and severe planning controls. Any changes of this nature require considerable thought, rigour and engagement. For all of these reasons we cannot really believe that the City is going to entertain the draft proposals for Siesta Park and Marybrook in the manner currently put in the Draft CHRMAP and hope that we are correct in our assumption.

If the City adopts anything like what is being proposed, this will have a significant adverse impacts on our lives including our livelihood, investment in our primary forever home (which is partly built currently), our mental state (which has been severely impacted during this process already) and our ability to leave our hard earned assets from a life of working hard to our children. Let us be clear. What the City is currently proposing has massive consequences and should not be treated lightly or be progressed without very serious consideration. Siesta Park and Marybrook should certainly not be treated as a "test case" or some sort of "sacrificial lamb" by the City, whatever difficulties the City and its coastline is facing the future.

Requested Outcomes

Given the matters raised in Our Submissions (and by other effected residents) we submit that the City should not support the proposed recommendations in the Draft CHRMAP for Siesta Park. At the very least, they certainly should not be considered in relation to our Residence area as we identify below – where there is a very significant coastal reserve of protectable land and ample ability to protect this area. Specifically we would request that the City consider the following:

1) Commit to "Protect" Siesta Park to 2120 (as per the City's Multi Criteria Analysis) on the same basis as other populated, coastal nodes within the City of Busselton as outlined and recommended in the Draft CHRMAP. This should include consideration for Siesta Park (or in the very least our relevant Residence area) of the following matters identified in the Draft CHRMAP:

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a) Retain existing (fragmented) foreshore reserve.
b) Construct a buried seawall/bund from a point somewhat to the east of the Lennox River Drain to a point somewhat to the east of Locke Swamp Drain.
c) Protect the fore dune.
d) Retain Caves Road and other local roads/utilities.
e) Retain and protect infrastructure and buildings.
f) Proper management of agricultural drain outlets.
g) Protect the beach and beach amenity.

2) Not recommend the imposition of the unnecessary and unwarranted planning controls. To this end we refer to the Advisian Report (dealt with below) which underpins the Draft CHRMAP recommendations. This Report clearly states that planning controls should only be "Triggered" *"Where the most landward part of the Horizontal Shoreline Datum (shoreline) is within 40 metres of the most seaward part of the lot boundary."* Our property is currently about 70m from the shoreline and all surrounding properties are a similar distance, some closer, others further away. Planning decisions of the nature below should only be considered or recommended now and in the future only once full consultation and information has been provided to residents and proper modelling and information is available to the City and residents. Accordingly, we are requesting that the City must, at a minimum, remove all differential and detrimental, recommended planning restrictions (including the specific proposed list below) for Siesta Park or a the very minimum ALL properties at least located between Siesta Park Groyne running west to and including Siesta Park Resort and south to Caves Road (Siesta Park East):

> ***3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.***
>
> ***6. Require development approval for all development.***
>
> ***7. Prohibit private coastal protection structures.***
>
> ***8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.***

3) Properly deal with and recognise the diversity of the Siesta Park and Marybrook areas and deal with them respectively and effectively, giving due regard to what is actually physically there and not simply in some theoretical

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way. This includes working with residents as soon as possible as to a sensible and effective proper protection plan for the respective areas.

4) For all Siesta Park properties or at the very least ALL Siesta Park East properties DO NOT implement any planning modifications that would create a Special Control Area or Reserve that could affect our residences.

5) Following the closure of the submission period for the Draft CHRMAP, the City Officers must properly engage with Siesta Park and Marybrook residents to form a working group(s) to engage with the City to formulate a Coastal Management Plan for our MU's. This working group should be involved in formulating recommendations to be put up to Council in the Draft CHRMAP prior to submission to DPLH. There should be transparency around what the City intends taking to Council.

6) The City should immediately cease any planning, consideration or discussions around the shortening of the Siesta Park Groyne. We believe the assumptions and numerous reports alleging on-going, significant erosion impact east of the Groyne, on the Locke Estate and Abbey, are overstated and need significant investigation and reporting by a third-party engineer and Coastal Planner outside of Damara WA Pty Ltd, Shore Coastal or Seashore Engineering. The Groyne provides significant protection to numerous residents in Siesta Park East and given the need to maintain a 40m between the most landward part their properties and the Horizontal Shoreline Datum it is essential that the existing shoreline is not comprised or reduced.

7) When the City considers the implementation of a financial model for funding around coastal protection, it should consider the recommendations in the Advisian Report. If a Special Area Rate (SAR) is to be seriously considered it should be adopted equitably across all similarly located and affected properties in the City i.e. properties beach-side of roads located in Eagle Bay, Dunsborough, Quindalup, Margaret Street, Wonnerup etc. It would seem within the Draft CHRMAP residents in Marybrook and Siesta Park have been singled out with little explanation and the SAR is contrary to the recommendations of the Advisian Report.

8) The City should be revisiting we think the Draft CHRMAP (given the matters we have raised). That includes the technical models, inputs and assumptions used for preparing the Draft CHRMAP. This information should be made

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available, be transparent and there should be the ability for independent review, modelling and inputs and peer review (with input by any effected residence as to what is to occur in our area).

Inadequate Stakeholder Engagement, Consultation and Transparency by the City

We have already raised various matters regarding this point in our Original Submission and wish to also make the following further points. First, we set out below a timeline of relevant activities:

- **17 May 21** - Letter to residents outlining Draft CHRMAP out for comment
  Note about the original letter:
  - No planned Community Information Sessions for Siesta Park and Marybrook and
  - Original closing date for submissions 23 July 2021
- **21 May 21** - CHRMAP advertised for public consultation & press release issued by the City (referred to in more detail below)
- **27 May 2021** - Staffed Information Display - Busselton Central
- **27 May 2021** - CHRMAP Information Session - Busselton
- **03 June 2021** - Staffed Information Display - Dunsborough Centrepoint
- **03 June 2021** - CHRMAP Information Session - Dunsborough
- **15 June 2021** - CHRMAP Information Session – ONLINE
- **24 June 2021** - CHRMAP Information Session – ONLINE
- **5 July 2021** – Letter sent by City Busselton to Siesta Park/Marybrook residents regarding a newly proposed CIS
- **05 August 2021** - CHRMAP Information Session - Siesta Park and Marybrook residents
- **27 August 2021** - CHRMAP Submissions Close (Extension agreed by Paul Needham to be 3 weeks after the follow-up September CIS for Siesta Park & Marybrook Residents)
- **2 September 2021** - CHRMAP Information Session Presentations Dr Matt Elliott & Stuart Barr - Siesta Park and Marybrook residents
- **28 September 2021** – Extended deadline for Public Submissions Close

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- **8 December 2021** – Planned date for City to present to Council finalised Draft CHRMAP for submission to Department of Planning, Lands and Heritage **(DPLH)**

Additionally, on 21 May 2021 the City published the following on its website. We have highlighted some matters in this media release which we consider do not accurately represent the Draft CHRMAP proposals, particularly in relation to Siesta Park and Marybrook could be construed as misleading.

Strategic Plan to Protect Our Coastal Community

Published on Friday, 21 May 2021 at 3:48:12 PM

The City is seeking community feedback on a Draft Coastal Hazard Risk Management and Adaption Plan that will help safeguard our coastal community from erosion and coastal inundation for the next 100 years.

The Plan, which is a requirement of the State Government Coastal Planning Policy, responds to an estimated sea level rise of 0.9m over the next 100 years, as well as recognising the naturally mobile and dynamic nature of the City's coast. It has been developed to ensure the community and decision makers understand and are equipped to manage the potential future risks to private, public and community assets including our coastal wetlands.

The draft plan breaks the City's coastline into 19 management areas. Within each area potential risks and management and/or adaptation options are identified including broad recommendations to protect, accommodate or retreat from the coastline.

Despite recent and quite misleading media news lines, the City of Busselton Council is not adopting or proposing to adopt a broad retreat strategy at the cost of $9B over the next 100 years. Council is, in fact, mainly advocating a protection approach.

*Mayor Grant Henley said: "**Future Councils may consider retreating from the coastline in some pockets of largely unused or low value crown land. However, where there are assets we are advocating a protection strategy.** We are a seaside City, we live on the coast and recreate on the coast. Our unique coastal environment drives our tourist economy.* [OUR NOTE: in the context of Siesta Park and Marybrook this does not reflect what has been recommended and gives the misleading impression that Siesta Park and Marybrook is being treated with a long term protection strategy which is not true].

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With most development situated on land which is less than 3 metres above sea level, the risk of coastal hazards impacting our life-style and the shape of our developing City, cannot be ignored. Council is taking a proactive stance to protect our coast line and central to this is ensuring we have a sustainable and equitable financial model." [OUR NOTE: which has not been adequately disclosed or at all].

The estimated cost of the 'protect' strategy is approximately $1.6B over 100 years and the cost of a 'retreat' strategy is approximately $9B over 100 years. In the main, the draft recommends that a 'protect' strategy be pursued. [OUR NOTE: Any resident reading this, in the context of the rest of the release, would consider that areas such as Siesta Park and Marybrook would have been included "in the main" and not be outliers]. *Most of the costs would not need to be met until after 2040 and in many cases not until after 2070. Importantly, the draft plan doesn't propose that those costs are all met by ratepayers and recommends that the City continues to work with the State Government and other stakeholders to develop an equitable and sustainable funding model over time.*

"The Coastal Hazard Risk Management and Adaption Plan is unarguably one of the most important strategic plans to come before Council," Mayor Henley said. "I encourage the community to get familiar with its content and provide feedback." [OUR NOTE: given this comment the City determined it not important enough that they consult with and specifically identify to Siesta Park and Marybrook owners at an early stage that they were being made a serious exception?]

The Draft Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) is open for submissions from 21 May 2021 until 23 July 2021. Two public information sessions will be held on

- *Thursday 27 May 2021: City of Busselton Administration Building, Southern Drive, Busselton 6.00pm - 8.00pm*
- *Thursday 3 June 2021: John Edwards Pavilion (Dunsborough Playing Fields), Dunsborough 6.00pm - 8.00pm*

In addition staffed information displays will be available to the public on:

- *Thursday 27 May 2021 at the Busselton Central Shopping Centre between 11.00am – 3.00pm.*
- *Thursday 3 June 2021 at the Dunsborough Centrepoint Shopping Centre between 12.00pm – 4.00pm.*

A further two online public information sessions will be held via Zoom on:

- *Tuesday 15 June 2021: 6.00pm – 8.00pm*

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- *Thursday 24 June 2021: 6.00pm – 8.00pm*

To register for these events and to provide feedback on the draft plan, please visit https://yoursay.busselton.wa.gov.au/chrmap [OUR NOTE: no specific sessions for Siesta Park or Marybrook, shorter original consultation period].

Paul Needham on numerous occasions has pointed to a 4 month consultation period (which was not the City's first approach as noted above) having occurred in relation to the Draft CHRMAP. This seems to be put as justification for what has occurred, or to show some sort of reasonableness or due process by the City. With respect, we do not agree that what has occurred is adequate consultation, nor has adequate stakeholder engagement and consultation occurred prior to the Draft CHRMAP being prepared or during this 4 month period.

What has occurred at the CIS we have attended is presentation of limited selected information by the City and a very limited ability of residents and stakeholders to ask questions and raise concerns about these matters.

Notably, during the September CIS, Paul Needham responded to a question raised that he was not here to negotiate the City's position and that the September CIS was focused on the science and that he was not here to answer other questions.

As highlighted in our Original Submission, we do not consider that what has occurred prior to the Draft CHRMAP being presented to Council (on 24 February 2021) or since, amounts to appropriate consultation or engagement, particularly with Siesta Park residents given what is being proposed. We have simply been presented with limited material to support the position being proposed in the Draft CHRMAP with limited ability to raise questions about those matters or properly understand the "economic and policy" basis for the proposed recommendations.

By way of contrast (just by way of example), we note that the City released on 12 April 2016 a *Wonnerup Coastal Reserves Management Plan.* That project resulted in a report of some 108 pages, which can be viewed at the link below:

https://www.busselton.wa.gov.au/documents/889/wonnerup-coastal-management-plan

The Summary indicates that the consultation for that report included with members of the local community and key stakeholders, including through:

- *Establishment of, and regular meetings with a project Steering Committee (Section 2.2) which included representation from local and state government departments, NRM organisations and local community groups;*

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- *Letters to local residents advising of the Plan preparation and identifying opportunities to comment;*
- *Installation of signage at key locations throughout the Wonnerup Coastal Reserves inviting the community to provide feedback on the draft plan;*
- *A beach walk session on site with local residents to discuss the key values and concerns throughout the Wonnerup Coastal Reserves;*
- *Receipt of written submissions from local residents that were not able to attend the beach walk session; and*
- *A public comment period for the draft plan, including invitation to a community open forum to review the Plan recommendations and provide comment.*

We repeat the matters we have set out above and in our Original Submissions and strongly consider that the engagement, consultation and provision of information which has occurred in respect of this matter, with Siesta Park and Marybrook residents (including ourselves) has been entirely inadequate, given the matters being proposed for Siesta Park and Marybrook in contrast to other MU areas.

Independent Coastal Planner Advice

Further to the matters set out above (and what we will come to below in terms of process, information and related matters as well as what we provided in our Original Submissions) we have also sought some initial advice from a highly qualified Coastal Planning and Engineering Specialist. As to the Draft CHRMAP we have been provided with the following feedback:

- *The City does not appear to have provided/presented the technical studies that accompany the Draft CHRMAP process, just the high-level summary document. In the typical CHRMAP process, there should be a technical chapter report for each of stages in the diagram included in the Guidelines (defined below and see Annexure "A"):*
    - *Establish the context;*
    - *Risk identification;*
    - *Vulnerability analysis;*
    - *Risk evaluation;*
    - *Risk treatment; and*
    - *Implementation.*
- *The City references Advisian (2020) City of Busselton Coastal Hazard Risk Management and Adaptation Plan – Technical Assessment Report. It is*

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assumed that a lot of the detail is in that Report. There is no reason why this detail/report should be concealed from the community and stakeholders.

- *The items along the left of the diagram (Annexure "A")(stakeholder & community consultation) may not have been properly fulfilled. In particular, the consultation and feedback from the community on adaptation options, prior to confirming the adaptation responses summarised in the Draft CHRMAP document. Even if the values survey was done properly, the City has drifted away from their continued engagement and just elected to 'inform' the community.*

- *There is no information as to who the suitably experienced and qualified economist was who developed the financial model that helped the City select preferred adaptation options. This should be provided. All relevant modelling should clearly state its assumptions and limitations.*

- *Residents would be wanting to better understand the statutory planning and legislative context of the proposed adaptation responses (particularly with respect to proposed managed retreat). Again, where is the accompanying technical information to arrive at these planning responses and who were the statutory planners working on the project?*

- *In general, the Draft CHRMAP document tries to convey the process and outcomes in a simplified format for the general community. But it seems to have some pretty serious conclusions and implications without properly informing on how they have been arrived at. Making sure the community and affected stakeholders are informed and involved throughout the process is a key requirement for the document to achieve endorsement.*

Advisian City of Busselton Draft Coastal Adaption Strategy 30 September 2020 (Advisian Report)

Given the limited information provided by the City associated with the Draft CHRMAP to allow proper consideration and review, we have commenced review of material available on the City's website. In particular, various Council Minutes and associated documents. We have now discovered and commenced reviewing parts of the Advisian Report, which is also referenced in the Draft CHRMAP.

It is clear, even from our brief review so far, that the Advisian Report includes a wealth of information which has not been provided or disclosed to the community in respect of the Draft CHRMAP. This includes various recommendations and

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conclusions made by Advisian following the process undertaken for the Report. It should not be our role as residents to need to locate this material ourselves or review in the detail we have had to in this regard. If this matter is not resolved to our satisfaction in respect of the Draft CHRMAP recommendations for Siesta Park then we will be engaging with appropriate planning and legal experts to review all relevant material.

For now, we reference various matters in the Advisian Report in Annexure "B" which seem to be inconsistent with the approach taken by the City in the Draft CHRMAP and do not support the position taken in respect of Siesta Park and Marybrook. These are by no means exhaustive.

Reasons for different approach being taken to Siesta Park and Marybrook are purely economic and policy driven

We addressed the different approach the City has flagged to take in respect to Siesta Park and Marybrook and the apparent rationale for this in detail in our Original Submissions (sections 3 and 5).

The City has further now expressly stated that the reasons for not following the outcomes of the City's multi-criteria analysis (**MCA** – see section 1 of our Original Submissions) in respect of Siesta Park and Marybrook are *not because of any particular climate or science related matters, but are driven by economic and policy decisions.* During the September CIS, Paul Needham made relevant comments to the following effect to the attendees:

In relation to Siesta Park and Marybrook, there is no scientific answer or reason as to why to choose not to protect those areas in the same manner as has been recommended from the remainder of the relevant Coast and MU areas. The decision not to protect Siesta Park and Marybrook in the same manner is an economic and policy decision;

The policy for Siesta Park and Marybrook which the Draft CHRMAP has proposed is informed by the science but there are other considerations;

The science tells us what happens if we do not protect an area, the policy choice determines whether or not to protect;

The above statements were given in the context of various questions being raised by attendees (directed to Matt Eliot and Stuart Barr) as to whether there were particular climate or environmental issues, risks or difficulties in their view which meant that Siesta Park and/or Marybrook could not be protected, including long term, in the same manner proposed for the remainder of the populated coast (with minor exceptions).

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Paul Needham stepped in to answer these questions and responded generally as outlined above. This would seem to make the position of the City now very clear, namely that policy and economic reasons are the *sole basis* for the City's approach and divergence from the City's MCA recommendations for these coastal areas.

In those circumstances, whilst the information provided at the September CIS may have been of interest, it seems to have little direct relevance to the proposed recommendations now being made by the City in respect of Siesta Park and Marybrook? Further, the matters above would seem to be inconsistent with information in the Draft CHRMAP as well as presented by Paul Needham in his slide show during the Siesta/Marybrook CIS. In his slide headed *"Why is a different approach recommended"* he included the following:

- *Insufficient space to construct a levee/seawall to protect from inundation (and do you want a 3.5-4.0 m high seal wall, or even a 3.0m one?)*
- *City does not have consistent land tenure (e.g. HWM titles).*

Given the statements made by Paul Needham at the September CIS, and the fact that the two environmental and climate experts at the meeting provided no information to support these matters or evidence that they could not be accommodated or dealt with in some way, they would seem to be unsupported at best and misleading at worst. That being the case, we also wish to raise some further matters in relation to the Draft CHRMAP – following on from those raised in our Original Submissions.

Further Comments in relation to Draft CHRMAP and Guidelines

First, we make the following further observations about the approach the City has taken to the Draft CHRMAP, the information it contains and the requirements of the Western Australian Coastal Hazard Risk Management and Adaption Planning Guidelines (July 2019) **(Guidelines)**.

1) Section 2.2 of the Guidelines deals with *Hazard Identification* and in this context the recommended study area, which it is said *should be defined through the coastal geology/geomorphology, including the entire sediment cell, which is the natural management units with a physical basis identifying sections of the coast within which sediment transport processes are strongly related.* We have already raised issues in the Original Submissions with the arbitrary carve up of the MUs for the Draft CHRMAP. It is unclear whether the above Guidelines have also been appropriately adopted and followed in this context. We also note that the City "carves up" the coastline differently again in its Coastal Management Programme (dealt with in detail below).

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2) Section 3.5.2 of the Guidelines talks about *Likelihood* and that this is used to consider the exposure of an asset to coastal hazards when undertaking the vulnerability assessment and should be assessed for each relevant timeframe. We do not consider that there has been sufficient information and transparency from the City in relation to these matters in the Draft CHRMAP.

3) Section 3.6 of the Guidelines talks about the *Level of Risk and Risk Level Matrices.* The Draft CHRMAP includes the following:

   To provide a transparent and logical basis for determining adaptation planning priorities, a risk assessment was undertaken that aligned with the City of Busselton Risk Management Framework (2017). Risk was assessed in relation to the •Likelihood of a hazard occurring •Consequences of the hazard if it was to actually occur •Capacity for the management of assets to adapt and address coastal hazards.

   Again, we do not consider that the City has provided sufficient information or transparency regarding these matters, such that any meaningful consultation with, or comments by, effected residents can be provided.

4) Section 3.7 of the Guidelines deals with *Adaptative Capacity and Asset Vulnerability.* We make similar comments as to those matters above in respect of the Draft CHRMAP and lack of available information on these matters we can readily identify.

5) Section 5.3.2 of the Guidelines refers to the *Cost Benefit Analysis* which it describes as a *process commonly used to prioritise risk treatment options and inform decision-making about alternative courses of action.*

   It appears that the City has chosen to "opt out" of the recommended preparation of a Cost Benefit Analysis. Notably the Draft CHRMAP includes the following:

   The model is not a 'cost-benefit analysis' in the usual sense of that term, as it does not seek to identify the value of non-financial costs or benefits. There are three key reasons for that. Firstly, all of the modelled scenarios, reflecting the outcomes of coastal values work undertaken (see section 3.1 Community and Stakeholder Consultation), assume the retention of a continuous beach and foreshore reserve along the whole of the coast, wherever possible, essentially giving that benefit an infinite value. Secondly, ascribing equivalent dollar values to non-financial costs or benefits is fraught with difficulty. For instance, what is the value of a beach? Is it to be valued on a per-linear metre or a per-square metre basis? How is that value to be derived? There are means of doing so, one of which is a set of

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techniques sometimes known as 'hedonic pricing', but it is not clear what such an approach would add, when it comes to real world decision-making. Finally, in this particular case, to secure many of the non-financial benefits, financial costs would be involved, and money is required for that. Including non-financial costs and benefits in the model would have meant that it was a less useful tool to isolate and identify what funds may be required and when.

6) As for the City's "model" this information has not been provided in any detail. During the CIS conducted on 5 August 2021 **(the Siesta/Marybrook CIS)** we believe that Paul Needham briefly showed a spreadsheet to the attendees which may have been the "model" and may have shared some information in the relevant slides. However, no fulsome or even abbreviated financial information for any MUs, including Siesta Park and Marybrook, has it seems been provided for comment or review.

7) We also refer to the Advisian Report and Annexure B. The material we have reviewed indicates that the Draft CHRMAP contains or relies on old outdated information and on the basis of lack of information being available at all. For example we refer to Annexure B and the following matters identified in the Advisian Report:

Report Coastal Adaption Strategy – Part 1 - page 20
3.1.2 Inundation Hazard

Detailed inundation hazard mapping has not been undertaken for the Cape Settlements as detailed topographic information is not available. The work by Damara (2017) provides only a qualitative assessment of the present-day risk from a 100-year water level event. This work indicates only a small number of built assets are likely to be impacted in the short-term.

(Extracted Advisian Report Coastal Adaption Strategy – Part 1 - page 21)
3.2 Geographe Bay (Dunsborough to Forest Beach)
3.2.1 Erosion Hazard

The collection of erosion studies provides an excellent source of information and a strong knowledge foundation for preparing the CAS. However, neither of the three studies containing erosion hazard lines are compliant with the current requirements of SPP 2.6. The existing studies are several years old and based on information which is approximately a decade old.

8) In our Original Submission we made reference to the ACIL Tasman Economics Policy Strategy Analysis (Climate Change Adaptation Options Assessment - Developing flexible adaptation pathways for the Peron-

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Naturaliste Coastal Region of Western Australia- prepared for the Peron-Naturaliste Partnership in September 2012) **(ACIL 2012)** (including extracts as Annexure C to the Original Submission). This Report was part of a 4 phase project for *"Developing Flexible Adaptation Pathways for the Peron Naturaliste Coastal Region of Western Australia*"**(PNP Project).**

9) This material is extensive and we cannot reference all relevant matters in the context of these submissions. However, we make the following further observations in relation to ACIL 2012:

- The Draft CHRMAP includes reference to the ACIL 2012 in the References and includes the following:

  Prior to the development of the CHRMAP, the City has undertaken, or been otherwise directly involved in, a number of projects and initiatives that have assisted in setting the future direction for the effective management of our coastline, including:

  i. Formation of the Peron-Naturaliste Partnership (PNP), which is a collaboration of the nine coastal local authorities between Point Peron (in the City of Rockingham) and Cape Naturaliste (in the City of Busselton) providing regional direction and leadership in terms of coastal monitoring and management, particularly through the:

  Coastal Adaptation Pathways project that delivered an economic analysis of adaptation options at a 'whole of region' scale, and a demonstration of coastal adaptation pathways and options at a scale relevant to partner local governments ***(ACIL Tasman/Damara 2012).***

- Other than the above, there seems to be no other reference to ACIL 2012 in the Draft CHRMAP or adoption of any of its approaches.
- Our Residence is located in the area identified as **sub area 2** in the ACIL 2012). Relevantly we refer to:

  - *Rather than endeavouring to ascertain a broad overview of the likely resource costs throughout the region to allow for suitable adaptation to climate change events, our focus is strategic; what strategies ought to be employed as a micro level to adapt to climate change by individual local governments. (Page 67)*

  - *Climate change impacts in the Siesta Park-Marybrook case study, The danger along the coast is erosion, with the model predicting around 300 metres of land vanishing by 2100. This would result in*

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the loss of all of the residential areas and Caves Road. ***However, an important caveat to the model results is that the results for Busselton may overstate the impacts (see Phase One Report for details) – [We note this references the Damara 2012 Report on which the City has relied]*** *(page 97)*

- Options were provided for sub area 2 *(pages 98 and 99)*:

Table 25 **Siesta Park Marybrook options summary**

Sub Area	Option	Capital Cost	Operating Cost (% capital cost)
Sub area 1 - West of Siesta Park	1) individual seawalls for each property	$6,700,000	1.0%
	2) single seawall across sub-region	$4,800,000	1.0%
	3) single large groyne	$4,000,000	1.0%
	4) multiple smaller groynes	$2,000,000	1.0%
Sub area 2 - Siesta Park	1) individual seawalls for each property	$5,500,000	1.0%
	2) single seawall across sub-region	$4,100,000	1.0%
	3) extend existing groyne into single large groyne	$3,600,000	1.0%
	4) multiple smaller groynes	$1,900,000	1.0%
Sub area 3 - Locke Estate	1) individual seawalls for each property	$6,100,000	1.0%
	2) single seawall across sub-region	$5,400,000	1.0%
	3) single large groyne	$4,300,000	1.0%
	4) multiple smaller groynes	$2,500,000	1.0%
Sub area 4 - W. Busselton	1) individual seawalls for each property	$4,900,000	1.0%
	2) single seawall across sub-region	$3,800,000	1.0%

Table 26 **Siesta Park-Marybrook viable options summary**

Sub area	Option	Capital cost	OPEX	Optimal Year	Net benefit	% let expire scenarios
Sub area 1 - West of Siesta Park	3	$4,000,000	$40,000	4	$5,639,000	13.00%
	4	$2,000,000	$20,000	4	$7,844,000	7.80%
Sub area 2 - Siesta Park	3	$3,600,000	$36,000	15.5	$5,940,000	10.50%
	4	$1,900,000	$19,000	15.5	$7,122,000	3.90%
Sub area 3 - Locke Estate	4	$2,500,000	$25,000	37	$652,000	56.40%
Sub area 4 - W. Busselton	3	$3,400,000	$34,000	4	$5,842,000	13.80%

- The following matters were also noted including for sub area 2 *(pages 99 and 100)*:

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> ***For the coastal areas, Sub Area 1, 2 and 4 each have two options that are viable**, and Sub Area3 has one. The lifespan of these options is the same in each case, and within each sub area, each optimally begins at the same time. Since the choice is between one or the other, there is no scope for staging or combining the options. In this situation, the most obvious was in which to make the choice is by which provides the greatest net benefit. In each case the difference between the better case and the less favourable case is around $2 million. **In each of the sub areas, it is the fourth option that is most valuable. It is also the least costly option in each instance, making it the obvious choice. In each of the coastal areas, it is important to consider how much erosion might occur in the interim before the optimal response is made. This is particularly the case for Sub Areas 2 and 3, where the optimal time to invest is 15 and 37 years respectively. Fortunately, in both of these areas, there is existing protection which is sufficient to withstand the erosive pressures during these timeframes; a groyne (somewhat degraded) in Sub Area 2, and a training wall in Sub Area 3. For this reason, there is no need to consider interim measures in either of these areas.***

- Despite all of the above, the City has chosen not to include, explain or recommend any of the suggested pathway outcomes in its Draft CHRMAP.
- In relation to the PNP Project, this includes the *Coastal Hazard Mapping for Economic Analysis of Climate Change Adaptation in the Peron-Naturaliste Region Damara WA Pty Ltd October 2012 Report* ***(Damara 2012).*** The City has relied heavily it appears on the reports from Damara (including this report) in the determination of hazard lines, coastal erosion and inundation matters. In addition to the matters already raised in respect of this sort of modelling, we note that there appear to be serious misgivings as to its veracity and reliance. This includes in the Damara 2012 report itself which notes the following:

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It is strongly recommended that a more refined erosion model be used for assessment. It is significant that model apparently provides its worst representations in the locations of Quindalup-Busselton, Bunbury, Mandurah and Rockingham. As these are the most developed parts of the regional coast, they are likely to hold the greatest significance for economic assessment. Downscaling of the regional model is constrained by limited information regarding geological features, for which collection of further information is likely to require a deliberate program of assessment. Other key aspects for erosion model refinement include clear distinction of model components (landform influences, sediment supply reliability) and improved representation of alongshore influences, to facilitate its use in assessing adaptation responses. In its present format, the inability to represent engineering adaptations and the simultaneous modelling of all sources of uncertainty prevents the erosion model being used to explore the combined effects of regional management.

A potential approach to evaluate regional impacts is to integrate the use of a finer scale sediment budget model, such as SBAS[74] with a regional (unmodified) sediment budget, such as developed by Cowell & Barry (2012). Questions to be addressed include:

- How much sediment can be retained by each management technique?
- How long will it take before each sediment sink is filled?
- How much of the trapped material is offset locally by downdrift erosion?
- How does recession affect alongshore transport rates, particularly bypassing of obstructions?

These questions are fundamental information to enable downscaling, which may be facilitated through the use of sediment cells identified for the region[15].

10) All of this means that there has been little transparency in our view of relevant information, disregarding of pertinent material and the selective release of information available for review or comment by us in this consultation process. This is particularly important in circumstances where the City has now directly notified us that the economics and associated policy are the core reasons for not adopting the Multi Criteria Analayis outcomes for Siesta Park. It is difficult to see how these matters can be supported or justified without provision of relevant information, particularly to directly affected residents of Siesta Park.

11) In this context we have also reviewed some other CHRMAP documents which have been completed in Western Australia. A list can be found at the link below to various completed and draft WA CHRMAP policies:

https://www.wa.gov.au/sites/default/files/2021-07/CHRMAPs-in-WA-table-March-2021.pdf

12) By way of example, the Shire of Gingin CHRMAP provides a comprehensive review and explanation of Cost Benefit Analysis matters. If the City is determined to judge Siesta Park on economic and policy matters, it should disclose these matters fully in our view for all MU's. We consider

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that the approach taken by the City to date and the Draft as proposed falls well short of what is anticipated by the Guidelines.

13) Further, section 5.4 of the Guidelines relates to the recommended *Risk Management Pathway* approach to be taken, including in section 5.4.1 which deals with *Triggers*. Relevantly this section includes the following matters:

The identification of short, medium and long-term triggers for implementation of the risk management measures, allows decision-makers to clearly map when risk management measures need to be taken. Triggers indicate the requirement for decisions which define or alter the risk management pathway in relation to a specific hazard or an asset in response to future conditions….

….The coastal risks associated with erosion and inundation will increase over time so the intervening time before detrimental impact occurs can be used to implement resilience-building risk management measures, particularly where the risk management measure may be costly or difficult for the community to accept or implement. This lead time can also be used to source funding and prepare approvals and designs. This approach also recognises that some coastal hazards may not eventuate as projected. If this is the case, ***the trigger-based approach for risk treatment options and management measures means that the community has not been unnecessarily burdened by costly risk treatment options and management measures until they are necessary.***

14) In relation to *Triggers*, in the Draft CHRMAP the City has included the following at section 5.4:

Triggers Adaptation pathways comprise a sequence of risk management options and tipping points triggered by the impact of coastal hazards over defined planning timeframes. The approach taken in the preparation of the CHRMAP seeks to establish a degree of flexibility in keeping options open and to avoid 'path dependency'. There has also been an intention to apply an appropriate sequence of actions in the short term, followed by a longer term pathway. Triggers for the implementation of risk management options are events or situations that occur as a direct result of natural coastal processes (e.g. a severe storm combined with a high tide that causes significant coastal erosion). Trigger points are identified to flag predetermined levels of change where decisions on agreed risk management measures must be implemented in order to reduce risk to acceptable levels. ***This CHRMAP will set the direction and timeframes for acceptable risk***

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management. Appropriate triggers will be assessed and determined, on an ongoing basis, through the City's rolling Coastal Management Programme 10 Year Plan (2020 – 2030).

Coastal Management Programme & the Draft CHRMAP Recommendations

Given the matters above, we have also reviewed the City of Busselton Coastal Management Programme *10 year plan (2020–2030)* **(Coastal Management Programme)**.

In relation to Siesta Park we note the following from the Coastal Management Programme:

1) Siesta Park is dealt with in the broader "Management Area" identified in this document as *Quindalup-Siesta Park* and not as the MU identified in the Draft CHRMAP. There does not appear to be a detailed explanation in this document at least as to the "carve up" of these areas, or how they inter-relate to the how the MUs have been broken up in the Draft CHRMAP and the relationship to the Section 2.2 Guidelines (noted above).

2) As to the "triggers" referred to in section 5.4 of the Draft CHRMAP (noted above) the only reference in the Conatal Management Programme to "triggers" seems to be in the following context:

   Allowing the establishment of quantitative management triggers for sand nourishment, based on minimum dune buffers.

   The existence or future identification of "triggers" currently and moving forward in this context therefore equally remain unclear. They do not seem to have been identified as required by the Guidelines.

3) The key issues identified and proposed actions foreshadowed in the 2020-2030 period in relation to Quindalup - Siesta Park, are as follows:

   - **Sand Nourishment** - it is noted that for Quindalup to Siesta Park (Planned Sand Nourishment) Quantity will be subject to monitoring. Nominal Quantities (m3) 0; and
   - **Key issues -** Management of sand accumulations at Quindalup boating facilities; Monitoring and management of coastal inlets entrances; Migration of sand lobe at Smith St; Private Seawalls along Siesta Park; Siesta Park Groyne refurbishment and/or modification.
   - **Coastal Management Actions (table extracted below) -**

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Table 7.2 Quindalup to Siesta Park Coastal Management Actions

Year	Action
Annual	Beach Monitoring.
2 yearly	Detailed Aerial Beach Survey – first survey 2021/22.
10 yearly	PNP Hydrosurvey – 2021/22.
2025/26	Maintenance: Siesta Park Coastal Structures.

The Draft CHRMAP Recommendations for the period "Current to 2040" for Siesta Park are identified as follows:

Infrastructure / coastal management response

Subject to resolution of land tenure and access issues -

1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Lennox River Drain to a point somewhat to the east of Locke Swamp Drain.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment (note: the shortening of the existing Siesta Park Groyne may be appropriate, to reduce coastal erosion hazard on the eastern side).

As to the matters above, for the period 2020 to 2030, there are no direct references in the Coastal Management Programme as to any specific works being undertaken to **protect** Siesta Park of the nature identified above.

The only matter which seems to have been given specific attention appears in section 6.6 of the Coastal Management Programme in relation to the Siesta Park Groyne as follows:

> The program allows for the potential shorting of the Siesta Park groyne to improve sand supply to Locke Estate, which have been identified as high priority for maintenance. This is proposed to be undertaken during refurbishment, subject to coastal monitoring and investigations outlined in Sections 6.3 & 6.4. The nominal program is:
>
> - Year 1: West Busselton (Stage 1)
> - Year 2: West Busselton (Stage 2)
> - Year 4: Abbey
> - Year 6: Siesta Park
> - Year 8: Dunsborough
> - Year 10: Wonnerup

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The Siesta Park Groyne is also identified in the context of the Coastal Management Programme on a number of other occasions, including as extracted below:

> The shortening of groynes at Siesta Parka, Holgate Road and Wonnerup periodically arises in community consultation as a potential solution to mitigate downdrift erosion. The Holgate Rd groyne was refurbished in 2020 and was reduced in length by 20m (Figure 6.5).



> Figure 6.5 Holgate Rd Groyne Refurbishment 2020

> An investigation is proposed to assess the potential modifications required, volume of sand released and longer-term updrift and downdrift impacts. The scope is likely to include a requirement for sediment transport modelling, and would be required prior to any consideration of shortening the Siesta Park groyne.

> The construction of the Siesta Park Groyne in 1965 interrupted the supply of sand to this management area, resulting in significant erosion, including recession of the coastline at Locke Estate by hundreds of metres. Since that time at least a dozen coastal protection structures have been constructed in this management area, including groyne fields at Locke Estate and Abbey, a training wall for the drainage outlet at Forth Street, protection for the boat ramp at Abbey and the longer Holgate Road Groyne at the eastern end of this management area. During times when Locke Estate or other areas were eroding, this would have increased the sand supply to the region east of these areas.

> **Abbey – Forth St**
> The erosion at Forth St in Abbey continues to be associated with the longer term effects of the construction of the Siesta Park groyne in the 1960s, and the interruption of alongshore sediment supply up to 3km to the east of the groyne. Historic period of accretion have been associated with deposition of material from the erosion Locke Estate foreshores which has since been largely stabilised. In recent years, erosion rates at Forth St have been in the order of 1,000m^3/yr and focussed on a 250m section of shoreline.

> Downdrift of the Dunsborough Bay bar, sand migration is generally eastward along the coast. There are no significant offshore sandbars intersecting the coast in this area, but there are lobes moving east along the coastline at Toby Inlet and Smith Street. Several waterways enter the coast in this management area, but none of these have training walls. While there is various public and private boating infrastructure, sand migration is largely unhindered until it reaches the Siesta Park Groyne at the eastern end of this area, which is the first significant groyne along Geographe Bay.

> Ongoing monitoring is required to identify when erosion occurs, in particular coastal inlet entrances. The influence of the Siesta Park groyne on the wider Geographe Bay sediment dynamics requires investigation, together with potential adverse updrift and downdrift impacts associated with refurbishment or modification of this structure.

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During the September CIS specific questions were asked regarding Siesta Park Groyne and any proposals for shortening or other works to the Siesta Park Groyne. Paul Needham responded in the following general terms:

> *There has been no modelling conducted in relation to the removal, shortening or other work to the Siesta Park Groyne. At this stage no decision has been made to do anything in relation to Siesta Park Groyne.*

This statement would seem to be at odds with the information we have identified in the Coastal Management Programme (extracted above). Particularly where works have been identified and included in a proposed Schedule.

The Coastal Management Programme has identified Siesta Park Groyne works in Year 6 (2025/26) (see figures at 8.1 & 8.2 included at **Annexure C attached**) as follows:

- *Scheduled start date 6/10/25;*
- *26 week works schedule; and*
- *A budget of +$800k for 2025/26 covering Siesta Park Groyne work and other scheduled works.*

In relation to Siesta Park, given all of the above facts, in our opinion the only possible conclusion to be sensibly drawn is that the City is planning to significantly adjust/shorten the Siesta Park Groyne for the purposes of releasing sand to the East, with no proper consideration, consultation, planning or modelling and to the direct and immediate detriment of residents of Siesta Park. This is also in the context of no other protection works having been identified in the Coastal Management Programme to 2030 for the protection of Siesta Park.

The Coastal Management Programme covers half of the period up to 2040. The City would like us to believe that it intends to "protect" Siesta Park to some degree during this period. However, in our opinion this document, including the matters we have set out above, does not reflect any such intention and instead we note that:

- There is no mention of any intention for building a buried seawall or any other form of protection for Siesta Park;
- It specifically mentions the potential shortening of the Siesta Park Groyne many times; and
- The report's author makes numerous mentions of the Siesta Park Groyne being responsible for erosion at Locke Estate and Forth Street, Abbey.

Clearly these matters are of significant concern to the residents of Siesta Park including ourselves.

Diversity of Siesta Park & Marybrook

As we have already addressed in our Original Submission, we consider that this

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is a crucial issue requiring particular attention. We have already identified that the CHRMAP has adopted a breakdown of relevant coastal areas by reference to 19 Management Units **(MUs)**. Siesta Park has been identified as MU09.

Given the matters presented at the September CIS, and the matters we have outlined above, we additionally wish to note the following relevant matters.

1) The City proposes to treat the entire Siesta Park area in the same manner, despite the fact that there are clearly stark differences in relation to the properties in that area and issues to be addressed;
2) Most of the discussion at the September CIS about Siesta Park and areas under threat related to the part of Siesta Park which is located from the Lennox drain and runs approximately 1.2 km to the East **(Focus Area)**;
3) Within this area, issues were raised about particular problems the City considers arise with High Water Mark land tenure issues and involvement of DPIRD (relating to the common issue to be addressed in the Ngari Capes Marine Park along the Coast); and
4) Whether intentionally or not, the manner in which the information and material to date has been put forward by the City, including in the September CIS, is to provide little hope for the total Siesta Park area (although it seems not for any reasons other than economic and policy) and that the City perceives it "too hard" to deal with these matters.

Our Residence is not located in the Focus Area. In the event that the matters raised in our Original Submission were not clear, we require the City to properly recognise and identify that not all of Siesta Park is the same nor subject to the issues being raised, particularly relevant to the Focus Area. We request that a more accurate description be given to the Siesta Park area including noting that:

- *The Siesta Park Groyne, built by the PWD in 1965 and 1967, protects 19 properties plus about half of the width of the Siesta Park Holiday Resort that abut coastal reserves plus now that sea level rise has been modelled, it also protects another 20 residential lots that lie between Siesta Park Road and Caves Road.*
- *Of the total 2.6km of coastline within the Siesta Park starting from the Lennox drain and going east –*
    - *The first 400m involves 11 properties with hard northern boundaries and there is a coastal reserve in front and where the City could quite simply install its own coastal protection infrastructure.*

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- *The next 400m involves 12 properties also with hard northern boundaries and for perhaps all but one or two properties a slim coastal reserve exists in front of these properties where again the City can work towards installing coastal protection infrastructure, although this presents a somewhat greater practical challenge than the first 400m.*
- *Then there is a PAW for amenity access and infrastructure management.*
- *The next 355m involves 10 dwellings which exist as tenants in common on a purple title with a HWM northern boundary existing around 15m on average north of the current HWM. The City needs to work hard on how to work around or work with "Tenants in Common" as the landowners as how to protect this section.*
- *The last section before Siesta Park Holiday Resort involves a single dwelling on a 52m frontage green title, again with HWM title and the original surveyed HWM surveyed boundary currently being about 22m forward of the present day HWM. Like for the above The City needs to work hard on how to work around or work with landowners as how to protect this section.*
- *From this point going east the remaining 1.4km is fronted by Siesta Park Holiday Resort, then 19 private residences and finally the Siesta Park Reserve. All properties have hard northern boundaries and are fronted by significant coastal reserve.*

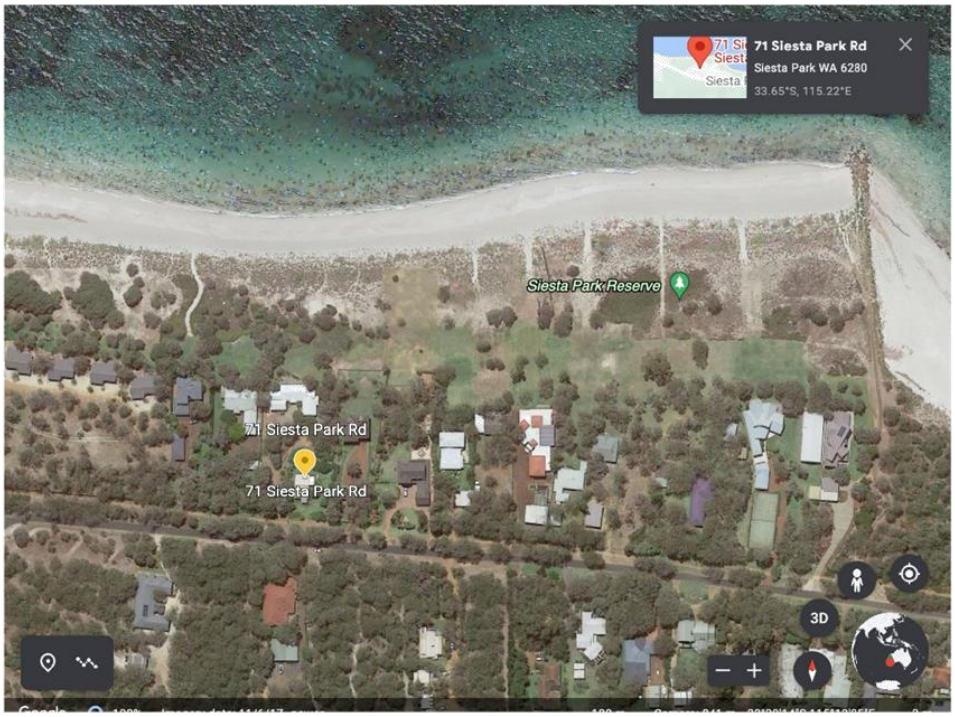
Our residence is located in the last bundle of properties referred to above. In this context we also refer to the issue of "triggers" which we have dealt with above and are referenced in the Guidelines, Draft CHRMAP and the Advisian Report. The Draft CHRMAP indicates those "triggers" will be assessed and determined through the Coastal Management Programme. A Google Map image of our Residence is below. You can take a look for yourselves on Google Maps:

https://earth.google.com/web/search/71+Siesta+Park+Road,+Siesta+Park+WA/@-33.65436111,115.22372065,3.64892264a,521.93283699d,35y,59.99503607h,44.99783904t,-0r/data=Co4BGmQSXgolMHgyYTJlNDZjZDNlM2ZmZTY5OjB4ZmJhYzYyN2JjYWRhOWM2MxkLkA1J0tNAwCG0DliDQc5cQCojNzEgU2llc3RhIFBhcmsgUm9hZCwgU2llc3RhIFBhcmsgV0EYAiABIiYKJAkwjGdmC9NAwBFg9jKo1dRAwBnxjMXllM5cQCHH0P73eM1cQA

Better yet, perhaps the Councillors should meet with residents and actually see the areas in questions in person?

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The Advisian Report indicates that "triggers" in relation to the Siesta Park MU should only take effect:

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Where the most landward part of the Horizontal Shoreline Datum (shoreline) is within 40 metres of the most seaward part of a lot bouindary.

Incorrectly, in terms of fact, the Advisian Report goes on to identify that all properties in Siesta Park have already met this trigger. We suggest that this is a result of the bundling of all properties in the Siesta Park MU which is not viable or appropriate (as we have already addressed).

For the record, our residence and at least the 19 other residences located in our area of Siesta Park have an abundant coastal reserve and should not be treated in a manner inconsistent with the factual matters pertaining to our land. The City has taken a heavy handed and unwarranted approach to the imposition of draconian proposed planning measures (coupled with a failure to plan for protection of our area and other issues we have addressed). Such an approach by the City will not be tolerated by any residence in this area.

It is only a Draft…..

On numerous occasions, Paul Needham has stated that the CHRMAP *is only a draft.* This point is apparently made to somehow comfort us in relation to the concerns we have raised, including in our Original Submissions and these Further Submissions. For example, during the September CIS statements were made of the following nature by Paul Needham:

As stated at earlier CIS presentations, that the CHRMAP is currently a Draft and not yet a final document or position adopted by the City; It is intended to report and make recommendations to the City in relation to the Draft CHRMAP by the end of 2021; The City will then determine whether to adopt or change the proposed Draft CHRMAP; There has been a 4 month consultation window in relation to the Draft CHRMAP; There will be further discussions and opportunities to raise matters before the "implementation" of the Draft CHRMAP recommendations; The information and proposals included in the Draft CHRMAP refer in many situations to requirements for further modelling and investigations to occur.

This characterization of the CHRMAP currently may be accurate (it is a draft) but its current status does not provide us with any level of assurance or comfort, including for the following reasons:

1) Firstly, the "Draft" has already been put to Council on one occasion. On 24 February 2021 it was submitted as a "draft" and Council agreed to the Draft CHRMAP being put out for public consultation in its current form. This is in the context of the issues of concern now being raised by Siesta Park and

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Marybrook residents having been openly and clearly addressed to Council in the material provided. Council made two minor changes to the proposed recommendations being put forward in the Draft as a whole (which did not relate to the Siesta Park and Marybrook issues). No other issues were raised it seems as to the differential adverse treatment of Siesta Park and Marybrook or any other matters.

2) We understand that once the "consultation" process is concluded, that it is intended that the final recommendations will be put to Council for consideration before the end of the year (currently proposed for 8 December 2021). At this stage, we have no idea whether any of the submissions being made by us or other relevant stakeholders will be taken into account or alter the recommendations in the Draft CHRMAP.

3) During the Siesta/Marybrook CIS on 5 August 2021, Paul Needham's slides included the following (as to next steps):

What would the process be from here? (assuming the currently recommended direction is pursued)

- *Finalise CHRMAP process;*
- *Further consultation;*
- *Amendment to town planning scheme;*
- *Design and costing of integrated protection approach;*
- *Further consultation (including a financial model);*
- *Advocacy/application for State Funding;*
- *Land access negotiations with landowners;*
- *Tender process;*
- *Most likely, City borrowing to meet capital cost;*
- *Implementation and ongoing maintenance by the City;*
- *Loan repayments and ongoing maintenance costs met through SAR applied to benefiting landowners.*

All of the above would indicate that the "Draft" CHRMAP could move swiftly from a "Draft" to an agreed CHRMAP criteria and policy moving forward, following this sort of timeline and plan. While further consultation and work may be foreshadowed following these next steps, it seems pretty clear that a "Draft" if approved by the City can no longer be seen in that light.

4) Paul Needham also made a comment during the September CIS about residents grouping together to make approaches regarding the Draft CHRMAP. It seems to be, therefore, that the impetus is clearly on residents to try and get engagement from the City and not the other way around. It is also unclear as to when this resident driven engagement is intended to take

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place and what status it will have. Paul Needham has advised that the community consultation in respect of the draft CHRMAP will conclude on 28 September 2021.

5) Ultimately we are left to wait and see what if any impact our submissions may have in respect to the Draft CHRMAP and what is put to the City for approval on 8 December 2021. As noted above, if approved whatever is proposed in the Draft CHRMAP will move from a "draft" status to an "agreed plan". Paul Needham's comments that it will take years and further work to implement the agreed proposed plan and further modelling is required, gives us no comfort at all. If the proposals as suggested for Siesta Park are agreed, then we are talking about "implementation" moving forward.

6) If the City proceeds with its recommendations in the Draft CHRMAP for Siesta Park the financial damage and devaluation of properties will be immediate, even before any planning recommendations are attempted to be implemented or otherwise. Any potential purchaser of any property in the area who does any degree of due diligence will be aware of the City's recommendation and plans and the impact on the properties in this area.

Draft CHRMAP Recommendations for Siesta Park Need to be Reviewed and be Consistent with other MUs

In Paul Needham's slides for the Siesta/Marybrook CIS on 5 August 2021 he included the following.

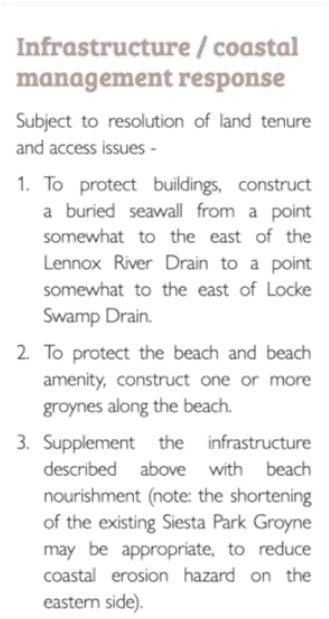
What is the same and what is different in terms of recommended direction for Siesta Park/Marybrook?

- *Same – recommending a City-led and implemented approach to protection from coastal erosion hazard for approximately 50 years.*
- *Same – recommending that coastal inundation hazard is mitigated for approximately 20 years through minimum FFLs for new development.*
- *Same – financial model assumes that, if retreat is pursued, unaffected value acquisition occurs - although this is not current State policy.*
- *Different – recommending use of a SAR to fund erosion protection.*
- *Different – not recommending bund/levee for inundation protection beyond 2040 (so min FFL proposed to be higher).*
- Different – not recommending 100 year commitment to erosion protection (so need to have time limited approvals).

The simplistic characterization of these matters above are misleading in our view and not representative of what is actually occurring in respect of Siesta Park. We make the following observations on these matters:

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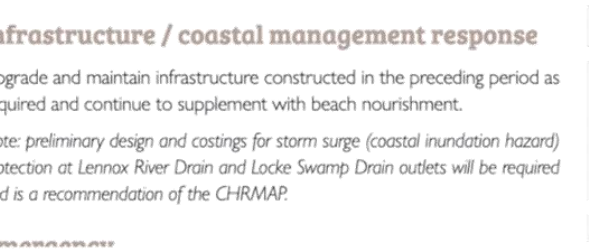
- The below are the proposal coastal erosion protection measures being recommended in the Draft CHRMAP for Siesta Park for the next 50 years.



Infrastructure / coastal management response

Subject to resolution of land tenure and access issues -

1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Lennox River Drain to a point somewhat to the east of Locke Swamp Drain.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment (note: the shortening of the existing Siesta Park Groyne may be appropriate, to reduce coastal erosion hazard on the eastern side).



Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection at Lennox River Drain and Locke Swamp Drain outlets will be required and is a recommendation of the CHRMAP.

However, this is in the context of severe and restrictive planning restrictions (extracted below) to be implemented **now** (not in the future). And a non-commitment to the area beyond 2070. As noted above, the Coastal Management Programme (to 2030) fails to indicate any significant works for Siesta Park of this or any nature. In contrast, the focus seems to be on a shortening of the Siesta Park Groyne which may have severe adverse impact on Siesta Park and its residents. To categorise the City's approach therefore as "the same" in this context is extremely misleading. Clearly the City's approach will be informed by their limited commitment to this area and focus on other areas of the Coast. One has to wonder whether the degree of works if any which would be planned or undertaken would be of the same level as those for areas where a full commitment has been proposed.

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A Similar observation can be made regarding the following statement made:

- *Same – recommending that coastal inundation hazard is mitigated for approximately 20 years through minimum FFLs for new development.*

The approach being taken is not the "same" when one reviews all of the planning responses being proposed for Siesta Park, which include not just minimum FFLs for new developments.

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).
6. Require development approval for all development.
7. Prohibit private coastal protection structures.
8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
9. Do not support any subdivision or increases in permissible development density.

As to the following statement - *Same – financial model assumes that, if retreat is pursued, unaffected value acquisition occurs - although this is not current State policy.* This again is very misleading and fails to take into account the adverse financial impact that will occur in respect of the residents and the land values at Siesta Park if the proposed planning changes are implemented in the near future. How can the position be the "same" as those areas where these measures are not occurring?

Further, if decisions yet to be made are subject to further modelling, investigation, decision making and other relevant matters, then nothing should be agreed now which adversely impacts landowners at Siesta Park in the manner currently intended.

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Legal Issues

Finally, we understand that the City may have considered legal implications relating to the Draft CHRMAP and related matters. In the event that the City proceeds with any proposal in the CHRMAP which we consider unfairly prejudices us, our land, its value or any related matters, we will likewise need to consider our legal position in this matter (as will no doubt other effected residents).

The issues surrounding climate change policy legal risks are complex and unchallenged in many respects.

The Draft CHRMAP raises many concerns for us in its current form. Not least of all the proposal to impose immediate and restrictive planning controls over our land. This is in circumstances where our property is currently located a significant distance away from the shoreline, with significant buffer and protection provided by beach, dunes, privately owned property (between us and the beach) and City owned reserve. The imposition of these sorts of restrictions in the context of a CHRMAP of this nature will give rise to many legal issues. By way of example, we draw the City's attention to the following:

Private property rights charter for Western Australia - Premier's Circular 2014/04

https://www.wa.gov.au/government/publications/private-property-rights-charter-western-australia-premiers-circular-201404

Report 33
STANDING COMMITTEE ON PUBLIC ADMINISTRATION Private property rights: the need for disclosure and fair compensation

https://www.parliament.wa.gov.au/Parliament/commit.nsf/(Report+Lookup+by+Com+ID)/DB3639B8AE6F2BD9482585F200117F42/$file/pc.ppr.200930.rpf.033.xx.pdf

Freehills - Climate change policy legal risks – Draft for discussion 1 April 2010

https://walga.asn.au/getattachment/Policy-Advice-and-Advocacy/Environment/Climate-Change/Climate-Change-Resources/Freehills_Climate_Change_Policy_Legal_Risks_Feb2016.pdf.aspx?lang=en-AU

If the City intends to proceed as currently recommended or in any manner which we consider will prejudice us moving forward, we will obviously take our own legal counsel in relation to all relevant matters and assume that other affected landowners will wish to do likewise.

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Conclusion

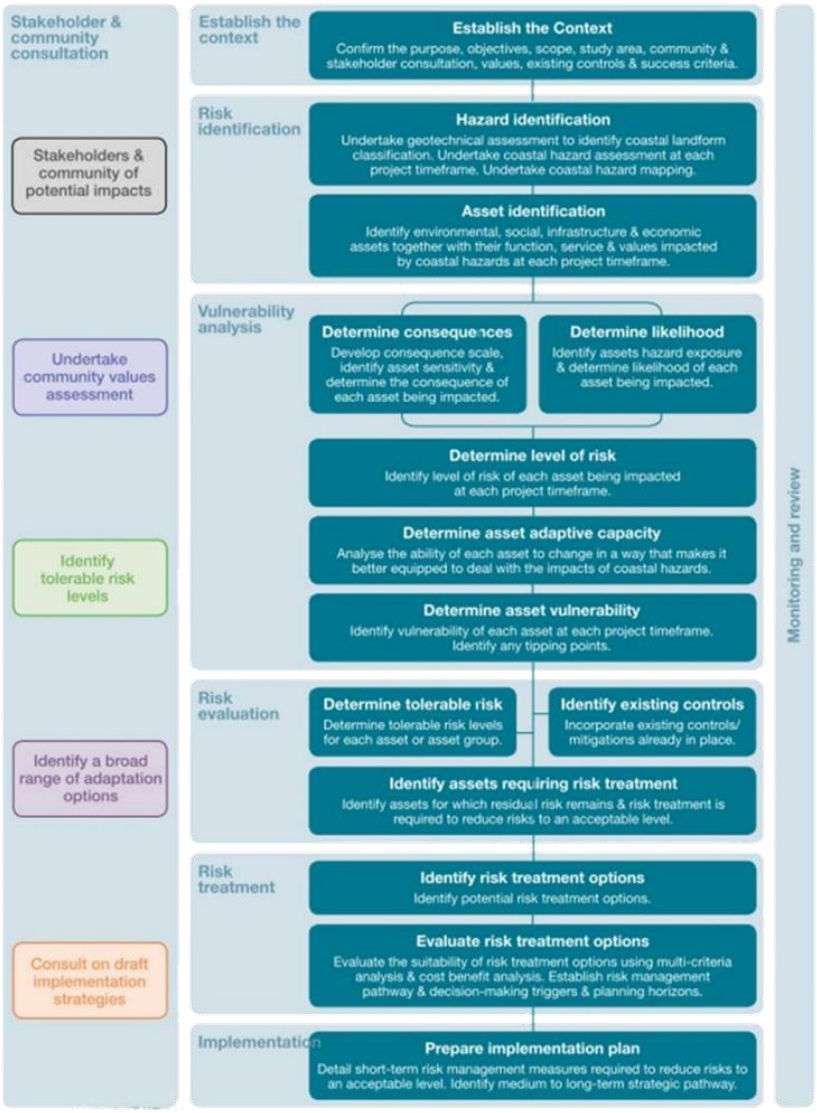
We note that none of the Councillors have sought to meet with us or any residents of which we are aware. We would be happy to do so. Otherwise we look forward to the City's positive response to the matters we and other residents have raised and moving forward to protect our new home and the beautiful coastline we are lucky enough to call home.

Yours faithfully

Karen Anne Hayne & Robert Zahtila

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Annexure "A" – From Guidelines (page 11)



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Annexure "B" – Extracts from Advisian Report

Report Coastal Adaption Strategy – Part 1 - page 20
3.1.2 Inundation Hazard

Detailed inundation hazard mapping has not been undertaken for the Cape Settlements as detailed topographic information is not available. The work by Damara (2017) provides only a qualitative assessment of the present-day risk from a 100-year water level event. This work indicates only a small number of built assets are likely to be impacted in the short-term.

(Extracted Advisian Report Coastal Adaption Strategy – Part 1 - page 21)
3.2 Geographe Bay (Dunsborough to Forest Beach)
3.2.1 Erosion Hazard

The collection of erosion studies provides an excellent source of information and a strong knowledge foundation for preparing the CAS. However, neither of the three studies containing erosion hazard lines are compliant with the current requirements of SPP 2.6. The existing studies are several years old and based on information which is approximately a decade old.

[**OUR NOTES** – As per below, Advisian have clearly identified what should "Trigger" planning controls as *Where the most landward part of the shoreline (Horizontal Shoreline Datum) is within 40 metres of the most seaward part of a structure's lot boundary?* Why has the City attempted to implement these planning controls on properties in Siesta Park that are clearly not under threat and much more than the threshold 40m distance from the "shoreline". Why has the City chosen not to suggest planning controls on other properties within the City that are within the 40m shoreline distance?]

(Extracted Advisian Report Coastal Adaption Strategy – Part 3: Risk Management Options, Pathways and Scenarios - page 27)
4.3.5 Triggers for Implementation

The adaptation pathways comprise a sequence of options and tipping points triggered by the impact of changing coastal processes over time. The approach is about enabling or keeping options open to avoid path dependency and applying appropriate sequence of actions in the short term potentially followed by a longer-term pathway.

Triggers for implementation are those that occur as a direct result of natural coastal processes, for example a severe storm at high tide causing coastal erosion. The proposed adaptation options are not effective until a coastal hazard trigger has occurred, as follows:

- *As properties along the shoreline have already exceeded this trigger, retreat management options are required now and on an ongoing basis.*
- *Where the most landward part of the shoreline (Horizontal Shoreline Datum) is within 40 metres of the most seaward part of a structure's lot boundary.*
- *Where a public road is no longer available or able to provide legal access to coastal asset.*
- *When water, sewage or electricity to the lot is no longer available or unsafe as they have been removed/decommissioned by the relevant authority due to coastal hazards.*

[**OUR NOTES** – Advisian have provided a recommended funding outcome around Coastal protection? Why have Siesta Park & Marybrook been isolated and treated differently?]

(Extracted Advisian Report Coastal Adaption Strategy – Part 5: Funding Options – pages 6 & 7)

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Regarding sourcing though City's taxes, the most straightforward way of funding adaptation options would be the escalation of the percentage of rate revenue by a flat rate. In that case the contribution would be obtained through a large number of people, limiting the individual rate increase.

Taking into account that the inhabitants closer to the coast would benefit more from coastal management, the rate can be varied. The City however considers funding through specified area rates (SAR's) as too restrictive and quite difficult to implement.

A relatively simple and justifiable model could be to evenly split the contributions of adaptation measures by the various stakeholders as follows:

- *33% funding though grants from state government*
- *33% funding through rate revenue of city council taxes*
- *33% funding through contributions from the inhabitants living in the coastal hazard zone*

[**OUR NOTES** – Some Risk Management controls documented and identified as options in the Advisian Draft Coastal Strategy seem to be quite different to what has been suggested in the Draft CHRMAP. Why is the City seeking to impose AC3 Planning Controls on Siesta Park & Marybrook when the Advisian Report suggested 8 other MU's have the same planning controls implemented?

The Advisian Report suggested that the City Implement PMR1 - Leave land and resources unprotected and foreshore in a natural state – for 7 MU's. The City seems to have ignored these suggestions and chosen to implement physical protection measures.

Why is there such a large variance between Advisian recommendations versus what the City prepared in the Draft CHRMAP? Why were Siesta Park and Marybrook singled out in the manner now being recommended?]

Risk Treatment Options for PU's within Advisian Report that seem inconsistent in Draft CHRMAP

PMR1 **Leave land and resources unprotected and foreshore in a natural state.**

PMR1 Risk Treatment Option was recommended in the Advisian Report - Appendix G – for the following PU's

PU01 – Smiths Beach
PU02 – Yallingup
PU03 – Bunker Bay
PU04 – Eagle Bay
PU12 – Broadwater
PU18 – Wonnerup
PU19 – Forest Beach

AC3 **Apply planning controls that enable sequential change of land use as it becomes affected by coastal hazards.**

AC3 Risk Treatment Option was recommended in the Advisian Report - Appendix G – for the following PU's

PU05 – Old Dunsborough
PU06 – Dunsborough Townsite

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PU07 – Quindalup Beach
PU08 – Marybrook
PU09 – Siesta Park
PU11 – Abbey
PU13 – Busselton West (A)
PU14 – Busselton West (B)
PU16 – Busselton East
PU17 – Port Geographe

[OUR NOTES - MCA prepared and documented in the Advisian Draft Coastal Strategy (see table 8 below) seems to be different to the MCA tabled in the Draft CHRMAP (see Table 2 below). Why the difference?? Who made the decision to change the Advisian recommendations? Were the City Councillors or the City CEO aware and/or agreed to this change?]

(Extracted Advisian Report Coastal Adaption Strategy – Part 3: Risk Management Options, Pathways and Scenarios - page 25 & 26)

Table 8. Favourable risk management options as per MCE assessment

Planning Unit		Most favourable risk management options as per MCA		
		2040	2070	2115
1	Smiths Beach	Protect	Protect	Protect
2	Yallingup	Avoid / Managed Retreat	Protect	Managed Retreat / Protect
3	Bunker Bay	Avoid / Managed Retreat	Protect	Protect
4	Eagle Bay	Avoid / Managed Retreat / Protect	Protect	Protect
5	Old Dunsborough	Protect	Protect	Protect
6	Dunsborough Townsite	Protect	Protect	Protect
7	Quindalup Beach	Protect	Protect	Protect
8	Marybrook	Protect / Managed Retreat	Protect	Protect
9	Siesta Park	Protect	Protect	Protect
10	Locke Estate	Protect	Protect	Protect
11	Abbey	Protect	Protect	Protect
12	Broadwater	Protect	Protect	Protect

13	Busselton West (A)	Protect	Protect	Protect
14	Busselton West (B)	Protect	Protect	Protect
15	Busselton Central	Protect	Protect	Protect
16	Busselton East	Protect	Protect	Protect
17	Port Geographe	Protect	Protect	Protect
18	Wonnerup	Protect	Protect	Protect
19	Forrest Beach	Managed Retreat / Protect	Protect	Protect

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(Extracted from Draft CHRMAP – Pge 36)

Table 2 **Summary of MCA of coastal erosion hazard management options**

Management Unit	2040	2070	2120
01 Smiths Beach	P	P	P
02 Yallingup	P	P	P
03 Bunker Bay	P M	P	P
04 Eagle Bay	P	P	P
05 Old Dunsborough	P	P	P
06 Dunsborough Townsite*	P	P	P
07 Quindalup	P	P	P
08 Marybrook	P	P	P
09 Siesta Park*	P	P	P
10 Locke Estate*	P	P	P
11 Abbey*	P	P	P
12 Broadwater*	P	P	P
13 Busselton West (A)*	P	P	P
14 Busselton West (B)*	P	P	P
15 Busselton Central*	P	P	P
16 Busselton East	P	P	P
17 Port Geographe*	P	P	P
18 Wonnerup*	P	P	P
19 Forrest Beach	P M	P	P

* *Management Unit already has City of Busselton or Department of Transport managed protection but not for the whole planning period, and not necessarily for the whole of the Management Unit*

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Annexure "C"

Coastal Management Plan Schedule Works and Budget including Figures 8.1 & 8.2

8 Scheduled Works and Budget

The 10-year coastal management program scheduled works and budget is outlined in Figure 8.1 and Figure 8.2. The scheduled works include the following general items:

- Annual beach monitoring.
- Strategic beach monitoring including:
- Coastal investigations.
- Annual sand nourishment.
- Strategic sand nourishment.
- Maintenance of coastal protection structures.
- Coastal adaptation projects.

The annual budget ranges from approximately $400,000 to $1,800,000 in some years, with greater expenditure in the initial 5-year period. It is noted that the works program should be updated annually based on works completed and to allow for potential escalation of prices, monitoring and investigations, with a detailed review of the wider program every 5-years. The budget has been developed based on the following assumptions:

- Monitoring – nominal values based on experience with similar projects. Note the budget allowance for the 'PNP Hydrosurvey' is limited to the Geographe Bay area.
- Investigations – nominal values based on experience with similar projects.
- Annual Sand Nourishment – based on historic annual expenditure on sand nourishment.
- Strategic Sand Nourishment – based on volumes outlined in Section 6.5 and assuming a cost of $12.50/m^3 to $25.00/m^3. This has a value of ~$500,000 for the years 2022/23 and 2027/28.
- Maintenance – minimum budget of $100,000 per management area with further detail from the values outlined in (19).
- Coastal Adaptation – nominal values based on experience with similar works.

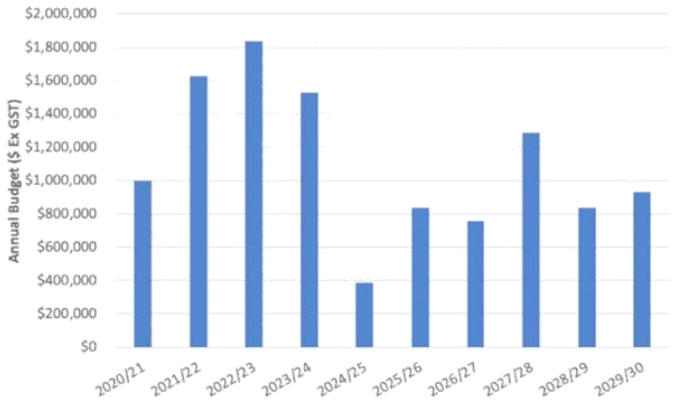


Figure 8.1 Coastal Management Program – Annual Budget

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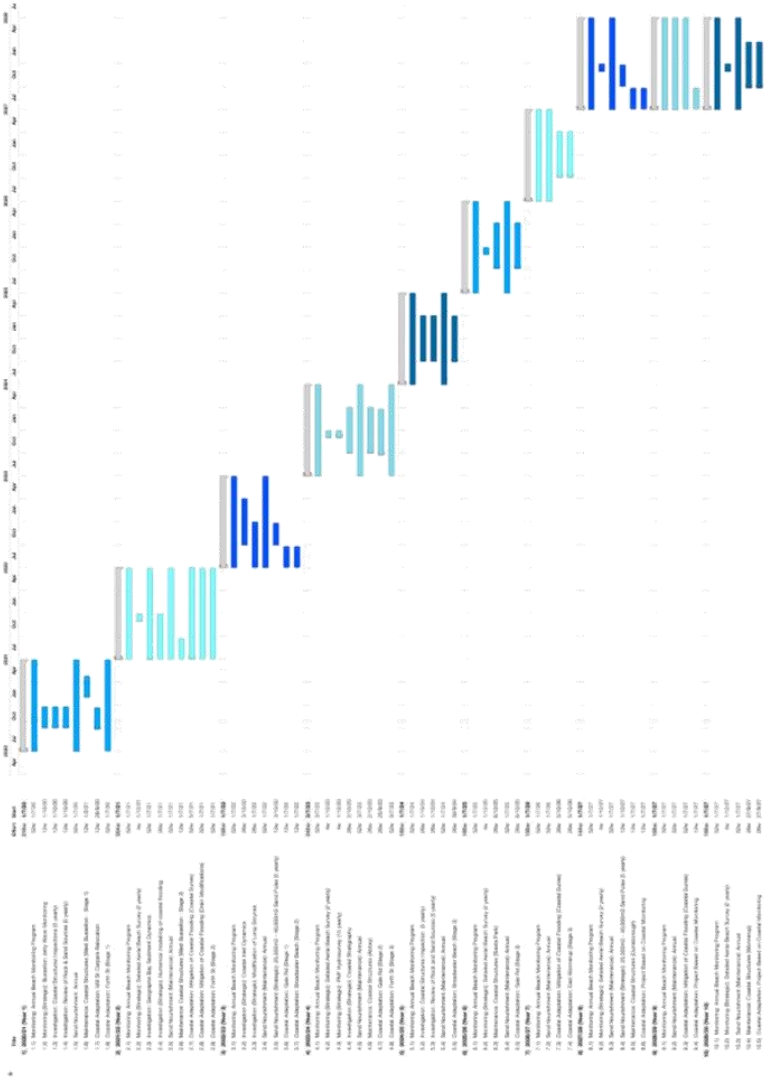


Figure 8.2 Coastal Management Program – Scheduled Works

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SUBMISSION 7

23 September 2021

The Mayor, Councillors and
Planning and Strategic Policy Team
City of Busselton
2 Southern Drive
Busselton, WA 6280

By Email:

Paul.Needham@busselton.wa.gov.au
Matthew.Riordan@busselton.wa.gov.au
councillors@busselton.wa.gov.au

Dear Sir/Madam

City of Busselton – Coastal Hazard Risk Management and Adaption Plan 2021 – Further Submission to our Submission filed on 24 August 2021

We confirm that we are the registered owners of residential property located at 71 Siesta Park Road, Siesta Park (**Residence**). On 24 August 2021 we filed a submission **(Original Submission)** with the City of Busselton **(City)** in relation to the draft Coastal Hazard Risk Management and Adaption Plan dated February 2021 (**CHRMAP)** prepared by the City.

Further Community Information Session – 2 September 2021

We attended a further Community Information Session **(CIS)** for Siesta Park and Marybrook residents on Thursday 2 September 2021 **(September CIS)** run by the City in relation to the Draft CHRMAP. In particular, focusing on coastal impact, engineering and related environmental issues.

The September CIS was presented by Paul Needham (Director of Planning and Development Services for the City), Matt Eliot (Director Coastal Engineering at Seashore Engineering & Damara WA Pty Ltd) and Stuart Barr (Director and Principal Coastal Engineer at Seashore Engineering). During this presentation, a number of representations and statements were made by the presenters to the attendees. We deal with these and other matters which have come to our attention, which we consider relevant for the City to consider, below **(Further Submission)**. Before doing so however, we want to summarise some of the key issues in the Original and Further Submission, as well as put clearly the outcomes we are now seeking.

Summary of Some Key Issues

Our Original Submissions and these Further Submissions **(jointly Our Submissions)** clearly outline what we believe to be many shortcomings and failures in the Draft CHRMAP document and process, importantly they include (but are not limited to) the following:

- A significant failure by the City and Council to adequately complete Community & Stakeholder Engagement & Consultation in-line with the DPLH Coastal hazard risk management and adaptation planning guidelines July 2019 **(Guidelines)**.
- In respect of Siesta Park and Marybrook residents, the failure to consult and engage is elevated and includes a failure by the City to properly disclose and inform residents in relation to serious matters proposed.
- The City's decision to deviate, it appears, from many significant recommendations made including (but not limited) to those included in the CHRMAP Multi Criteria Analysis, Guidelines and the Advisian Report (referenced below) with no explanation or visibility behind the decision-making.

The artificial creation by the City of the Siesta Park and Marybrook MUs and blanket approach taken to them, despite marked differences within these areas and the risk profiles relating to areas within them.

- The failure to adequately identify and justify the reasons and supportable rationale for the different, inequitable and adverse approach taken in relation to Siesta Park and Marybrook (directly contrary to the recommendations of the Multi Criteria Analysis). This includes providing transparency and proper information and support for the purely economic and policy decision by the City to make these recommendations.
- The failure of the City to identify and appropriately recognize the direct and adverse impacts of its decisions to the residents of Siesta Park and Marybrook and justification for the proposed implementation of a Special Area Rate in those circumstances or at all.
- The significant inadequacies that we believe exist in relation to the Draft CHRMAP document released for comment and underlying process adopted it seems by the City. There are many examples outlined in Our Submissions located within the Draft CHRMAP and Advisian Report and other material where our view is that the modelling, data and information is either incomplete, not published, recommendations have not been undertaken, the veracity of information has been called into question or other perceived

inadequacies. Based on what we have been able to review and consider, we believe that the process, documentation and transparency in the areas below are particular critical failings in this regard:

- Cost Benefit Analysis
- Hazard Identification
- Likelihood
- Level of Risk and Risk Matrices
- Adaptive Capacity and Asset Vulnerability
- Trigger Adaption Pathways
- Detailed inundation hazard mapping
- Erosion hazard lines are not compliant with the current requirements of SPP 2.6

- The City has not identified who the suitably experienced and qualified economist was who developed the CHRMAP financial model.
- Issues arising from the Coastal Management Plan 2020-30 (dealt with below) including an apparent plan to shorten and modify the Siesta Park Groyne and the lack of any identifiable protection work at all noted for this period. The proposal to shorten the Siesta Park Groyne seems to have been done with no modelling, consultation or rigorous fact checking we can identify. We also challenge and question various assertions made by Shore Coastal in the Coastal Management Plan around the alleged erosion created east of the Siesta Park Groyne. This issue which will clearly be the subject of challenge by the residents.
- The City has indicated that it is prepared to implement severe and significant Planning Controls in Siesta Park and Marybrook without proper engagement or consultation. This includes in respect of properties in the eastern section of the Siesta Park MU (where our Residence is located) in circumstances where the Advisian Report states that any Planning Triggers should only occur when *"Where the most landward part of the shoreline (Horizontal Shoreline Datum) is within 40 metres of the most seaward part of a structure's lot boundary"* and these triggers have not occurred, nor are they at risk of occurring at this stage.

Requested Outcomes & Personal Matters

Before we deal with our requests to the City, we would like to make some submissions of a more personal nature.

As we noted in our Original Submission, we are long term residents of Busselton and are currently building our primary long term home in Siesta Park. It is notable to us that at no time during the development or building approval process did the City's planning department deem it appropriate to even mention the possibility of issues as are currently being proposed by the Draft CHRMAP in our area. Had we been aware, or even had an inkling, that this was how the City planned to approach these areas moving forward, we would certainly have reconsidered our purchase in this area. If we had purchased and sought development, then this would have been a very different house extension to what is now being built as well.

Further, we have purchased the property with the Siesta Park Groyne in place. If the City proceeds to make any changes to the Siesta Park Groyne which adversely affects our land and puts it at risk, then we anticipate that we and other effected residents would seek legal remedies.

Siesta Park is not a new development or housing estate. The community including our area has been in existence we think since at least the 1940s. Our cottage (which we are extending) was built in the late 1940's and we made a conscious decision to keep and renovate the original jarrah weatherboard cottage to retain this little piece of history. Siesta Park Road which borders our property is in fact part of the original Caves Road.

The City's approach would seem to be a "belts and braces" methodology and not justified in any manner we believe in the Siesta Park area and in particular where our Residence is located (with a large buffer currently between us and the ocean). Whether or not sea levels will rise, beaches will erode, 1 in 100 year storms will arrive are all a matter of some guesswork at least, despite the best modelling efforts. We are not denying their existence but the extreme approach taken by the City in our area is unjustified and unwarranted in these circumstances.

The Draft CHRMAP needs to rely on an extremely critical analysis of the underlying data and information. This document and the City's approach will plant the seed to a process which will have long lasting and extremely serious consequences for the areas it addresses, including Siesta Park. There are also real life and human consequences to us as a result of what is being proposed.

There has also been a complete lack of empathy and realization of these matters in our view by the City to date. The statements made by Mike Archer in the article which appeared in the Busselton Dunsborough Mail on 22 September 2021 is a clear example. Not only did his comments fail to adequately reflect the true extent of the matters being proposed for Siesta Park and Marybrook (immediate planning controls and the like) the statements were made in such a manner as to appear lacking of a true understanding of the real and adverse effects on the residents directly in the firing line of these proposals.

We are also in the dark really as to what would happen next if the City adopts the CHRMAP proposals, in terms of how the City would intend to implement these immediate and severe planning controls. Any changes of this nature require considerable thought, rigour and engagement. For all of these reasons we cannot really believe that the City is going to entertain the draft proposals for Siesta Park and Marybrook in the manner currently put in the Draft CHRMAP and hope that we are correct in our assumption.

If the City adopts anything like what is being proposed, this will have a significant adverse impacts on our lives including our livelihood, investment in our primary forever home (which is partly built currently), our mental state (which has been severely impacted during this process already) and our ability to leave our hard earned assets from a life of working hard to our children. Let us be clear. What the City is currently proposing has massive consequences and should not be treated lightly or be progressed without very serious consideration. Siesta Park and Marybrook should certainly not be treated as a "test case" or some sort of "sacrificial lamb" by the City, whatever difficulties the City and its coastline is facing the future.

Requested Outcomes

Given the matters raised in Our Submissions (and by other effected residents) we submit that the City should not support the proposed recommendations in the Draft CHRMAP for Siesta Park. At the very least, they certainly should not be considered in relation to our Residence area as we identify below – where there is a very significant coastal reserve of protectable land and ample ability to protect this area. Specifically we would request that the City consider the following:

1) Commit to "Protect" Siesta Park to 2120 (as per the City's Multi Criteria Analysis) on the same basis as other populated, coastal nodes within the City of Busselton as outlined and recommended in the Draft CHRMAP. This should include consideration for Siesta Park (or in the very least our relevant Residence area) of the following matters identified in the Draft CHRMAP:

a) Retain existing (fragmented) foreshore reserve.
b) Construct a buried seawall/bund from a point somewhat to the east of the Lennox River Drain to a point somewhat to the east of Locke Swamp Drain.
c) Protect the fore dune.
d) Retain Caves Road and other local roads/utilities.
e) Retain and protect infrastructure and buildings.
f) Proper management of agricultural drain outlets.
g) Protect the beach and beach amenity.

2) Not recommend the imposition of the unnecessary and unwarranted planning controls. To this end we refer to the Advisian Report (dealt with below) which underpins the Draft CHRMAP recommendations. This Report clearly states that planning controls should only be "Triggered" *"Where the most landward part of the Horizontal Shoreline Datum (shoreline) is within 40 metres of the most seaward part of the lot boundary."* Our property is currently about 70m from the shoreline and all surrounding properties are a similar distance, some closer, others further away. Planning decisions of the nature below should only be considered or recommended now and in the future only once full consultation and information has been provided to residents and proper modelling and information is available to the City and residents. Accordingly, we are requesting that the City must, at a minimum, remove all differential and detrimental, recommended planning restrictions (including the specific proposed list below) for Siesta Park or a the very minimum ALL properties at least located between Siesta Park Groyne running west to and including Siesta Park Resort and south to Caves Road (Siesta Park East):

> ***3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.***
>
> ***6. Require development approval for all development.***
>
> ***7. Prohibit private coastal protection structures.***
>
> ***8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.***

3) Properly deal with and recognise the diversity of the Siesta Park and Marybrook areas and deal with them respectively and effectively, giving due regard to what is actually physically there and not simply in some theoretical

way. This includes working with residents as soon as possible as to a sensible and effective proper protection plan for the respective areas.

4) For all Siesta Park properties or at the very least ALL Siesta Park East properties DO NOT implement any planning modifications that would create a Special Control Area or Reserve that could affect our residences.

5) Following the closure of the submission period for the Draft CHRMAP, the City Officers must properly engage with Siesta Park and Marybrook residents to form a working group(s) to engage with the City to formulate a Coastal Management Plan for our MU's. This working group should be involved in formulating recommendations to be put up to Council in the Draft CHRMAP prior to submission to DPLH. There should be transparency around what the City intends taking to Council.

6) The City should immediately cease any planning, consideration or discussions around the shortening of the Siesta Park Groyne. We believe the assumptions and numerous reports alleging on-going, significant erosion impact east of the Groyne, on the Locke Estate and Abbey, are overstated and need significant investigation and reporting by a third-party engineer and Coastal Planner outside of Damara WA Pty Ltd, Shore Coastal or Seashore Engineering. The Groyne provides significant protection to numerous residents in Siesta Park East and given the need to maintain a 40m between the most landward part their properties and the Horizontal Shoreline Datum it is essential that the existing shoreline is not comprised or reduced.

7) When the City considers the implementation of a financial model for funding around coastal protection, it should consider the recommendations in the Advisian Report. If a Special Area Rate (SAR) is to be seriously considered it should be adopted equitably across all similarly located and affected properties in the City i.e. properties beach-side of roads located in Eagle Bay, Dunsborough, Quindalup, Margaret Street, Wonnerup etc. It would seem within the Draft CHRMAP residents in Marybrook and Siesta Park have been singled out with little explanation and the SAR is contrary to the recommendations of the Advisian Report.

8) The City should be revisiting we think the Draft CHRMAP (given the matters we have raised). That includes the technical models, inputs and assumptions used for preparing the Draft CHRMAP. This information should be made

available, be transparent and there should be the ability for independent review, modelling and inputs and peer review (with input by any effected residence as to what is to occur in our area).

Inadequate Stakeholder Engagement, Consultation and Transparency by the City

We have already raised various matters regarding this point in our Original Submission and wish to also make the following further points. First, we set out below a timeline of relevant activities:

- **17 May 21** - Letter to residents outlining Draft CHRMAP out for comment
  Note about the original letter:
  - No planned Community Information Sessions for Siesta Park and Marybrook and
  - Original closing date for submissions 23 July 2021
- **21 May 21** - CHRMAP advertised for public consultation & press release issued by the City (referred to in more detail below)
- **27 May 2021** - Staffed Information Display - Busselton Central
- **27 May 2021** - CHRMAP Information Session - Busselton
- **03 June 2021** - Staffed Information Display - Dunsborough Centrepoint
- **03 June 2021** - CHRMAP Information Session - Dunsborough
- **15 June 2021** - CHRMAP Information Session – ONLINE
- **24 June 2021** - CHRMAP Information Session – ONLINE
- **5 July 2021** – Letter sent by City Busselton to Siesta Park/Marybrook residents regarding a newly proposed CIS
- **05 August 2021** - CHRMAP Information Session - Siesta Park and Marybrook residents
- **27 August 2021** - CHRMAP Submissions Close (Extension agreed by Paul Needham to be 3 weeks after the follow-up September CIS for Siesta Park & Marybrook Residents)
- **2 September 2021** - CHRMAP Information Session Presentations Dr Matt Elliott & Stuart Barr - Siesta Park and Marybrook residents
- **28 September 2021** – Extended deadline for Public Submissions Close

- **8 December 2021** – Planned date for City to present to Council finalised Draft CHRMAP for submission to Department of Planning, Lands and Heritage **(DPLH)**

Additionally, on 21 May 2021 the City published the following on its website. We have highlighted some matters in this media release which we consider do not accurately represent the Draft CHRMAP proposals, particularly in relation to Siesta Park and Marybrook could be construed as misleading.

Strategic Plan to Protect Our Coastal Community

Published on Friday, 21 May 2021 at 3:48:12 PM

The City is seeking community feedback on a Draft Coastal Hazard Risk Management and Adaption Plan that will help safeguard our coastal community from erosion and coastal inundation for the next 100 years.

The Plan, which is a requirement of the State Government Coastal Planning Policy, responds to an estimated sea level rise of 0.9m over the next 100 years, as well as recognising the naturally mobile and dynamic nature of the City's coast. It has been developed to ensure the community and decision makers understand and are equipped to manage the potential future risks to private, public and community assets including our coastal wetlands.

The draft plan breaks the City's coastline into 19 management areas. Within each area potential risks and management and/or adaptation options are identified including broad recommendations to protect, accommodate or retreat from the coastline.

Despite recent and quite misleading media news lines, the City of Busselton Council is not adopting or proposing to adopt a broad retreat strategy at the cost of $9B over the next 100 years. Council is, in fact, mainly advocating a protection approach.

*Mayor Grant Henley said: "**Future Councils may consider retreating from the coastline in some pockets of largely unused or low value crown land. However, where there are assets we are advocating a protection strategy.** We are a seaside City, we live on the coast and recreate on the coast. Our unique coastal environment drives our tourist economy.* [OUR NOTE: in the context of Siesta Park and Marybrook this does not reflect what has been recommended and gives the misleading impression that Siesta Park and Marybrook is being treated with a long term protection strategy which is not true].

With most development situated on land which is less than 3 metres above sea level, the risk of coastal hazards impacting our life-style and the shape of our developing City, cannot be ignored. Council is taking a proactive stance to protect our coast line and central to this is ensuring we have a sustainable and equitable financial model." [OUR NOTE: which has not been adequately disclosed or at all].

The estimated cost of the 'protect' strategy is approximately $1.6B over 100 years and the cost of a 'retreat' strategy is approximately $9B over 100 years. In the main, the draft recommends that a 'protect' strategy be pursued. [OUR NOTE: Any resident reading this, in the context of the rest of the release, would consider that areas such as Siesta Park and Marybrook would have been included "in the main" and not be outliers]. *Most of the costs would not need to be met until after 2040 and in many cases not until after 2070. Importantly, the draft plan doesn't propose that those costs are all met by ratepayers and recommends that the City continues to work with the State Government and other stakeholders to develop an equitable and sustainable funding model over time.*

"The Coastal Hazard Risk Management and Adaption Plan is unarguably one of the most important strategic plans to come before Council," Mayor Henley said. "I encourage the community to get familiar with its content and provide feedback." [OUR NOTE: given this comment the City determined it not important enough that they consult with and specifically identify to Siesta Park and Marybrook owners at an early stage that they were being made a serious exception?]

The Draft Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) is open for submissions from 21 May 2021 until 23 July 2021. Two public information sessions will be held on

- *Thursday 27 May 2021: City of Busselton Administration Building, Southern Drive, Busselton 6.00pm - 8.00pm*
- *Thursday 3 June 2021: John Edwards Pavilion (Dunsborough Playing Fields), Dunsborough 6.00pm - 8.00pm*

In addition staffed information displays will be available to the public on:

- *Thursday 27 May 2021 at the Busselton Central Shopping Centre between 11.00am – 3.00pm.*
- *Thursday 3 June 2021 at the Dunsborough Centrepoint Shopping Centre between 12.00pm – 4.00pm.*

A further two online public information sessions will be held via Zoom on:

- *Tuesday 15 June 2021: 6.00pm – 8.00pm*

- *Thursday 24 June 2021: 6.00pm – 8.00pm*

To register for these events and to provide feedback on the draft plan, please visit https://yoursay.busselton.wa.gov.au/chrmap [OUR NOTE: no specific sessions for Siesta Park or Marybrook, shorter original consultation period].

Paul Needham on numerous occasions has pointed to a 4 month consultation period (which was not the City's first approach as noted above) having occurred in relation to the Draft CHRMAP. This seems to be put as justification for what has occurred, or to show some sort of reasonableness or due process by the City. With respect, we do not agree that what has occurred is adequate consultation, nor has adequate stakeholder engagement and consultation occurred prior to the Draft CHRMAP being prepared or during this 4 month period.

What has occurred at the CIS we have attended is presentation of limited selected information by the City and a very limited ability of residents and stakeholders to ask questions and raise concerns about these matters.

Notably, during the September CIS, Paul Needham responded to a question raised that he was not here to negotiate the City's position and that the September CIS was focused on the science and that he was not here to answer other questions.

As highlighted in our Original Submission, we do not consider that what has occurred prior to the Draft CHRMAP being presented to Council (on 24 February 2021) or since, amounts to appropriate consultation or engagement, particularly with Siesta Park residents given what is being proposed. We have simply been presented with limited material to support the position being proposed in the Draft CHRMAP with limited ability to raise questions about those matters or properly understand the "economic and policy" basis for the proposed recommendations.

By way of contrast (just by way of example), we note that the City released on 12 April 2016 a *Wonnerup Coastal Reserves Management Plan.* That project resulted in a report of some 108 pages, which can be viewed at the link below:

https://www.busselton.wa.gov.au/documents/889/wonnerup-coastal-management-plan

The Summary indicates that the consultation for that report included with members of the local community and key stakeholders, including through:

- *Establishment of, and regular meetings with a project Steering Committee (Section 2.2) which included representation from local and state government departments, NRM organisations and local community groups;*

- *Letters to local residents advising of the Plan preparation and identifying opportunities to comment;*
- *Installation of signage at key locations throughout the Wonnerup Coastal Reserves inviting the community to provide feedback on the draft plan;*
- *A beach walk session on site with local residents to discuss the key values and concerns throughout the Wonnerup Coastal Reserves;*
- *Receipt of written submissions from local residents that were not able to attend the beach walk session; and*
- *A public comment period for the draft plan, including invitation to a community open forum to review the Plan recommendations and provide comment.*

We repeat the matters we have set out above and in our Original Submissions and strongly consider that the engagement, consultation and provision of information which has occurred in respect of this matter, with Siesta Park and Marybrook residents (including ourselves) has been entirely inadequate, given the matters being proposed for Siesta Park and Marybrook in contrast to other MU areas.

Independent Coastal Planner Advice

Further to the matters set out above (and what we will come to below in terms of process, information and related matters as well as what we provided in our Original Submissions) we have also sought some initial advice from a highly qualified Coastal Planning and Engineering Specialist. As to the Draft CHRMAP we have been provided with the following feedback:

- *The City does not appear to have provided/presented the technical studies that accompany the Draft CHRMAP process, just the high-level summary document. In the typical CHRMAP process, there should be a technical chapter report for each of stages in the diagram included in the Guidelines (defined below and see Annexure "A"):*
    - *Establish the context;*
    - *Risk identification;*
    - *Vulnerability analysis;*
    - *Risk evaluation;*
    - *Risk treatment; and*
    - *Implementation.*

- *The City references Advisian (2020) City of Busselton Coastal Hazard Risk Management and Adaptation Plan – Technical Assessment Report. It is*

assumed that a lot of the detail is in that Report. There is no reason why this detail/report should be concealed from the community and stakeholders.

- *The items along the left of the diagram (Annexure "A")(stakeholder & community consultation) may not have been properly fulfilled. In particular, the consultation and feedback from the community on adaptation options, prior to confirming the adaptation responses summarised in the Draft CHRMAP document. Even if the values survey was done properly, the City has drifted away from their continued engagement and just elected to 'inform' the community.*

- *There is no information as to who the suitably experienced and qualified economist was who developed the financial model that helped the City select preferred adaptation options. This should be provided. All relevant modelling should clearly state its assumptions and limitations.*

- *Residents would be wanting to better understand the statutory planning and legislative context of the proposed adaptation responses (particularly with respect to proposed managed retreat). Again, where is the accompanying technical information to arrive at these planning responses and who were the statutory planners working on the project?*

- *In general, the Draft CHRMAP document tries to convey the process and outcomes in a simplified format for the general community. But it seems to have some pretty serious conclusions and implications without properly informing on how they have been arrived at. Making sure the community and affected stakeholders are informed and involved throughout the process is a key requirement for the document to achieve endorsement.*

Advisian City of Busselton Draft Coastal Adaption Strategy 30 September 2020 (Advisian Report)

Given the limited information provided by the City associated with the Draft CHRMAP to allow proper consideration and review, we have commenced review of material available on the City's website. In particular, various Council Minutes and associated documents. We have now discovered and commenced reviewing parts of the Advisian Report, which is also referenced in the Draft CHRMAP.

It is clear, even from our brief review so far, that the Advisian Report includes a wealth of information which has not been provided or disclosed to the community in respect of the Draft CHRMAP. This includes various recommendations and

conclusions made by Advisian following the process undertaken for the Report. It should not be our role as residents to need to locate this material ourselves or review in the detail we have had to in this regard. If this matter is not resolved to our satisfaction in respect of the Draft CHRMAP recommendations for Siesta Park then we will be engaging with appropriate planning and legal experts to review all relevant material.

For now, we reference various matters in the Advisian Report in Annexure "B" which seem to be inconsistent with the approach taken by the City in the Draft CHRMAP and do not support the position taken in respect of Siesta Park and Marybrook. These are by no means exhaustive.

Reasons for different approach being taken to Siesta Park and Marybrook are purely economic and policy driven

We addressed the different approach the City has flagged to take in respect to Siesta Park and Marybrook and the apparent rationale for this in detail in our Original Submissions (sections 3 and 5).

The City has further now expressly stated that the reasons for not following the outcomes of the City's multi-criteria analysis (**MCA** – see section 1 of our Original Submissions) in respect of Siesta Park and Marybrook are *not because of any particular climate or science related matters, but are driven by economic and policy decisions.* During the September CIS, Paul Needham made relevant comments to the following effect to the attendees:

In relation to Siesta Park and Marybrook, there is no scientific answer or reason as to why to choose not to protect those areas in the same manner as has been recommended from the remainder of the relevant Coast and MU areas. The decision not to protect Siesta Park and Marybrook in the same manner is an economic and policy decision;

The policy for Siesta Park and Marybrook which the Draft CHRMAP has proposed is informed by the science but there are other considerations;

The science tells us what happens if we do not protect an area, the policy choice determines whether or not to protect;

The above statements were given in the context of various questions being raised by attendees (directed to Matt Eliot and Stuart Barr) as to whether there were particular climate or environmental issues, risks or difficulties in their view which meant that Siesta Park and/or Marybrook could not be protected, including long term, in the same manner proposed for the remainder of the populated coast (with minor exceptions).

Paul Needham stepped in to answer these questions and responded generally as outlined above. This would seem to make the position of the City now very clear, namely that policy and economic reasons are the *sole basis* for the City's approach and divergence from the City's MCA recommendations for these coastal areas.

In those circumstances, whilst the information provided at the September CIS may have been of interest, it seems to have little direct relevance to the proposed recommendations now being made by the City in respect of Siesta Park and Marybrook? Further, the matters above would seem to be inconsistent with information in the Draft CHRMAP as well as presented by Paul Needham in his slide show during the Siesta/Marybrook CIS. In his slide headed *"Why is a different approach recommended"* he included the following:

- *Insufficient space to construct a levee/seawall to protect from inundation (and do you want a 3.5-4.0 m high seal wall, or even a 3.0m one?)*
- *City does not have consistent land tenure (e.g. HWM titles).*

Given the statements made by Paul Needham at the September CIS, and the fact that the two environmental and climate experts at the meeting provided no information to support these matters or evidence that they could not be accommodated or dealt with in some way, they would seem to be unsupported at best and misleading at worst. That being the case, we also wish to raise some further matters in relation to the Draft CHRMAP – following on from those raised in our Original Submissions.

Further Comments in relation to Draft CHRMAP and Guidelines

First, we make the following further observations about the approach the City has taken to the Draft CHRMAP, the information it contains and the requirements of the Western Australian Coastal Hazard Risk Management and Adaption Planning Guidelines (July 2019) **(Guidelines)**.

1) Section 2.2 of the Guidelines deals with *Hazard Identification* and in this context the recommended study area, which it is said *should be defined through the coastal geology/geomorphology, including the entire sediment cell, which is the natural management units with a physical basis identifying sections of the coast within which sediment transport processes are strongly related.* We have already raised issues in the Original Submissions with the arbitrary carve up of the MUs for the Draft CHRMAP. It is unclear whether the above Guidelines have also been appropriately adopted and followed in this context. We also note that the City "carves up" the coastline differently again in its Coastal Management Programme (dealt with in detail below).

2) Section 3.5.2 of the Guidelines talks about *Likelihood* and that this is used to consider the exposure of an asset to coastal hazards when undertaking the vulnerability assessment and should be assessed for each relevant timeframe. We do not consider that there has been sufficient information and transparency from the City in relation to these matters in the Draft CHRMAP.

3) Section 3.6 of the Guidelines talks about the *Level of Risk and Risk Level Matrices.* The Draft CHRMAP includes the following:

   To provide a transparent and logical basis for determining adaptation planning priorities, a risk assessment was undertaken that aligned with the City of Busselton Risk Management Framework (2017). Risk was assessed in relation to the •Likelihood of a hazard occurring •Consequences of the hazard if it was to actually occur •Capacity for the management of assets to adapt and address coastal hazards.

   Again, we do not consider that the City has provided sufficient information or transparency regarding these matters, such that any meaningful consultation with, or comments by, effected residents can be provided.

4) Section 3.7 of the Guidelines deals with *Adaptative Capacity and Asset Vulnerability.* We make similar comments as to those matters above in respect of the Draft CHRMAP and lack of available information on these matters we can readily identify.

5) Section 5.3.2 of the Guidelines refers to the *Cost Benefit Analysis* which it describes as a *process commonly used to prioritise risk treatment options and inform decision-making about alternative courses of action.*

   It appears that the City has chosen to "opt out" of the recommended preparation of a Cost Benefit Analysis. Notably the Draft CHRMAP includes the following:

   The model is not a 'cost-benefit analysis' in the usual sense of that term, as it does not seek to identify the value of non-financial costs or benefits. There are three key reasons for that. Firstly, all of the modelled scenarios, reflecting the outcomes of coastal values work undertaken (see section 3.1 Community and Stakeholder Consultation), assume the retention of a continuous beach and foreshore reserve along the whole of the coast, wherever possible, essentially giving that benefit an infinite value. Secondly, ascribing equivalent dollar values to non-financial costs or benefits is fraught with difficulty. For instance, what is the value of a beach? Is it to be valued on a per-linear metre or a per-square metre basis? How is that value to be derived? There are means of doing so, one of which is a set of

techniques sometimes known as 'hedonic pricing', but it is not clear what such an approach would add, when it comes to real world decision-making. Finally, in this particular case, to secure many of the non-financial benefits, financial costs would be involved, and money is required for that. Including non-financial costs and benefits in the model would have meant that it was a less useful tool to isolate and identify what funds may be required and when.

6) As for the City's "model" this information has not been provided in any detail. During the CIS conducted on 5 August 2021 **(the Siesta/Marybrook CIS)** we believe that Paul Needham briefly showed a spreadsheet to the attendees which may have been the "model" and may have shared some information in the relevant slides. However, no fulsome or even abbreviated financial information for any MUs, including Siesta Park and Marybrook, has it seems been provided for comment or review.

7) We also refer to the Advisian Report and Annexure B. The material we have reviewed indicates that the Draft CHRMAP contains or relies on old outdated information and on the basis of lack of information being available at all. For example we refer to Annexure B and the following matters identified in the Advisian Report:

Report Coastal Adaption Strategy – Part 1 - page 20
3.1.2 Inundation Hazard

Detailed inundation hazard mapping has not been undertaken for the Cape Settlements as detailed topographic information is not available. The work by Damara (2017) provides only a qualitative assessment of the present-day risk from a 100-year water level event. This work indicates only a small number of built assets are likely to be impacted in the short-term.

(Extracted Advisian Report Coastal Adaption Strategy – Part 1 - page 21)
3.2 Geographe Bay (Dunsborough to Forest Beach)
3.2.1 Erosion Hazard

The collection of erosion studies provides an excellent source of information and a strong knowledge foundation for preparing the CAS. However, neither of the three studies containing erosion hazard lines are compliant with the current requirements of SPP 2.6. The existing studies are several years old and based on information which is approximately a decade old.

8) In our Original Submission we made reference to the ACIL Tasman Economics Policy Strategy Analysis (Climate Change Adaptation Options Assessment - Developing flexible adaptation pathways for the Peron-

Naturaliste Coastal Region of Western Australia- prepared for the Peron-Naturaliste Partnership in September 2012) **(ACIL 2012)** (including extracts as Annexure C to the Original Submission). This Report was part of a 4 phase project for *"Developing Flexible Adaptation Pathways for the Peron Naturaliste Coastal Region of Western Australia*"**(PNP Project).**

9) This material is extensive and we cannot reference all relevant matters in the context of these submissions. However, we make the following further observations in relation to ACIL 2012:

- The Draft CHRMAP includes reference to the ACIL 2012 in the References and includes the following:

  Prior to the development of the CHRMAP, the City has undertaken, or been otherwise directly involved in, a number of projects and initiatives that have assisted in setting the future direction for the effective management of our coastline, including:

  i. Formation of the Peron-Naturaliste Partnership (PNP), which is a collaboration of the nine coastal local authorities between Point Peron (in the City of Rockingham) and Cape Naturaliste (in the City of Busselton) providing regional direction and leadership in terms of coastal monitoring and management, particularly through the:

  Coastal Adaptation Pathways project that delivered an economic analysis of adaptation options at a 'whole of region' scale, and a demonstration of coastal adaptation pathways and options at a scale relevant to partner local governments ***(ACIL Tasman/Damara 2012).***

- Other than the above, there seems to be no other reference to ACIL 2012 in the Draft CHRMAP or adoption of any of its approaches.
- Our Residence is located in the area identified as **sub area 2** in the ACIL 2012). Relevantly we refer to:

  - *Rather than endeavouring to ascertain a broad overview of the likely resource costs throughout the region to allow for suitable adaptation to climate change events, our focus is strategic; what strategies ought to be employed as a micro level to adapt to climate change by individual local governments. (Page 67)*

  - *Climate change impacts in the Siesta Park-Marybrook case study, The danger along the coast is erosion, with the model predicting around 300 metres of land vanishing by 2100. This would result in*

the loss of all of the residential areas and Caves Road. ***However, an important caveat to the model results is that the results for Busselton may overstate the impacts (see Phase One Report for details) – [We note this references the Damara 2012 Report on which the City has relied]*** *(page 97)*

- Options were provided for sub area 2 *(pages 98 and 99)*:

Table 25 **Siesta Park Marybrook options summary**

Sub Area	Option	Capital Cost	Operating Cost (% capital cost)
Sub area 1 - West of Siesta Park	1) individual seawalls for each property	$6,700,000	1.0%
	2) single seawall across sub-region	$4,800,000	1.0%
	3) single large groyne	$4,000,000	1.0%
	4) multiple smaller groynes	$2,000,000	1.0%
Sub area 2 - Siesta Park	1) individual seawalls for each property	$5,500,000	1.0%
	2) single seawall across sub-region	$4,100,000	1.0%
	3) extend existing groyne into single large groyne	$3,600,000	1.0%
	4) multiple smaller groynes	$1,900,000	1.0%
Sub area 3 - Locke Estate	1) individual seawalls for each property	$6,100,000	1.0%
	2) single seawall across sub-region	$5,400,000	1.0%
	3) single large groyne	$4,300,000	1.0%
	4) multiple smaller groynes	$2,500,000	1.0%
Sub area 4 - W. Busselton	1) individual seawalls for each property	$4,900,000	1.0%
	2) single seawall across sub-region	$3,800,000	1.0%

Table 26 **Siesta Park-Marybrook viable options summary**

Sub area	Option	Capital cost	OPEX	Optimal Year	Net benefit	% let expire scenarios
Sub area 1 - West of Siesta Park	3	$4,000,000	$40,000	4	$5,639,000	13.00%
	4	$2,000,000	$20,000	4	$7,844,000	7.80%
Sub area 2 - Siesta Park	3	$3,600,000	$36,000	15.5	$5,940,000	10.50%
	4	$1,900,000	$19,000	15.5	$7,122,000	3.90%
Sub area 3 - Locke Estate	4	$2,500,000	$25,000	37	$652,000	56.40%
Sub area 4 - W. Busselton	3	$3,400,000	$34,000	4	$5,842,000	13.80%

- The following matters were also noted including for sub area 2 *(pages 99 and 100)*:

> ***For the coastal areas, Sub Area 1, 2 and 4 each have two options that are viable**, and Sub Area3 has one. The lifespan of these options is the same in each case, and within each sub area, each optimally begins at the same time. Since the choice is between one or the other, there is no scope for staging or combining the options. In this situation, the most obvious was in which to make the choice is by which provides the greatest net benefit. In each case the difference between the better case and the less favourable case is around $2 million. **In each of the sub areas, it is the fourth option that is most valuable. It is also the least costly option in each instance, making it the obvious choice. In each of the coastal areas, it is important to consider how much erosion might occur in the interim before the optimal response is made. This is particularly the case for Sub Areas 2 and 3, where the optimal time to invest is 15 and 37 years respectively. Fortunately, in both of these areas, there is existing protection which is sufficient to withstand the erosive pressures during these timeframes; a groyne (somewhat degraded) in Sub Area 2, and a training wall in Sub Area 3. For this reason, there is no need to consider interim measures in either of these areas.***

- Despite all of the above, the City has chosen not to include, explain or recommend any of the suggested pathway outcomes in its Draft CHRMAP.
- In relation to the PNP Project, this includes the *Coastal Hazard Mapping for Economic Analysis of Climate Change Adaptation in the Peron-Naturaliste Region Damara WA Pty Ltd October 2012 Report* ***(Damara 2012).*** The City has relied heavily it appears on the reports from Damara (including this report) in the determination of hazard lines, coastal erosion and inundation matters. In addition to the matters already raised in respect of this sort of modelling, we note that there appear to be serious misgivings as to its veracity and reliance. This includes in the Damara 2012 report itself which notes the following:

It is strongly recommended that a more refined erosion model be used for assessment. It is significant that model apparently provides its worst representations in the locations of Quindalup-Busselton, Bunbury, Mandurah and Rockingham. As these are the most developed parts of the regional coast, they are likely to hold the greatest significance for economic assessment. Downscaling of the regional model is constrained by limited information regarding geological features, for which collection of further information is likely to require a deliberate program of assessment. Other key aspects for erosion model refinement include clear distinction of model components (landform influences, sediment supply reliability) and improved representation of alongshore influences, to facilitate its use in assessing adaptation responses. In its present format, the inability to represent engineering adaptations and the simultaneous modelling of all sources of uncertainty prevents the erosion model being used to explore the combined effects of regional management.

A potential approach to evaluate regional impacts is to integrate the use of a finer scale sediment budget model, such as SBAS[74] with a regional (unmodified) sediment budget, such as developed by Cowell & Barry (2012). Questions to be addressed include:

- How much sediment can be retained by each management technique?
- How long will it take before each sediment sink is filled?
- How much of the trapped material is offset locally by downdrift erosion?
- How does recession affect alongshore transport rates, particularly bypassing of obstructions?

These questions are fundamental information to enable downscaling, which may be facilitated through the use of sediment cells identified for the region[15].

10) All of this means that there has been little transparency in our view of relevant information, disregarding of pertinent material and the selective release of information available for review or comment by us in this consultation process. This is particularly important in circumstances where the City has now directly notified us that the economics and associated policy are the core reasons for not adopting the Multi Criteria Analayis outcomes for Siesta Park. It is difficult to see how these matters can be supported or justified without provision of relevant information, particularly to directly affected residents of Siesta Park.

11) In this context we have also reviewed some other CHRMAP documents which have been completed in Western Australia. A list can be found at the link below to various completed and draft WA CHRMAP policies:

https://www.wa.gov.au/sites/default/files/2021-07/CHRMAPs-in-WA-table-March-2021.pdf

12) By way of example, the Shire of Gingin CHRMAP provides a comprehensive review and explanation of Cost Benefit Analysis matters. If the City is determined to judge Siesta Park on economic and policy matters, it should disclose these matters fully in our view for all MU's. We consider

that the approach taken by the City to date and the Draft as proposed falls well short of what is anticipated by the Guidelines.

13) Further, section 5.4 of the Guidelines relates to the recommended *Risk Management Pathway* approach to be taken, including in section 5.4.1 which deals with *Triggers*. Relevantly this section includes the following matters:

The identification of short, medium and long-term triggers for implementation of the risk management measures, allows decision-makers to clearly map when risk management measures need to be taken. Triggers indicate the requirement for decisions which define or alter the risk management pathway in relation to a specific hazard or an asset in response to future conditions….

….The coastal risks associated with erosion and inundation will increase over time so the intervening time before detrimental impact occurs can be used to implement resilience-building risk management measures, particularly where the risk management measure may be costly or difficult for the community to accept or implement. This lead time can also be used to source funding and prepare approvals and designs. This approach also recognises that some coastal hazards may not eventuate as projected. If this is the case, ***the trigger-based approach for risk treatment options and management measures means that the community has not been unnecessarily burdened by costly risk treatment options and management measures until they are necessary.***

14) In relation to *Triggers*, in the Draft CHRMAP the City has included the following at section 5.4:

Triggers Adaptation pathways comprise a sequence of risk management options and tipping points triggered by the impact of coastal hazards over defined planning timeframes. The approach taken in the preparation of the CHRMAP seeks to establish a degree of flexibility in keeping options open and to avoid 'path dependency'. There has also been an intention to apply an appropriate sequence of actions in the short term, followed by a longer term pathway. Triggers for the implementation of risk management options are events or situations that occur as a direct result of natural coastal processes (e.g. a severe storm combined with a high tide that causes significant coastal erosion). Trigger points are identified to flag predetermined levels of change where decisions on agreed risk management measures must be implemented in order to reduce risk to acceptable levels. ***This CHRMAP will set the direction and timeframes for acceptable risk***

management. Appropriate triggers will be assessed and determined, on an ongoing basis, through the City's rolling Coastal Management Programme 10 Year Plan (2020 – 2030).

Coastal Management Programme & the Draft CHRMAP Recommendations

Given the matters above, we have also reviewed the City of Busselton Coastal Management Programme *10 year plan (2020–2030)* **(Coastal Management Programme)**.

In relation to Siesta Park we note the following from the Coastal Management Programme:

1) Siesta Park is dealt with in the broader "Management Area" identified in this document as *Quindalup-Siesta Park* and not as the MU identified in the Draft CHRMAP. There does not appear to be a detailed explanation in this document at least as to the "carve up" of these areas, or how they inter-relate to the how the MUs have been broken up in the Draft CHRMAP and the relationship to the Section 2.2 Guidelines (noted above).

2) As to the "triggers" referred to in section 5.4 of the Draft CHRMAP (noted above) the only reference in the Conatal Management Programme to "triggers" seems to be in the following context:

   Allowing the establishment of quantitative management triggers for sand nourishment, based on minimum dune buffers.

   The existence or future identification of "triggers" currently and moving forward in this context therefore equally remain unclear. They do not seem to have been identified as required by the Guidelines.

3) The key issues identified and proposed actions foreshadowed in the 2020-2030 period in relation to Quindalup - Siesta Park, are as follows:

   - **Sand Nourishment** - it is noted that for Quindalup to Siesta Park (Planned Sand Nourishment) Quantity will be subject to monitoring. Nominal Quantities (m3) 0; and
   - **Key issues -** Management of sand accumulations at Quindalup boating facilities; Monitoring and management of coastal inlets entrances; Migration of sand lobe at Smith St; Private Seawalls along Siesta Park; Siesta Park Groyne refurbishment and/or modification.
   - **Coastal Management Actions (table extracted below) -**

Table 7.2 Quindalup to Siesta Park Coastal Management Actions

Year	Action
Annual	Beach Monitoring.
2 yearly	Detailed Aerial Beach Survey – first survey 2021/22.
10 yearly	PNP Hydrosurvey – 2021/22.
2025/26	Maintenance: Siesta Park Coastal Structures.

The Draft CHRMAP Recommendations for the period "Current to 2040" for Siesta Park are identified as follows:

Infrastructure / coastal management response

Subject to resolution of land tenure and access issues -

1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Lennox River Drain to a point somewhat to the east of Locke Swamp Drain.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment (note: the shortening of the existing Siesta Park Groyne may be appropriate, to reduce coastal erosion hazard on the eastern side).

As to the matters above, for the period 2020 to 2030, there are no direct references in the Coastal Management Programme as to any specific works being undertaken to **protect** Siesta Park of the nature identified above.

The only matter which seems to have been given specific attention appears in section 6.6 of the Coastal Management Programme in relation to the Siesta Park Groyne as follows:

> The program allows for the potential shorting of the Siesta Park groyne to improve sand supply to Locke Estate, which have been identified as high priority for maintenance. This is proposed to be undertaken during refurbishment, subject to coastal monitoring and investigations outlined in Sections 6.3 & 6.4. The nominal program is:
>
> - Year 1: West Busselton (Stage 1)
> - Year 2: West Busselton (Stage 2)
> - Year 4: Abbey
> - Year 6: Siesta Park
> - Year 8: Dunsborough
> - Year 10: Wonnerup

The Siesta Park Groyne is also identified in the context of the Coastal Management Programme on a number of other occasions, including as extracted below:

The shortening of groynes at Siesta Parka, Holgate Road and Wonnerup periodically arises in community consultation as a potential solution to mitigate downdrift erosion. The Holgate Rd groyne was refurbished in 2020 and was reduced in length by 20m (Figure 6.5).



Figure 6.5 Holgate Rd Groyne Refurbishment 2020

An investigation is proposed to assess the potential modifications required, volume of sand released and longer-term updrift and downdrift impacts. The scope is likely to include a requirement for sediment transport modelling, and would be required prior to any consideration of shortening the Siesta Park groyne.

The construction of the Siesta Park Groyne in 1965 interrupted the supply of sand to this management area, resulting in significant erosion, including recession of the coastline at Locke Estate by hundreds of metres. Since that time at least a dozen coastal protection structures have been constructed in this management area, including groyne fields at Locke Estate and Abbey, a training wall for the drainage outlet at Forth Street, protection for the boat ramp at Abbey and the longer Holgate Road Groyne at the eastern end of this management area. During times when Locke Estate or other areas were eroding, this would have increased the sand supply to the region east of these areas.

Abbey – Forth St

The erosion at Forth St in Abbey continues to be associated with the longer term effects of the construction of the Siesta Park groyne in the 1960s, and the interruption of alongshore sediment supply up to 3km to the east of the groyne. Historic period of accretion have been associated with deposition of material from the erosion Locke Estate foreshores which has since been largely stabilised. In recent years, erosion rates at Forth St have been in the order of 1,000m^3/yr and focussed on a 250m section of shoreline.

Downdrift of the Dunsborough Bay bar, sand migration is generally eastward along the coast. There are no significant offshore sandbars intersecting the coast in this area, but there are lobes moving east along the coastline at Toby Inlet and Smith Street. Several waterways enter the coast in this management area, but none of these have training walls. While there is various public and private boating infrastructure, sand migration is largely unhindered until it reaches the Siesta Park Groyne at the eastern end of this area, which is the first significant groyne along Geographe Bay.

Ongoing monitoring is required to identify when erosion occurs, in particular coastal inlet entrances. The influence of the Siesta Park groyne on the wider Geographe Bay sediment dynamics requires investigation, together with potential adverse updrift and downdrift impacts associated with refurbishment or modification of this structure.

During the September CIS specific questions were asked regarding Siesta Park Groyne and any proposals for shortening or other works to the Siesta Park Groyne. Paul Needham responded in the following general terms:

> *There has been no modelling conducted in relation to the removal, shortening or other work to the Siesta Park Groyne. At this stage no decision has been made to do anything in relation to Siesta Park Groyne.*

This statement would seem to be at odds with the information we have identified in the Coastal Management Programme (extracted above). Particularly where works have been identified and included in a proposed Schedule.

The Coastal Management Programme has identified Siesta Park Groyne works in Year 6 (2025/26) (see figures at 8.1 & 8.2 included at **Annexure C attached**) as follows:

- *Scheduled start date 6/10/25;*
- *26 week works schedule; and*
- *A budget of +$800k for 2025/26 covering Siesta Park Groyne work and other scheduled works.*

In relation to Siesta Park, given all of the above facts, in our opinion the only possible conclusion to be sensibly drawn is that the City is planning to significantly adjust/shorten the Siesta Park Groyne for the purposes of releasing sand to the East, with no proper consideration, consultation, planning or modelling and to the direct and immediate detriment of residents of Siesta Park. This is also in the context of no other protection works having been identified in the Coastal Management Programme to 2030 for the protection of Siesta Park.

The Coastal Management Programme covers half of the period up to 2040. The City would like us to believe that it intends to "protect" Siesta Park to some degree during this period. However, in our opinion this document, including the matters we have set out above, does not reflect any such intention and instead we note that:

- There is no mention of any intention for building a buried seawall or any other form of protection for Siesta Park;
- It specifically mentions the potential shortening of the Siesta Park Groyne many times; and
- The report's author makes numerous mentions of the Siesta Park Groyne being responsible for erosion at Locke Estate and Forth Street, Abbey.

Clearly these matters are of significant concern to the residents of Siesta Park including ourselves.

Diversity of Siesta Park & Marybrook

As we have already addressed in our Original Submission, we consider that this

is a crucial issue requiring particular attention. We have already identified that the CHRMAP has adopted a breakdown of relevant coastal areas by reference to 19 Management Units **(MUs)**. Siesta Park has been identified as MU09.

Given the matters presented at the September CIS, and the matters we have outlined above, we additionally wish to note the following relevant matters.

1) The City proposes to treat the entire Siesta Park area in the same manner, despite the fact that there are clearly stark differences in relation to the properties in that area and issues to be addressed;
2) Most of the discussion at the September CIS about Siesta Park and areas under threat related to the part of Siesta Park which is located from the Lennox drain and runs approximately 1.2 km to the East **(Focus Area)**;
3) Within this area, issues were raised about particular problems the City considers arise with High Water Mark land tenure issues and involvement of DPIRD (relating to the common issue to be addressed in the Ngari Capes Marine Park along the Coast); and
4) Whether intentionally or not, the manner in which the information and material to date has been put forward by the City, including in the September CIS, is to provide little hope for the total Siesta Park area (although it seems not for any reasons other than economic and policy) and that the City perceives it "too hard" to deal with these matters.

Our Residence is not located in the Focus Area. In the event that the matters raised in our Original Submission were not clear, we require the City to properly recognise and identify that not all of Siesta Park is the same nor subject to the issues being raised, particularly relevant to the Focus Area. We request that a more accurate description be given to the Siesta Park area including noting that:

- *The Siesta Park Groyne, built by the PWD in 1965 and 1967, protects 19 properties plus about half of the width of the Siesta Park Holiday Resort that abut coastal reserves plus now that sea level rise has been modelled, it also protects another 20 residential lots that lie between Siesta Park Road and Caves Road.*
- *Of the total 2.6km of coastline within the Siesta Park starting from the Lennox drain and going east –*
    - *The first 400m involves 11 properties with hard northern boundaries and there is a coastal reserve in front and where the City could quite simply install its own coastal protection infrastructure.*

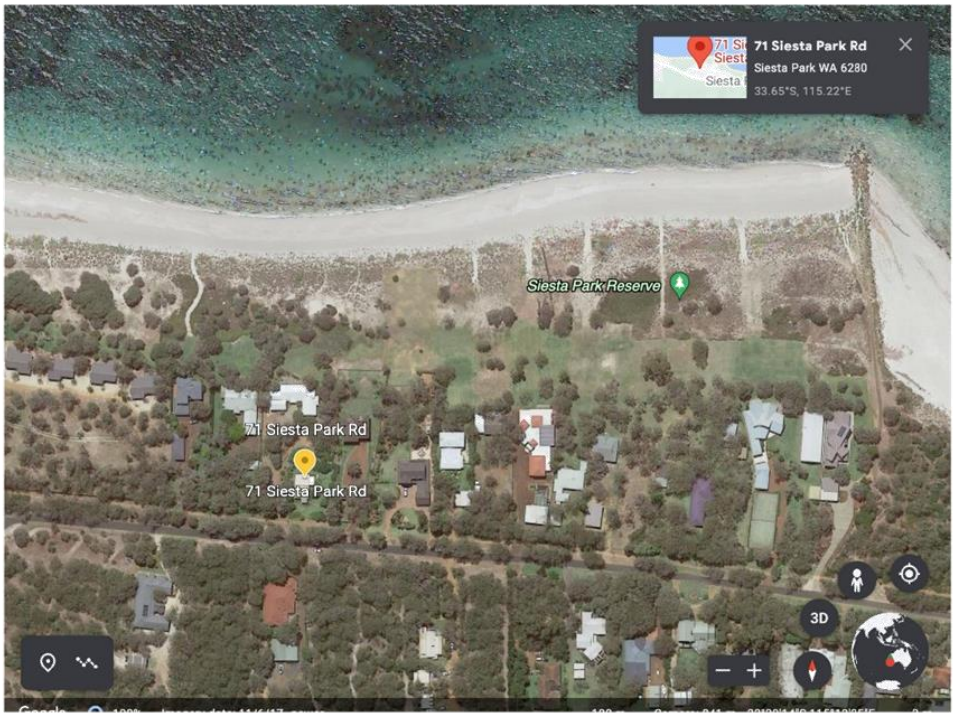
- *The next 400m involves 12 properties also with hard northern boundaries and for perhaps all but one or two properties a slim coastal reserve exists in front of these properties where again the City can work towards installing coastal protection infrastructure, although this presents a somewhat greater practical challenge than the first 400m.*
- *Then there is a PAW for amenity access and infrastructure management.*
- *The next 355m involves 10 dwellings which exist as tenants in common on a purple title with a HWM northern boundary existing around 15m on average north of the current HWM. The City needs to work hard on how to work around or work with "Tenants in Common" as the landowners as how to protect this section.*
- *The last section before Siesta Park Holiday Resort involves a single dwelling on a 52m frontage green title, again with HWM title and the original surveyed HWM surveyed boundary currently being about 22m forward of the present day HWM. Like for the above The City needs to work hard on how to work around or work with landowners as how to protect this section.*
- *From this point going east the remaining 1.4km is fronted by Siesta Park Holiday Resort, then 19 private residences and finally the Siesta Park Reserve. All properties have hard northern boundaries and are fronted by significant coastal reserve.*

Our residence is located in the last bundle of properties referred to above. In this context we also refer to the issue of "triggers" which we have dealt with above and are referenced in the Guidelines, Draft CHRMAP and the Advisian Report. The Draft CHRMAP indicates those "triggers" will be assessed and determined through the Coastal Management Programme. A Google Map image of our Residence is below. You can take a look for yourselves on Google Maps:

https://earth.google.com/web/search/71+Siesta+Park+Road,+Siesta+Park+WA/@-33.65436111,115.22372065,3.64892264a,521.93283699d,35y,59.99503607h,44.99783904t,-0r/data=Co4BGmQSXgolMHgyYTJlNDZjZDNlM2ZmZTY5OjB4ZmJhYzYyN2JjYWRhOWM2MxkLkA1J0tNAwCG0DliDQc5cQCojNzEgU2llc3RhIFBhcmsgUm9hZCwgU2llc3RhIFBhcmsgV0EYAiABIiYKJAkwjGdmC9NAwBFg9jKo1dRAwBnxjMXllM5cQCHH0P73eM1cQA

Better yet, perhaps the Councillors should meet with residents and actually see the areas in questions in person?





The Advisian Report indicates that "triggers" in relation to the Siesta Park MU should only take effect:

> *Where the most landward part of the Horizontal Shoreline Datum (shoreline) is within 40 metres of the most seaward part of a lot bouindary.*

Incorrectly, in terms of fact, the Advisian Report goes on to identify that all properties in Siesta Park have already met this trigger. We suggest that this is a result of the bundling of all properties in the Siesta Park MU which is not viable or appropriate (as we have already addressed).

For the record, our residence and at least the 19 other residences located in our area of Siesta Park have an abundant coastal reserve and should not be treated in a manner inconsistent with the factual matters pertaining to our land. The City has taken a heavy handed and unwarranted approach to the imposition of draconian proposed planning measures (coupled with a failure to plan for protection of our area and other issues we have addressed). Such an approach by the City will not be tolerated by any residence in this area.

It is only a Draft…..

On numerous occasions, Paul Needham has stated that the CHRMAP *is only a draft.* This point is apparently made to somehow comfort us in relation to the concerns we have raised, including in our Original Submissions and these Further Submissions. For example, during the September CIS statements were made of the following nature by Paul Needham:

> *As stated at earlier CIS presentations, that the CHRMAP is currently a Draft and not yet a final document or position adopted by the City; It is intended to report and make recommendations to the City in relation to the Draft CHRMAP by the end of 2021; The City will then determine whether to adopt or change the proposed Draft CHRMAP; There has been a 4 month consultation window in relation to the Draft CHRMAP; There will be further discussions and opportunities to raise matters before the "implementation" of the Draft CHRMAP recommendations; The information and proposals included in the Draft CHRMAP refer in many situations to requirements for further modelling and investigations to occur.*

This characterization of the CHRMAP currently may be accurate (it is a draft) but its current status does not provide us with any level of assurance or comfort, including for the following reasons:

1) Firstly, the "Draft" has already been put to Council on one occasion. On 24 February 2021 it was submitted as a "draft" and Council agreed to the Draft CHRMAP being put out for public consultation in its current form. This is in the context of the issues of concern now being raised by Siesta Park and

Marybrook residents having been openly and clearly addressed to Council in the material provided. Council made two minor changes to the proposed recommendations being put forward in the Draft as a whole (which did not relate to the Siesta Park and Marybrook issues). No other issues were raised it seems as to the differential adverse treatment of Siesta Park and Marybrook or any other matters.

2) We understand that once the "consultation" process is concluded, that it is intended that the final recommendations will be put to Council for consideration before the end of the year (currently proposed for 8 December 2021). At this stage, we have no idea whether any of the submissions being made by us or other relevant stakeholders will be taken into account or alter the recommendations in the Draft CHRMAP.

3) During the Siesta/Marybrook CIS on 5 August 2021, Paul Needham's slides included the following (as to next steps):

What would the process be from here? (assuming the currently recommended direction is pursued)

- *Finalise CHRMAP process;*
- *Further consultation;*
- *Amendment to town planning scheme;*
- *Design and costing of integrated protection approach;*
- *Further consultation (including a financial model);*
- *Advocacy/application for State Funding;*
- *Land access negotiations with landowners;*
- *Tender process;*
- *Most likely, City borrowing to meet capital cost;*
- *Implementation and ongoing maintenance by the City;*
- *Loan repayments and ongoing maintenance costs met through SAR applied to benefiting landowners.*

All of the above would indicate that the "Draft" CHRMAP could move swiftly from a "Draft" to an agreed CHRMAP criteria and policy moving forward, following this sort of timeline and plan. While further consultation and work may be foreshadowed following these next steps, it seems pretty clear that a "Draft" if approved by the City can no longer be seen in that light.

4) Paul Needham also made a comment during the September CIS about residents grouping together to make approaches regarding the Draft CHRMAP. It seems to be, therefore, that the impetus is clearly on residents to try and get engagement from the City and not the other way around. It is also unclear as to when this resident driven engagement is intended to take

place and what status it will have. Paul Needham has advised that the community consultation in respect of the draft CHRMAP will conclude on 28 September 2021.

5) Ultimately we are left to wait and see what if any impact our submissions may have in respect to the Draft CHRMAP and what is put to the City for approval on 8 December 2021. As noted above, if approved whatever is proposed in the Draft CHRMAP will move from a "draft" status to an "agreed plan". Paul Needham's comments that it will take years and further work to implement the agreed proposed plan and further modelling is required, gives us no comfort at all. If the proposals as suggested for Siesta Park are agreed, then we are talking about "implementation" moving forward.

6) If the City proceeds with its recommendations in the Draft CHRMAP for Siesta Park the financial damage and devaluation of properties will be immediate, even before any planning recommendations are attempted to be implemented or otherwise. Any potential purchaser of any property in the area who does any degree of due diligence will be aware of the City's recommendation and plans and the impact on the properties in this area.

Draft CHRMAP Recommendations for Siesta Park Need to be Reviewed and be Consistent with other MUs

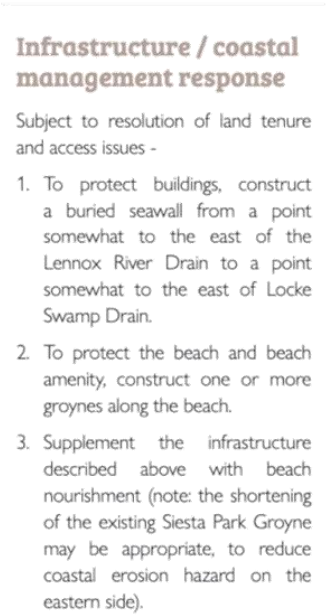
In Paul Needham's slides for the Siesta/Marybrook CIS on 5 August 2021 he included the following.

What is the same and what is different in terms of recommended direction for Siesta Park/Marybrook?

- *Same – recommending a City-led and implemented approach to protection from coastal erosion hazard for approximately 50 years.*
- *Same – recommending that coastal inundation hazard is mitigated for approximately 20 years through minimum FFLs for new development.*
- *Same – financial model assumes that, if retreat is pursued, unaffected value acquisition occurs - although this is not current State policy.*
- *Different – recommending use of a SAR to fund erosion protection.*
- *Different – not recommending bund/levee for inundation protection beyond 2040 (so min FFL proposed to be higher).*
- Different – not recommending 100 year commitment to erosion protection (so need to have time limited approvals).

The simplistic characterization of these matters above are misleading in our view and not representative of what is actually occurring in respect of Siesta Park. We make the following observations on these matters:

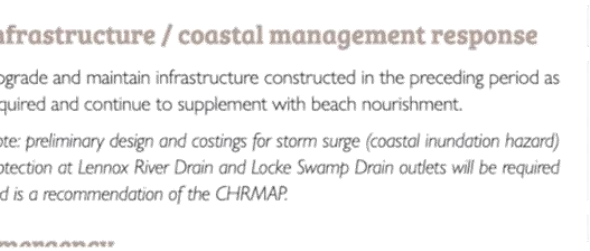
- The below are the proposal coastal erosion protection measures being recommended in the Draft CHRMAP for Siesta Park for the next 50 years.



Infrastructure / coastal management response

Subject to resolution of land tenure and access issues -

1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Lennox River Drain to a point somewhat to the east of Locke Swamp Drain.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment (note: the shortening of the existing Siesta Park Groyne may be appropriate, to reduce coastal erosion hazard on the eastern side).



Infrastructure / coastal management response

Upgrade and maintain infrastructure constructed in the preceding period as required and continue to supplement with beach nourishment.

Note: preliminary design and costings for storm surge (coastal inundation hazard) protection at Lennox River Drain and Locke Swamp Drain outlets will be required and is a recommendation of the CHRMAP.

However, this is in the context of severe and restrictive planning restrictions (extracted below) to be implemented **now** (not in the future). And a non-commitment to the area beyond 2070. As noted above, the Coastal Management Programme (to 2030) fails to indicate any significant works for Siesta Park of this or any nature. In contrast, the focus seems to be on a shortening of the Siesta Park Groyne which may have severe adverse impact on Siesta Park and its residents. To categorise the City's approach therefore as "the same" in this context is extremely misleading. Clearly the City's approach will be informed by their limited commitment to this area and focus on other areas of the Coast. One has to wonder whether the degree of works if any which would be planned or undertaken would be of the same level as those for areas where a full commitment has been proposed.

A Similar observation can be made regarding the following statement made:

- *Same – recommending that coastal inundation hazard is mitigated for approximately 20 years through minimum FFLs for new development.*

The approach being taken is not the "same" when one reviews all of the planning responses being proposed for Siesta Park, which include not just minimum FFLs for new developments.

Planning Response

1. Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.
2. Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.
3. As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.
4. Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).
5. Calculate height for purposes of building height, setback, overshadowing and/or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).
6. Require development approval for all development.
7. Prohibit private coastal protection structures.
8. Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.
9. Do not support any subdivision or increases in permissible development density.

As to the following statement - *Same – financial model assumes that, if retreat is pursued, unaffected value acquisition occurs - although this is not current State policy.* This again is very misleading and fails to take into account the adverse financial impact that will occur in respect of the residents and the land values at Siesta Park if the proposed planning changes are implemented in the near future. How can the position be the "same" as those areas where these measures are not occurring?

Further, if decisions yet to be made are subject to further modelling, investigation, decision making and other relevant matters, then nothing should be agreed now which adversely impacts landowners at Siesta Park in the manner currently intended.

Legal Issues

Finally, we understand that the City may have considered legal implications relating to the Draft CHRMAP and related matters. In the event that the City proceeds with any proposal in the CHRMAP which we consider unfairly prejudices us, our land, its value or any related matters, we will likewise need to consider our legal position in this matter (as will no doubt other effected residents).

The issues surrounding climate change policy legal risks are complex and unchallenged in many respects.

The Draft CHRMAP raises many concerns for us in its current form. Not least of all the proposal to impose immediate and restrictive planning controls over our land. This is in circumstances where our property is currently located a significant distance away from the shoreline, with significant buffer and protection provided by beach, dunes, privately owned property (between us and the beach) and City owned reserve. The imposition of these sorts of restrictions in the context of a CHRMAP of this nature will give rise to many legal issues. By way of example, we draw the City's attention to the following:

Private property rights charter for Western Australia - Premier's Circular 2014/04

https://www.wa.gov.au/government/publications/private-property-rights-charter-western-australia-premiers-circular-201404

Report 33
STANDING COMMITTEE ON PUBLIC ADMINISTRATION Private property rights: the need for disclosure and fair compensation

https://www.parliament.wa.gov.au/Parliament/commit.nsf/(Report+Lookup+by+Com+ID)/DB3639B8AE6F2BD9482585F200117F42/$file/pc.ppr.200930.rpf.033.xx.pdf

Freehills - Climate change policy legal risks – Draft for discussion 1 April 2010

https://walga.asn.au/getattachment/Policy-Advice-and-Advocacy/Environment/Climate-Change/Climate-Change-Resources/Freehills_Climate_Change_Policy_Legal_Risks_Feb2016.pdf.aspx?lang=en-AU

If the City intends to proceed as currently recommended or in any manner which we consider will prejudice us moving forward, we will obviously take our own legal counsel in relation to all relevant matters and assume that other affected landowners will wish to do likewise.

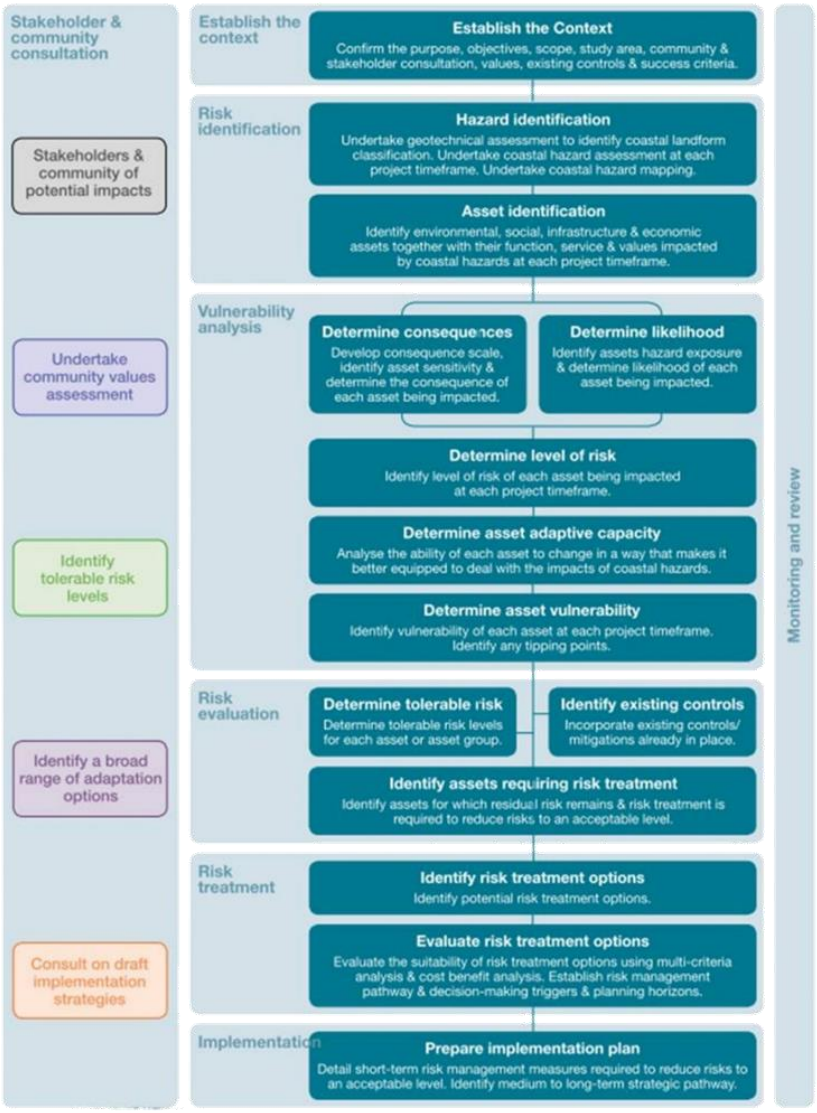
Conclusion

We note that none of the Councillors have sought to meet with us or any residents of which we are aware. We would be happy to do so. Otherwise we look forward to the City's positive response to the matters we and other residents have raised and moving forward to protect our new home and the beautiful coastline we are lucky enough to call home.

Yours faithfully

Karen Anne Hayne & Robert Zahtila

Annexure "A" – From Guidelines (page 11)



Annexure "B" – Extracts from Advisian Report

Report Coastal Adaption Strategy – Part 1 - page 20
3.1.2 Inundation Hazard

Detailed inundation hazard mapping has not been undertaken for the Cape Settlements as detailed topographic information is not available. The work by Damara (2017) provides only a qualitative assessment of the present-day risk from a 100-year water level event. This work indicates only a small number of built assets are likely to be impacted in the short-term.

(Extracted Advisian Report Coastal Adaption Strategy – Part 1 - page 21)
3.2 Geographe Bay (Dunsborough to Forest Beach)
3.2.1 Erosion Hazard

The collection of erosion studies provides an excellent source of information and a strong knowledge foundation for preparing the CAS. However, neither of the three studies containing erosion hazard lines are compliant with the current requirements of SPP 2.6. The existing studies are several years old and based on information which is approximately a decade old.

[**OUR NOTES** – As per below, Advisian have clearly identified what should "Trigger" planning controls as *Where the most landward part of the shoreline (Horizontal Shoreline Datum) is within 40 metres of the most seaward part of a structure's lot boundary?* Why has the City attempted to implement these planning controls on properties in Siesta Park that are clearly not under threat and much more than the threshold 40m distance from the "shoreline". Why has the City chosen not to suggest planning controls on other properties within the City that are within the 40m shoreline distance?]

(Extracted Advisian Report Coastal Adaption Strategy – Part 3: Risk Management Options, Pathways and Scenarios - page 27)
4.3.5 Triggers for Implementation

The adaptation pathways comprise a sequence of options and tipping points triggered by the impact of changing coastal processes over time. The approach is about enabling or keeping options open to avoid path dependency and applying appropriate sequence of actions in the short term potentially followed by a longer-term pathway.

Triggers for implementation are those that occur as a direct result of natural coastal processes, for example a severe storm at high tide causing coastal erosion. The proposed adaptation options are not effective until a coastal hazard trigger has occurred, as follows:

- *As properties along the shoreline have already exceeded this trigger, retreat management options are required now and on an ongoing basis.*
- *Where the most landward part of the shoreline (Horizontal Shoreline Datum) is within 40 metres of the most seaward part of a structure's lot boundary.*
- *Where a public road is no longer available or able to provide legal access to coastal asset.*
- *When water, sewage or electricity to the lot is no longer available or unsafe as they have been removed/decommissioned by the relevant authority due to coastal hazards.*

[**OUR NOTES** – Advisian have provided a recommended funding outcome around Coastal protection? Why have Siesta Park & Marybrook been isolated and treated differently?]

(Extracted Advisian Report Coastal Adaption Strategy – Part 5: Funding Options – pages 6 & 7)

Regarding sourcing though City's taxes, the most straightforward way of funding adaptation options would be the escalation of the percentage of rate revenue by a flat rate. In that case the contribution would be obtained through a large number of people, limiting the individual rate increase.

Taking into account that the inhabitants closer to the coast would benefit more from coastal management, the rate can be varied. The City however considers funding through specified area rates (SAR's) as too restrictive and quite difficult to implement.

A relatively simple and justifiable model could be to evenly split the contributions of adaptation measures by the various stakeholders as follows:

- *33% funding though grants from state government*
- *33% funding through rate revenue of city council taxes*
- *33% funding through contributions from the inhabitants living in the coastal hazard zone*

[**OUR NOTES** – Some Risk Management controls documented and identified as options in the Advisian Draft Coastal Strategy seem to be quite different to what has been suggested in the Draft CHRMAP. Why is the City seeking to impose AC3 Planning Controls on Siesta Park & Marybrook when the Advisian Report suggested 8 other MU's have the same planning controls implemented?

The Advisian Report suggested that the City Implement PMR1 - Leave land and resources unprotected and foreshore in a natural state – for 7 MU's. The City seems to have ignored these suggestions and chosen to implement physical protection measures.

Why is there such a large variance between Advisian recommendations versus what the City prepared in the Draft CHRMAP? Why were Siesta Park and Marybrook singled out in the manner now being recommended?]

Risk Treatment Options for PU's within Advisian Report that seem inconsistent in Draft CHRMAP

PMR1 **Leave land and resources unprotected and foreshore in a natural state.**
PMR1 Risk Treatment Option was recommended in the Advisian Report - Appendix G – for the following PU's
PU01 – Smiths Beach
PU02 – Yallingup
PU03 – Bunker Bay
PU04 – Eagle Bay
PU12 – Broadwater
PU18 – Wonnerup
PU19 – Forest Beach

AC3 **Apply planning controls that enable sequential change of land use as it becomes affected by coastal hazards.**
AC3 Risk Treatment Option was recommended in the Advisian Report - Appendix G – for the following PU's
PU05 – Old Dunsborough
PU06 – Dunsborough Townsite

PU07 – Quindalup Beach
PU08 – Marybrook
PU09 – Siesta Park
PU11 – Abbey
PU13 – Busselton West (A)
PU14 – Busselton West (B)
PU16 – Busselton East
PU17 – Port Geographe

[**OUR NOTES** - MCA prepared and documented in the Advisian Draft Coastal Strategy (see table 8 below) seems to be different to the MCA tabled in the Draft CHRMAP (see Table 2 below). Why the difference?? Who made the decision to change the Advisian recommendations? Were the City Councillors or the City CEO aware and/or agreed to this change?]

(Extracted Advisian Report Coastal Adaption Strategy – Part 3: Risk Management Options, Pathways and Scenarios - page 25 & 26)

Table 8. Favourable risk management options as per MCE assessment

Planning Unit		Most favourable risk management options as per MCA		
		2040	2070	2115
1	Smiths Beach	Protect	Protect	Protect
2	Yallingup	Avoid / Managed Retreat	Protect	Managed Retreat / Protect
3	Bunker Bay	Avoid / Managed Retreat	Protect	Protect
4	Eagle Bay	Avoid / Managed Retreat / Protect	Protect	Protect
5	Old Dunsborough	Protect	Protect	Protect
6	Dunsborough Townsite	Protect	Protect	Protect
7	Quindalup Beach	Protect	Protect	Protect
8	Marybrook	Protect / Managed Retreat	Protect	Protect
9	Siesta Park	Protect	Protect	Protect
10	Locke Estate	Protect	Protect	Protect
11	Abbey	Protect	Protect	Protect
12	Broadwater	Protect	Protect	Protect

13	Busselton West (A)	Protect	Protect	Protect
14	Busselton West (B)	Protect	Protect	Protect
15	Busselton Central	Protect	Protect	Protect
16	Busselton East	Protect	Protect	Protect
17	Port Geographe	Protect	Protect	Protect
18	Wonnerup	Protect	Protect	Protect
19	Forrest Beach	Managed Retreat / Protect	Protect	Protect

(Extracted from Draft CHRMAP – Pge 36)

Table 2 **Summary of MCA of coastal erosion hazard management options**

Management Unit	2040	2070	2120
01 Smiths Beach	P	P	P
02 Yallingup	P	P	P
03 Bunker Bay	P M	P	P
04 Eagle Bay	P	P	P
05 Old Dunsborough	P	P	P
06 Dunsborough Townsite*	P	P	P
07 Quindalup	P	P	P
08 Marybrook	P	P	P
09 Siesta Park*	P	P	P
10 Locke Estate*	P	P	P
11 Abbey*	P	P	P
12 Broadwater*	P	P	P
13 Busselton West (A)*	P	P	P
14 Busselton West (B)*	P	P	P
15 Busselton Central*	P	P	P
16 Busselton East	P	P	P
17 Port Geographe*	P	P	P
18 Wonnerup*	P	P	P
19 Forrest Beach	P M	P	P

* *Management Unit already has City of Busselton or Department of Transport managed protection but not for the whole planning period, and not necessarily for the whole of the Management Unit*

Annexure "C"

Coastal Management Plan Schedule Works and Budget including Figures 8.1 & 8.2

8 Scheduled Works and Budget

The 10-year coastal management program scheduled works and budget is outlined in Figure 8.1 and Figure 8.2. The scheduled works include the following general items:

- Annual beach monitoring.
- Strategic beach monitoring including:
- Coastal investigations.
- Annual sand nourishment.
- Strategic sand nourishment.
- Maintenance of coastal protection structures.
- Coastal adaptation projects.

The annual budget ranges from approximately $400,000 to $1,800,000 in some years, with greater expenditure in the initial 5-year period. It is noted that the works program should be updated annually based on works completed and to allow for potential escalation of prices, monitoring and investigations, with a detailed review of the wider program every 5-years. The budget has been developed based on the following assumptions:

- Monitoring – nominal values based on experience with similar projects. Note the budget allowance for the 'PNP Hydrosurvey' is limited to the Geographe Bay area.
- Investigations – nominal values based on experience with similar projects.
- Annual Sand Nourishment – based on historic annual expenditure on sand nourishment.
- Strategic Sand Nourishment – based on volumes outlined in Section 6.5 and assuming a cost of $12.50/m^3 to $25.00/m^3. This has a value of ~$500,000 for the years 2022/23 and 2027/28.
- Maintenance – minimum budget of $100,000 per management area with further detail from the values outlined in (19).
- Coastal Adaptation – nominal values based on experience with similar works.

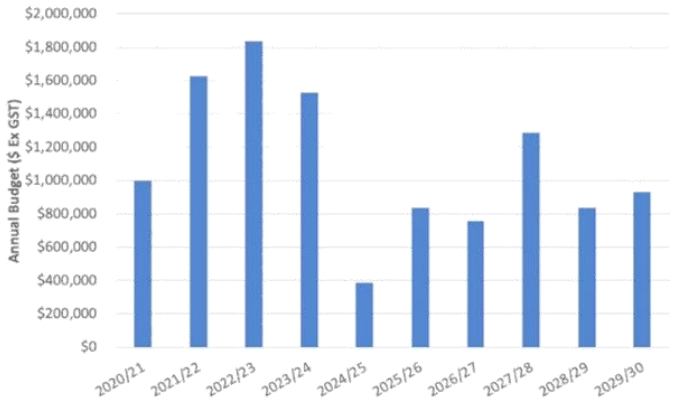


Figure 8.1 Coastal Management Program – Annual Budget

SHORE COASTAL

City of Busselton Geographe Bay

Busselton Coastal Management Program (2020 -2030)

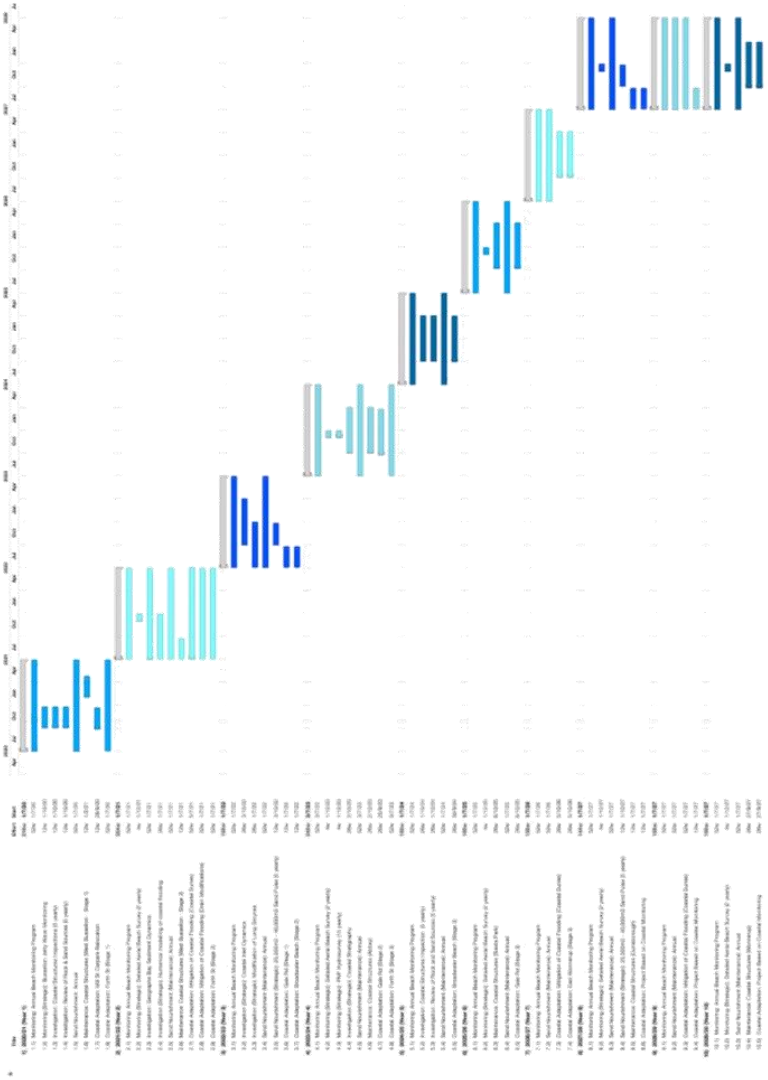


Figure 8.2 Coastal Management Program – Scheduled Works

SUBMISSION 8

RICHARD D LESTER
Chairman

23 August 2021

Mr Paul Needham & Mr Matt Riordan
City of Busselton
Locked Bag 1
BUSSELTON WA 6280

Dear Sirs

Thank you for the opportunity for attending at the City of Busselton (CoB) offices at 11.30am Thursday August 19, 2021, and receiving a detailed briefing on the CoB approach to the management of our Coast particularly highlighting the challenges that are likely to be faced over time.

I found the meeting efficient in communicating a complex and controversial subject and I thank you for your effort in making your presentation.

I speak for three CoB rate payers with properties on the foreshore at Siesta Park.

Draft CHRMAP
We understand and agree with the CoB approach of monitoring the foreshore, looking out initially to 2040 – 20 years – then to 2070 - 50 years – and finally to 2120 – 100 years.

We agree that the Southwest coastline is and has been constantly changing, moving sand west to east, with periods of erosion and natural replenishment.

We accept the installation of several small groynes protecting the foreshore at the church camps area and suggest that the CoB with State Government support extend this work and stabilise the public beach reserve immediately east of Siesta Park. This could become a priority at some time over the next 20 years.

Siesta Park Groyne
We are comfortable with the present Siesta Park groyne. We think that it is well built and suited for purpose. We don't think that the groyne should be tampered with – "If It Aint Broke Don't Fix It"! We are concerned that any change to the present groyne, would be experimental and believe that the risks of reduced effectiveness would far outweigh possible benefits over time.

Financing the Beach Stabilisation Works
In respect to the funding of beach stabilisation works, we have noted with interest the results of a recent survey of public opinion on this subject –

- The Government should pay - 42%
- The CoB should pay - 26%
- The affected landowners should pay - 32%

We are of the view that costs could be shared similar to these survey results.

Level 2, 47 Stirling Highway, Nedlands, Western Australia 6009. PO Box 1110, Nedlands, WA 6909
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www.lestergroup.com.au

We are familiar with the principle of a Special Area Rate (SAR) and agree that the financing of the residents share of any beach stabilisation could be dealt with a SAR. We do caution the CoB to ensure that a maximum of funds collected be invested in "solving the problem" and a minimum on administration.

New Residential Development
We agree that the Finished Floor Level (FFL) of new beach front residences should be a minimum of AHD 3.8m and the CoB should accept a FFL of AHD 4m subject to normal residential constraints.

We support the open communication of the CoB of this controversial and detailed Coastal Management Program, and we will be pleased to participate in further discussion sessions. I have registered to attend at the CoB offices for a further expert explanation by experts and Q&A on Thursday evening September 2, 2021.

Thank you once again for your time and attention on Thursday.

Regards

R D Lester

SUBMISSION 9

Peter and Josephine McSweeney
43 Siesta Park Road
SIESTA PARK WA 6280

24 September 2021

City of Busselton
2 Southern Drive
BUSSELTON WA 6280

Attn: Mr Grant Henly
Mayor, City of Busselton

cc: Mr Paul Needham
Mr Mathew Riordan
City of Busselton Councillors

By Email

Grant.Henley@busselton.wa.gov.au
Mathew.Riordon@busselton.wa.gov.au
Paul.Needham@busselton.wa.gov.au
councillors@busselton.wa.gov.au

Dear Grant

Re: Draft CHRMAP (February 2021)

Thank you for your email confirming our response has been added to the other submission.

We understand the need for the adoption of a CHRMAP and look forward to working with the City in developing a long-term, viable coastal management plan that is committed to sustaining our pristine coastal environment for now and into the foreseeable future.

There are however matter that concern us in relation to the preparation of the draft CHRMAP. We contest that the City has not properly followed the Western Australian Coastal Hazard and Risk Management Guidelines (Guidelines) July 2019 nor the International Association of Public Participation (IAP2) in regards to adequately engaging the key stakeholders in an open and collaborative transparent approach.

I have highlighted some of our concerns following.

1.0 Council Minutes of Meeting 24 February 2021

I draw your attention to the Risk Assessment extract from City of Busselton Minutes for Council Meeting held on 24 February 2021, when the draft CHRMAP was provided to Council and voted upon following.

The risk assessment section clearly acknowledges that the Siesta Park, Marybrook and Forrest Beach residents will be disgruntled with the recommendations of the draft CHRMAP.

Peter and Josephine McSweeney
43 Siesta Park Road
SIESTA PARK WA 6280

This is because the City has chosen to act in a manner contrary to technical advice and the outcomes of the Multiple Criteria Analysis (MCA), which was prepared in accordance with the Guidelines. The MCA clearly concluded that Siesta Park and Marybrook should adopt a 100 year long-term protection strategy. Instead, the City has chosen to recommend a long-term retreat strategy that will have a detrimental effect on these landowners.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. As the recommendation is to adopt a CHRMAP for consultation only, the key risks at this stage are reputational. The following risks have been identified:

Reputational risks may arise associated with recommendations of the CHRMAP, as well as through the supporting information. Those risks may be mitigated through a careful and proactive approach to community engagement. There are some members of the community, however, who may have concerns with elements of the CHRMAP and its recommendations, and their reaction may pose reputational risks for the City. Key groups that may have concerns are: landowners in the Marybrook, Siesta Park and Forrest Beach areas; those who are sceptical of sea level rise projections; those who have concerns about coastal protection in general; and those concerned about the financial implications of coastal adaptation.			
Risk Category	***Risk Consequence***	***Likelihood of Consequence***	***Risk Level***
Reputation	***Moderate***	***Possible***	***Medium***

These risks will be best mitigated through clear and patient communication during the consultation phase, and through careful and thorough considerations of issues raised through the consultation process, before seeking to finalise the CHRMAP. It is still likely, though, that there will be some people aggrieved to some degree by the direction set out in the CHRMAP.

Source: Extract from CoB Council Meeting Minutes dated 24.02.2021.

2.0 The City's Duty of Care

Clearly, when the City identified this risk, it had a "Duty of Care" to engage with those that stand to be most impacted by the risk.

Peter and Josephine McSweeney
43 Siesta Park Road
SIESTA PARK WA 6280

For Marybrook and Siesta Park, the City's approach has been:

a) To avoid engaging the residents in any meaningful decision making process from the outset.

b) Providing no platform for consultation during the community consultation phase.

c) Providing Council Information Sessions (CIS) that do not allow a platform for healthy and transparent discussions and questions to take place.

d) Undertake non-related impartial community surveys to justify a community consultation process has been followed.

e) Set unrealistic timeframes for public submissions.

f) Not provide sufficient information to allow informed decisions and detailed submissions to be made.

3.0 The Draft CHRMAP Timeline

Based on the information below, it is clear that the City did not originally intend to directly engage with Marybrook or Siesta Park landowners from the outset.

Date	Comments
24 February 2021	Draft CHRMAP presented to Council for consideration.
17 May 21	Letter to residents outlining Draft CHRMAP out for public comment. No planned Community Information Sessions **(CIS)** specifically for Siesta Park and Marybrook residents.
5 July 2021	Letter sent by City of Busselton to Siesta Park / Marybrook residents regarding a newly proposed CIS specifically for these areas (CIS not originally planned and Closing Date for Submissions extended).
5 August 2021	CHRMAP CIS - Siesta Park and Marybrook residents.
27 August 2021	CHRMAP Submissions Closing Date (Extension agreed by Paul Needham - Director Planning and Development Services at City of Busselton) to be three weeks after the follow-up CIS (below) for Siesta Park & Marybrook Residents).
2 September 2021	CHRMAP follow up CIS Presentations Paul Needham, Dr Matt Elliott and Stuart Barr - Siesta Park and Marybrook residents.
28 September 2021	Public Submissions Close.
8 December 2021	Planned date for City to present to Council finalised Draft CHRMAP for submission to State Department of Planning, Lands and Heritage **(DPLH)**.

Peter and Josephine McSweeney
43 Siesta Park Road
SIESTA PARK WA 6280

4.0 Proper and Meaningful Stakeholder Engagement

The Guidelines clearly state:

"While characterising coastal hazards should be done by technical experts, assessing risks arising from coastal hazards, consequences, assets values and risk management measures is best done through an open process with input from an informed community and stakeholders."

In this regard, the key stakeholders, the landowners of Siesta Park and Marybrook who stand to be most affected by the CHRMAP, have been effectively excluded at the decision making stages and any meaningful consultation process to date.

The sum total of direct engagement has been the two CIS's. These sessions have largely been one way with the City informing the stakeholders what they are proposing and providing little and insufficient opportunity for questions, concerns and/or any meaningful consultation process.

This is clearly evident in the draft CHRMAP, which is devoid of any feedback from the key stakeholders who stand to be most affected.

5.0 Obstructing Public Discussion

For the record, I attended the most recent CIS session held at the YCAB on the 5th August and listened to presentations from Dr Matt Elliott and Mr Stuart Barr.

At the completion of Dr Elliott's presentation, Mr Needham invited attendees to direct questions to Dr Elliott. My question was:

"Could you please tell us if there is any technical reason that would explain why the City has chosen not to follow the recommendation of the MCA in accordance with guidelines and commit to a 100 year protection strategy for Marybrook and Siesta Park?"

At which point, Mr Needham interjected denying the technical experts to answer the question. I then asked the question again, stating I would like the technical experts to answer.

Once again, Mr Needham refused to allow the experts to answer the question and stated that:

"There was no technical reason for the City adopting this position as it is entirely a City's decision to do so."

Mr Needham then called for further questions and received a question from a gentleman that said ***"I would like the technical consultants to please answer the gentleman's questions."***

Peter and Josephine McSweeney
43 Siesta Park Road
SIESTA PARK WA 6280

This is a further example of the obstructive community engagement exhibited by the City. A technical CIS is called by the City and the City refuses to allow technical experts to respond to public questions.

6.0 Avoiding the Tough Questions

I also draw your attention to a chain of emails between Mr Needham and myself during the middle of August 2021. In one email, I placed a picture of a vacant lot on the seaside of Caves Road in Marybrook. This vacant lot is also on the seaward side of the 2040 erosion modelling line in the draft CHRMAP.

My enquiry was to respond to the following statement.

"Upon reading the CHRMAP proposed planning changes for Marybrook, it would seem that the owners of this lot may never receive a planning approval? And, if they did, the restrictions would be too onerous to build or there would be too much uncertainty around the long-term viability of the development that they do not proceed (noting this lot may already have planning approval but the question is posed on the basis that it does not)."

I have yet to receive a response to this enquiry.

7.0 Summary

The reasons that the City has not chosen to adopt a protect strategy in the draft CHRMAP should have been discussed at the formative stage through proper engagement and consultation with the Marybrook and Siesta Park stakeholders.

The fact that the City has chosen not to is an oversight of its Duty of Care along with its obligations to discharge its duties in accordance with the Guidelines and to act openly and transparent manner with all of its rate payers and stakeholders.

8.0 Conclusions

Our strong view is that the City should undertake the following.

a) Provide an extension of time to the closing of submissions and the detailing and presentation of the draft CHRMAP for City approval so that proper community engagement is undertaken in accordance with the Guidelines. Based on the foregoing, the City cannot unreasonably withhold this request.

b) The technical models, inputs and assumptions used for preparing the CHRMAP should be made available and an independent consultant engaged to review the model and outputs and that the stakeholders have a say in who is appointed and their terms of reference.

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c) That several action groups from the Marybrook and Siesta Park landowners work with the City to firstly review the CHRMAP and, in particular, debate in an open forum the reasons and justifications the City has used for choosing not to adopt a long-term protection strategy.

d) That the current submission from the Marybrook and Siesta Park landowners be reviewed in an open and transparent manner, with the action groups and City collectively, to fully understand and manage the concerns of all stakeholders.

I await your response.

Yours sincerely



Peter and Josephine McSweeney

SUBMISSION 10

Peter and Josephine McSweeney
43 Siesta Park Road
SIESTA PARK WA 6280

24 September 2021

City of Busselton
2 Southern Drive
BUSSELTON WA 6280

Attn: Mr Grant Henly
Mayor, City of Busselton

cc: Mr Paul Needham
Mr Mathew Riordan
City of Busselton Councillors

By Email

Grant.Henley@busselton.wa.gov.au
Mathew.Riordon@busselton.wa.gov.au
Paul.Needham@busselton.wa.gov.au
councillors@busselton.wa.gov.au

Dear Grant

Re: Draft CHRMAP (February 2021)

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We understand the need for the adoption of a CHRMAP and look forward to working with the City in developing a long-term, viable coastal management plan that is committed to sustaining our pristine coastal environment for now and into the foreseeable future.

There are however matter that concern us in relation to the preparation of the draft CHRMAP. We contest that the City has not properly followed the Western Australian Coastal Hazard and Risk Management Guidelines (Guidelines) July 2019 nor the International Association of Public Participation (IAP2) in regards to adequately engaging the key stakeholders in an open and collaborative transparent approach.

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43 Siesta Park Road
SIESTA PARK WA 6280

This is because the City has chosen to act in a manner contrary to technical advice and the outcomes of the Multiple Criteria Analysis (MCA), which was prepared in accordance with the Guidelines. The MCA clearly concluded that Siesta Park and Marybrook should adopt a 100 year long-term protection strategy. Instead, the City has chosen to recommend a long-term retreat strategy that will have a detrimental effect on these landowners.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. As the recommendation is to adopt a CHRMAP for consultation only, the key risks at this stage are reputational. The following risks have been identified:

Reputational risks may arise associated with recommendations of the CHRMAP, as well as through the supporting information. Those risks may be mitigated through a careful and proactive approach to community engagement. There are some members of the community, however, who may have concerns with elements of the CHRMAP and its recommendations, and their reaction may pose reputational risks for the City. Key groups that may have concerns are: landowners in the Marybrook, Siesta Park and Forrest Beach areas; those who are sceptical of sea level rise projections; those who have concerns about coastal protection in general; and those concerned about the financial implications of coastal adaptation.			
Risk Category	***Risk Consequence***	***Likelihood of Consequence***	***Risk Level***
Reputation	***Moderate***	***Possible***	***Medium***

These risks will be best mitigated through clear and patient communication during the consultation phase, and through careful and thorough considerations of issues raised through the consultation process, before seeking to finalise the CHRMAP. It is still likely, though, that there will be some people aggrieved to some degree by the direction set out in the CHRMAP.

Source: Extract from CoB Council Meeting Minutes dated 24.02.2021.

2.0 The City's Duty of Care

Clearly, when the City identified this risk, it had a "Duty of Care" to engage with those that stand to be most impacted by the risk.

Peter and Josephine McSweeney
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For Marybrook and Siesta Park, the City's approach has been:

a) To avoid engaging the residents in any meaningful decision making process from the outset.

b) Providing no platform for consultation during the community consultation phase.

c) Providing Council Information Sessions (CIS) that do not allow a platform for healthy and transparent discussions and questions to take place.

d) Undertake non-related impartial community surveys to justify a community consultation process has been followed.

e) Set unrealistic timeframes for public submissions.

f) Not provide sufficient information to allow informed decisions and detailed submissions to be made.

3.0 The Draft CHRMAP Timeline

Based on the information below, it is clear that the City did not originally intend to directly engage with Marybrook or Siesta Park landowners from the outset.

Date	Comments
24 February 2021	Draft CHRMAP presented to Council for consideration.
17 May 21	Letter to residents outlining Draft CHRMAP out for public comment. No planned Community Information Sessions **(CIS)** specifically for Siesta Park and Marybrook residents.
5 July 2021	Letter sent by City of Busselton to Siesta Park / Marybrook residents regarding a newly proposed CIS specifically for these areas (CIS not originally planned and Closing Date for Submissions extended).
5 August 2021	CHRMAP CIS - Siesta Park and Marybrook residents.
27 August 2021	CHRMAP Submissions Closing Date (Extension agreed by Paul Needham - Director Planning and Development Services at City of Busselton) to be three weeks after the follow-up CIS (below) for Siesta Park & Marybrook Residents).
2 September 2021	CHRMAP follow up CIS Presentations Paul Needham, Dr Matt Elliott and Stuart Barr - Siesta Park and Marybrook residents.
28 September 2021	Public Submissions Close.
8 December 2021	Planned date for City to present to Council finalised Draft CHRMAP for submission to State Department of Planning, Lands and Heritage **(DPLH)**.

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4.0 Proper and Meaningful Stakeholder Engagement

The Guidelines clearly state:

"While characterising coastal hazards should be done by technical experts, assessing risks arising from coastal hazards, consequences, assets values and risk management measures is best done through an open process with input from an informed community and stakeholders."

In this regard, the key stakeholders, the landowners of Siesta Park and Marybrook who stand to be most affected by the CHRMAP, have been effectively excluded at the decision making stages and any meaningful consultation process to date.

The sum total of direct engagement has been the two CIS's. These sessions have largely been one way with the City informing the stakeholders what they are proposing and providing little and insufficient opportunity for questions, concerns and/or any meaningful consultation process.

This is clearly evident in the draft CHRMAP, which is devoid of any feedback from the key stakeholders who stand to be most affected.

5.0 Obstructing Public Discussion

For the record, I attended the most recent CIS session held at the YCAB on the 5th August and listened to presentations from Dr Matt Elliott and Mr Stuart Barr.

At the completion of Dr Elliott's presentation, Mr Needham invited attendees to direct questions to Dr Elliott. My question was:

"Could you please tell us if there is any technical reason that would explain why the City has chosen not to follow the recommendation of the MCA in accordance with guidelines and commit to a 100 year protection strategy for Marybrook and Siesta Park?"

At which point, Mr Needham interjected denying the technical experts to answer the question. I then asked the question again, stating I would like the technical experts to answer.

Once again, Mr Needham refused to allow the experts to answer the question and stated that:

"There was no technical reason for the City adopting this position as it is entirely a City's decision to do so."

Mr Needham then called for further questions and received a question from a gentleman that said ***"I would like the technical consultants to please answer the gentleman's questions."***

Peter and Josephine McSweeney
43 Siesta Park Road
SIESTA PARK WA 6280

This is a further example of the obstructive community engagement exhibited by the City. A technical CIS is called by the City and the City refuses to allow technical experts to respond to public questions.

6.0 Avoiding the Tough Questions

I also draw your attention to a chain of emails between Mr Needham and myself during the middle of August 2021. In one email, I placed a picture of a vacant lot on the seaside of Caves Road in Marybrook. This vacant lot is also on the seaward side of the 2040 erosion modelling line in the draft CHRMAP.

My enquiry was to respond to the following statement.

"Upon reading the CHRMAP proposed planning changes for Marybrook, it would seem that the owners of this lot may never receive a planning approval? And, if they did, the restrictions would be too onerous to build or there would be too much uncertainty around the long-term viability of the development that they do not proceed (noting this lot may already have planning approval but the question is posed on the basis that it does not)."

I have yet to receive a response to this enquiry.

7.0 Summary

The reasons that the City has not chosen to adopt a protect strategy in the draft CHRMAP should have been discussed at the formative stage through proper engagement and consultation with the Marybrook and Siesta Park stakeholders.

The fact that the City has chosen not to is an oversight of its Duty of Care along with its obligations to discharge its duties in accordance with the Guidelines and to act openly and transparent manner with all of its rate payers and stakeholders.

8.0 Conclusions

Our strong view is that the City should undertake the following.

a) Provide an extension of time to the closing of submissions and the detailing and presentation of the draft CHRMAP for City approval so that proper community engagement is undertaken in accordance with the Guidelines. Based on the foregoing, the City cannot unreasonably withhold this request.

b) The technical models, inputs and assumptions used for preparing the CHRMAP should be made available and an independent consultant engaged to review the model and outputs and that the stakeholders have a say in who is appointed and their terms of reference.

Peter and Josephine McSweeney
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c) That several action groups from the Marybrook and Siesta Park landowners work with the City to firstly review the CHRMAP and, in particular, debate in an open forum the reasons and justifications the City has used for choosing not to adopt a long-term protection strategy.

d) That the current submission from the Marybrook and Siesta Park landowners be reviewed in an open and transparent manner, with the action groups and City collectively, to fully understand and manage the concerns of all stakeholders.

I await your response.

Yours sincerely



Peter and Josephine McSweeney

SUBMISSION 11

Paul Needham,
Senior Planner.
City of Busselton
2 Southern Drive,
Busselton WA 6280

Rod & Rhonda Hitchins
41 Siesta Park Rd
Siesta Park WA 6280

Dear Paul,

We provide the following information, comments & concerns regarding the Proposed Coastal Management Plan (CHRMAP), currently out for public comment & consultation. This submission is a collective of views & attitudes from owners of properties in the Siesta Park area. From the outset may we say that we strongly object to the City of Busselton treating the residences of Marybrook & Siesta Park totally different to all others who have coastal properties & who may be affected by rising sea levels & storm events. To protect all other areas in the City & not recommend to protect Siesta Park & Marybrook whilst also imposing restrictive Planning conditions is totally unreasonable & unacceptable & we urge the Councillors to reject these proposals. As rate payers we should all have the same security of tenure & use of our properties as others in the City.

Siesta Park & Marybrook

CHRMAP has grouped Marybrook & Siesta Park as one area, mainly due (as stated in the document) to the fact that it does not have any Public Asset & therefore has no benefit to the State. This area is totally unique as a coastal strip with many differing challenges & we urge the City to identify them so that the challenges can be solved.

The properties West of Lennox River outlet generally have a flat wide beach & in general have not in the past, been subjected to wide spread coastal erosion as sand has continued to be secreted over many years.

The properties from East of Lennox River outlet to Siesta Park Holiday Village, have in the past had significant issues with storm erosion & many of the owners have installed sea walls to protect their properties. In this area there are a number of properties that have Purple Title, which gives them ownership to the high-water mark. We acknowledge that this also poses additional problems for the City to manage. It is the City's responsibility to work with those owners to establish a positive path forward.

Siesta Park (East from the Holiday Village) has a wide beach front with a sand dune & with residences set back from the waters edge approximately 150m. This beach & sand dune has been established through the installation of the groyne that was installed in the 1960's. This groyne continues to allow the deposit of sand on the beach & we as owners have seen a continued increase in the beach area both East & West of the groyne.

There are varying challenges that face the City in protecting the area & we would request that Siesta Park & Marybrook be treated as three Totally Separate Areas due to the varying issues that are faced to continue to protect the properties & homes.

The existence of the Groyne, the sand dunes, wide open beach & the fact that homes have large setbacks, all allows for adequate access to provide & install any coastal protection that will be required in the future. Siesta Park, from the Groyne, to & including the Holiday Village, does not impose restrictions & challenges to the City to install coastal protection, that does other areas in this region.

Therefore, we would request that the Coastal Management Plan does not impose onerous conditions on the residences of Siesta Park based on the needs of other areas that have greater & or differing needs & issues.

Any reference to Siesta Park in this document will therefore refer to the area east of the Siesta Park Holiday Village to the Siesta Park Groyne including the Holiday Village.

Multi Criteria Analysis

Under section 5 of the Coastal Management Plan, it clearly states that it is recommended to protect Siesta Park at all three time-lines, 2040,2070 & 2121. The MCA recognises the importance of protecting & retaining a coastal amenity & useable beach & foreshore. Page 41 specifically nominates that Siesta Park be protected to retain the existing foreshore, retain Caves Rd & other local roads & utilities & to also retain the existing properties.

It is inconceivable that the City's recommendations are to only protect Siesta Park up to 2070 & in doing so impose extremely onerous planning conditions in the residences. This recommendation clearly goes against the CHRMAP Guidelines (WAPC 2014a).

The MCA Criteria has three defined categories.

- Acceptability Criteria. This requires CHRMAP to analyse the Social & Environmental impact.
- Feasibility Criteria. This requires CHRMAP to analyse the effectiveness & practicability of managing the risk.
- Financial Criteria. This requires the analysis of the cost, to protect & Maintain verses the cost of lost revenue.

In no way could an analysis of Siesta Park using these guidelines & criteria be formulated to obtain a retreat policy. The City is clearly adopting a policy that goes against the MCA Criteria & the CHRMAP document does not adequately define the reason for this change in policy & we urge the City, its Planners & the Councillors to protect Siesta Park at all three timelines.

Assets & Values

In the introduction of the CHRMAP, item 1.5 clearly outlines what is considered as Assets & Values & they include.

- Natural features such as Beaches, Dunes & native vegetation.
- Land in both Private & Public ownership.
- Building & Structures.
- Infrastructure such as, Drainage, Water, Electricity, Communications, Sewerage & Gas.
- Roads, Carparks, Paths, Beach Access & Ramps.
- Structures such as, Jetties, Sea Walls, Boat ramps & Groynes.

Siesta Park is only deficient in not having, sewerage, gas, Public Facilities & a boat ramp. It complies with the required asset base under the requirements includes a large native reserve to the east & an important Tourist Resort to the West. The fact that it does not have a road in front of homes is not a reason for the policy not to protect. It is a totally unique coastal area & should be protected at all times.

The beach & facilities are well used by the general public including walking, bike riding, swimming, fishing from the groyne, use of the ski area, as well as at times large numbers using the beach east & west of the groyne. The Siesta Park Resort ensures that there are a substantial number of tourists using the jetty, groyne & beach. It cannot be classed as owners having a private beach.

Under these guidelines there is a strong case to ensure that the beach, dunes, groyne & residences be fully protected.

Taking into consideration that the City will allow the total destruction of a prime area of pristine beach, sand dunes & the 10HA of reserve one would question whether this matter should be referred to the EPA for their assessment prior to the implementation of the CHRMAP policy.

Inundation

It is well documented that global warming is having a severe effect on the environment & that there will be an increase in sea level as a result of our changing & increasing temperatures.

All engineering is currently calculated on a 1–100-year event & experts have been able to accurately calculate the effect of such events. To adopt a policy of 1-500-year event is in excess & unrealistic, is providing subjective calculations on the sea level rises & Storm events, which cannot accurately be determined. The City should not adopt this policy as it is only based on the worst-case scenario. To make changes to Planning requirements on the Residences of Siesta Park based on this subjective information is irresponsible & will only lead to challenges & possible litigation.

In 1978 cyclone Alby travelled down the coast making land fall around Bunbury & Busselton. The CHRMAP document nominates that the sea levels increased to 1.76mAHD during the storm & that cyclone Alby is a 1–200-year event. The document also nominates that the required floor levels would have to be 3.4m AHD during this event.

We all over-came the storm events of Cyclone Alby & to my understanding no houses at Siesta Park were lost. Increasing sea levels added to Alby that MAY happen within the next 200 years should be the modelling that the City should be basing its predictions on not a 1–500-year event with unrealistic predictions.

A 2.9AHD sea level increase as nominated in the CHRMAP is 65% greater than Cyclone Alby & we would suggest that if the City of Busselton were to experience a storm event of such an increase in magnitude that there would be very little left of any building in the City. Water from this event would eventually reside (as did ALBY) but this would be the least of anyone's problem. I don't know what wind speed one would be expecting to achieve such a rise in sea level.

The modelling, whist requiring a 1–500-year event, nominates that the sea level would rise 2.9m AHD, with a required floor level of 3.8m AHD. However, the City is happy to allow floor level calculations in other areas of the City to be 3.0AHD & 3.4 AHD. To not have adequate Scientific Studies completed for Siesta Park, regarding the requirement for property heights to be 3.8, or 3.4, or 3.0 clearly shows the inadequacy of the CHRMAP & no decisions on Planning restrictions should be imposed without this vital information. To do so is irresponsible.

Building codes & drainage engineering are not being calculated on this 1–500-year storm event & we are very sure that the City of Busselton are not planning to dig up all of the storm-water drains & reinstate them based on the increase in water that will flow as a result of this 1–500-year event. An absurd proposition. So why impose such onerous modelling in the CHRMAP?

We need some common sense to prevail & assume a more realistic sea level increase & a more realistic storm event. We also need the study completed to correctly establish a required Floor Level. Then any required Planning amendment could be considered & a more realistic inundation model be provided. The modelling is obviously based on the worst-case scenario, modelling also should be provided on a more realistic set of events so both models can be compared. We would acknowledge that there will be a storm event that will happen & that may impact our houses with coastal flooding, however the water will reside, owners will clean up & reinstate their properties. There is no need to impose onerous Planning changes & conditions & these conditions are only imposed on the property owners of Siesta Park & Marybrook.

The City will be required, at some stage to provide the necessary coastal defence to protect Caves Rd & or any other inland property & if this infrastructure will be provided in the future, why would the City's recommendation be Retreat for Siesta Park. Start the protection at the current beach. I cannot imagine what this pristine area will look like with houses being slowly taken by the sea, houses being demolished & a totally unusable beach

area for tens of years. The effect on tourism, the environment, the use of the beach & what Busselton is distinctly known for will be severely impacted & this should be taken into consideration. The cost to the City will be immense.

Taking into consideration that there is a coastal strip of land that exists in Dunsborough seaward of Gifford Rd that has a substantial number of privately owned properties for rental & also owners use. None of these properties have a road in front of them & the FFL of the units at Geographe Cove are 3.2m AHD & as low as 2.9m AHD. We know we owned one. There already exists in this complex a substantial problem with drainage, which will only get worse in years to come with rising sea levels. Why doesn't the CHRMAP also recommend a retreat policy, SAR & Planning Restriction on those land owners, there is no public asset in front of their land. They are classed as short stay accommodation for tourism & there are many owners in Siesta Park who also have their homes for rental for tourism. A clear case of singling out Siesta Park & Marybrook.

Community Survey & Consultation

The City commissioned Research Solutions to conduct a survey to determine what people most valued about the coastline. The findings were that people's values & requirements were, "handing the coastline to our Children & Grandchildren in the same & or better state than it is now". The findings also found that North facing beaches were of high importance.

Over 53% of people surveyed used the beach at lease once a week in walking & jogging & that is what we as residences in Siesta Park experience every day. Large numbers of people use the beach for their recreation. How & why can the City conduct such a survey, include it in the CHRMAP document & then ignore the value of Siesta Park & allow it to retreat?

The CHRMAP document singles out Siesta Park & Marybrook as the only area to be allowed to retreat & yet in the preparation of the document there, to our knowledge there has been no consultation with the major stakeholders (the residence of Siesta Park). The document nominates that it engaged with "External Stakeholders" & established a Steering Group, in the preparation of the document & yet no-one consulted the residence of Siesta Park, the most affected area. There have been assumptions, predictions & recommendations made by the City that seriously affect our properties, values & way of life without any consultation & many of the owners of Siesta Park were totally unaware of the existence of the CHRAMP document & the resulting implications.

No-one would suggest a similar imposition of restrictions on an Indigenous Community & or a heritage listing of a property (etc) without firstly consulting those directly impacted. A total failure of the City to engage the community & its rate payers, which under this CHRMAP document will impose severe restrictions on the residences of Siesta Park.

The consultation process thus far is totally inadequate, given the restrictions & policy to retreat that are recommended by the City. This has been articulated to the City by many people at the meetings that have been held. May I suggest that this exposes the City in any litigation that may result from the introduction of the CHRMAP policy.

Planning Implications

The Planning Response & Recommendations imposes obstructions & conditions on the owners of property in Siesta Park & Marybrook that are not imposed on any other community within the City of Busselton. These proposed restrictions are onerous & we request that proper consultation be conducted with the relevant stakeholders to establish a path forward. It is inconceivable that the City imposes such obstructions without a consultative process that fully explains & documents the need for any changes that may be required. The CHRMAP does not comply with this in any way.

To restrict development approval & or only grant a limited approval that lapses no later than 1st July 2070, will seriously affect the valuation of our properties, our ability to sell, our ability to develop & maintain our properties & therefore the way of life that we enjoy at Siesta Park. The document also does not state what will happen to the properties & or the development approval once the lapsed time is concluded. This restriction cannot be included in the final submission to the Council & needs to be totally withdrawn.

There are a number of landowners that have already installed sea walls to protect their properties from storm events & there are currently applications to the City for Development approvals to install new sea walls. This has been an acceptable situation in the past with the associated engineering, design & required approval being obtained by the landowners. There will be in the future, a requirement for those existing walls to be maintained & or upgraded & landowners should have the ability to protect their properties with the required approval & design sanctioned by the City. A pragmatic & sensible solution should be sort by the City.

Sea walls that are currently being designed by qualified coastal engineers, have been done so with an expected life span of 25 years & we find it absurd that the City should reduce the life span of that wall to 10 years. We all should be able to protect our homes & land & the City should be working with landowners that will be affected, no matter who pays for the structure & or who requests assistance.

Under the heading of "Key Issues & Key Rationale" it states that "There is the absence of a substantial foreshore reserve means that protection from inundation is not practicable". This could not be further from the truth. The coastal strip from the Siesta Park Groyne to Lennox River outlet have only a small number of properties that are restrictive in providing adequate access to the beach for the City to provide the required protection. Many of these properties have a purple title with their boundary at the high- water mark. It is the responsibility of the City to work with those owners to gain the necessary access & or as suggested in the CHRMAP acquire the land to enable the City to provide the appropriate protection. It is irresponsible to use this excuse as a reason to adopt the policy of Retreat for Siesta Park which has a large wide & assessable beach front.

We request to be treated like all other land-owners in the City of Busselton. Remove ALL Planning Restrictions.

Special Area Rate

The Financial Response for both Marybrook & Siesta Park suggests applying rebate to "Fully fund works required to protect properties from coastal erosion hazard". Again, the CHRMAP have singled out the residences of Marybrook & Siesta Park imposing conditions that are not imposed on any other land-owners in the City of Busselton. All other land-owners will have a 2.0% higher differential rate considered by 2030. The only other differing area is Locke Estate where the Lessees will be required to contribute 50% with the balance from the State & or Federal Governments.

The CHRMAP does not provide residence with information as to when this SAR is to be started & or an indication as to the monitory amount that will be imposed & how much money will be required over the foreseeable future.

Whilst the imposition of a SAR is not palatable, but there may be a requirement for it to be introduced to adequately protect our land & homes at some stage. Again, there has been no consultation with the stakeholders by the City & we would request that this be conducted prior to the final plan being submitted to the Council.

As landowners we pay rates like any other resident in the City & as most of the properties in Siesta Park are Rental properties & or Holiday Homes, we also pay Land Tax. The value of the properties on sale have also netted the State Government with substantial revenue in the form of Stamp Duty. Therefore, a common-sense approach & or suggestion would be that the State Government, City of Busselton & the owners all contribute to the protection measures. Not just the landowners of Siesta Park.

Review of the CHRMAP Policy

Recommendation 6 suggests that the City provide an annual update to the community & relevant stakeholders. Recommendation 7 suggests that the CHRMAP be subject to schedule periodic review at least once every ten years. This section of the CHRMAP is totally lacking in detail as to whether that all of the proposed Planning restrictions placed on Siesta Park will be rescinded if the sea levels do not rise to the suggested levels.

The CHRMAP also does not address Industry & the World's efforts to achieve a net zero emissions by 2050 & new emission targets to be set for 2030. Any review should be taking these important milestones into consideration to give clarity & assurances to owners.

Cost Implications to Land-Owners

In its current format the CHRMAP document provides no future to the residence of Siesta Park & Marybrook. The proposed Planning Restrictions, the Retreat Policy & the suggested imposition of a SAR, all severely reduces the property values & for many the ability to sell their asset in the future.

What this decrease in property value as a percentage amount will be, only time will tell. But taking into consideration that the average of property value would be in excess of $4.0m one's individual loss in value would be significant.

Also, we would suggest that if the CHRMAP policy is implemented in its current form, that insurance on our properties will be, extremely expensive, extremely hard to get & or we at some stage not able to attain insurance rendering our asset virtually valueless.

As rate payers we would expect the City to take this into consideration prior to imposing conditions on owners.

Through the adoption of the Retreat Policy the City will commit a pristine environment together with in excess of $1.0 billion of private asset & State & City infrastructure to be totally destroyed. This not only includes the residential housing but also includes, roads, water & electricity assets, cycle ways & natural reserves etc. The CHRMAP does not address how the City intends to fund the compensation for Landowners yet alone what would be the cost of lengthy & retracted litigation in the courts over valuation of both homes & land & the disputed compensation arising from a retreat strategy.

Steering Committee

Taking into consideration that the City to date has not consulted the major stakeholders we would suggest that a Steering Committee be established to consult with the owners & the Cities representatives to review the CHRMAP from all sides & to formulate an outcome that takes all views & requirements into consideration.

The consultation process thus far has been nothing but an information meeting where the residence attending listened to a re-hash of the CHRMAP document & then had little time to ask questions & or make comment.

This is not the way a democracy & or consultative process should work. It is not acceptable to have a policy with such drastic implications thrust on the owners of property at Siesta Park without the ability to adequately be consulted & listened to. Only being able to provide feedback in this form is unrealistic & unreasonable.

We request that the CHRMAP is not finalised & does not go to council before the necessary consultation with owners be undertaken by the City & this must include the study on the required AHD level for floor levels. There is no need to rush into the implementation of a CHRMAP we have many Months & Years to get it right.

Summary

It is clearly obvious that we, the owners at Siesta Park are extremely disappointed with the outcomes & recommendations of the CHRMAP document & the processes that the City has employed. The lack of consultation process & the fact that many of the landowners were totally unaware of even the existence of the document shows that the process undertaken

by the City leaves much to be desired, especially taking into consideration that it is the recommendation of the City that we sacrifice our asset & this clearly goes against the guidelines.

We would require the restrictive planning conditions be removed from the document & there be a requirement that Siesta Park be protected at all time as per the guidelines & as is the case for all other landowners in the City of Busselton. Any change to our way of life & or value in our asset should be taken into consideration by the City & should go through a consultative process before implementation of the CHRMAP by the City.

At no stage would we want or accept the City removing any part of the Siesta Park Groyne without a significant community consultation process backed up with scientific evidence informing the landowners of the reasons why, the implications & the necessary assurances of the protection of our properties, the beach front & sand dunes. Many of us have purchased our properties with the knowledge that the groyne provides a substantial protection from storm events & that it provides a pristine beach for all to use. The removal & or the reduction in length will only result in protracted litigation for the City, as it will potentially take away what we currently have. We will not stand idle to see changes to the Groyne that will have an impact on our properties, way of life & asset, so the reserve West of the groyne does not reside. The City needs to provide coastal protection to the reserve as an independent issue.

The variance between the cost to protect verses the cost to compensate owners is extreme & we would request that the city take this into consideration. The City's position in the current CHRMAP proposal, in our view defies logic is unfair & is unreasonable

We look forward to a positive result & constructive dialog with the City to establish a working environment & outcome that considers all.

Regards

Rod & Rhonda Hitchins

SUBMISSION 12

inheritance gained from the insight of their forefathers 70 years ago. From a rating perspective, Council would benefit from receiving income from 6 properties instead of the present 2 if we were able to rationalise the size of those two blocks. Planning Response (8) of imposing a time limited approval to lapse after July 1, 2070 is a further attack on the landowner's rights and should be removed from the CHRMAP.

With our Lot 34, Dad had the foresight to build all improvements on the land back behind the 3rd dune as compared to most recent additions (from 30 years back) who tended to build on the 2nd dune. Over the years, we have raised the 2nd dune 300mm and continually add sand and vegetation to the foredune to help with our own protection. Under the SAR proposal we would be further disadvantaged, by having to pay an extra rate when we would be one of the last properties affected from any sea encroachment because of our setback and remedial work.

The extended family also have ownership of Lot 66, a 20m wide stretch of land on the seaward side of all the blocks created in 1964. Council collects an annual rate on this land however we have zero chance of it being permitted to be developed for any residential purpose.

The CHRMAP as drafted treats the landowners of the Siesta Park-Marybrook precincts as unequals compared to the equivalent landowners close to Geographe Bay. As the meeting vote showed, we all call for that to be corrected.

David Couch

532 Caves Rd, MARYBROOK.

SUBMISSION 13

Submission in response to the city of Busselton

Future Coastal Hazard Risk Management Adaptation Plan
Draft February 2021

This submission is prepared for the Busselton Mayor, City councillors and future planning and policy team.
2 Southern Drive, Busselton

Prepared by Ross Stanley & Roz Stevens of 408 Caves Road, Siesta Park.

Executive Summary

The draft CHRMAP has given us an insight into future potential problems faced by climate change, resulting in the overall sea level rising. Unfortunately it has brought up many unresolved problems including technical, planning, legal etc.

My immediate thoughts are summarised below and will be expanded on later in the submission.

1.The SPP2.6 I believe to be flawed in certain areas resulting in the sea level report being excessively higher than it should be.

2. Attempting to put in place an immediate firm policy on the sea level change projected so far into the future is inaccurate as it may or may not happen.

3.Treating Siesta Park and Marybrook suburbs differently than the rest of Busselton.

4. Timing issues.

5. We are stakeholders like everyone else and are opposed to a lot of the recommendations

6. Legal.

1. The SPP2.6
Whilst originally reading the executive summary of this document I can understand why the State Government agreed with it, but upon closer inspection, I believe this document to be flawed, as the net result of the predicted sea rise over the next 100 years is .9 of a metre. All other scientists were more conservative and agreeing on a lower level.
I then examined the author's resume. His qualifications were well represented, but historically 80 to 90% of his working life has been on dredging only. As a result I feel there are better people out there and better qualified.
The erosion modelling is outdated and there appears to be numerous inconsistencies, as such we request that the model should be handed over to highly competent industry experts so that it can be independently assessed and re-evaluated.
Interestingly, at our last meeting your technical experts dropped the proposed floor level down from 3.8 metres to 3.4 metres. My interpretation of that decision, tells me the maximum sea rise is now recommended at .5 of a metre. That makes good sense and is one less disagreement that needs to be sorted out. If the planning department would like to talk with me on the shortfalls of the SPP2.6 I am more than happy to go through it with them.

2. Forward planning.
I have a problem when a 100 year fixed policy is in place to cater for future sea rises based on long term forecast assumptions. I don't know of any other council policy that has a fixed design to last for 100 years into the future.
It is unreasonable to apply high impact/low probability events as the cornerstone for future town planning responses especially when the variable rate (rate of sea level change) is so slow.
For this to work with any sort of success for all stake holders it will need to be completely transparent and flexible with mutually agreed terms. I would have thought with an over riding document being subject to sea change. To be honest we are really attempting to cater for all stakeholders in documented form for a future moving target.

3. Treating Siesta Park and Marybrook differently.
Because of the inconsistency with the city's MCA guidelines and the lack of transparency I cannot understand why this decision has been made. I reside on a high water mark title (purple title) located at 408 Caves Road, Siesta Park. I can only assume the difference between Siesta Park, Marybrook and all the rest of the sea rise affected areas is one of three reasons:

. We have no public assets as such.
. High water mark titles.
. The owners are deemed to be wealthy or affluent.

It has been suggested to me by my fellow rate payers that the city wants to remove the beach from the High Water Mark titles for public use and intends to do this by stealth. On reading the document I believe this is being done by designing the outcome to obtain the city's objective of taking control of our foreshore. Also we could be deemed to be wealthy or affluent, some decision makers may subscribe to the cutting down of the tall poppy syndrome. Unfortunately it appears this is very prevalent in Australia.
I wouldn't like to believe this is the case, but why the lack of transparency and inconsistency with the MCA guidelines?
Please explain to me why we are being treated differently ?

Interestingly there were no councillors in attendance at either meeting. This surprises me when on the CHRMAP projection, nearly half of the business centre of Busselton will be under water. Including all along the coast. Surely, *if* the draft is accurate, there's not a greater problem facing the future of Busselton and other surrounding low lying areas.

4. Timing issues.
The CHRMAP has taken 10 years to produce and clearly includes a lot of time and cost in the final draft document. Please realise we are discussing the future of the most important asset in most peoples' life which is their personal residence. In a lot of cases it is where they raised their children and likewise have a deep emotional attachment. Also it represents a large part of a couple's working life to pay off their mortgage. I would have thought a lot will still have outstanding mortgages. At this stage we have had two information and question time meetings. The information presentation time took up most of the available time at both meetings with very little time remaining to ask questions, before we were forced to leave. Clearly the question times were too short and it appeared to me the city wanted use this method to limit the questions. Considering this is not going to take place for many years into the future, I don't understand why ratepayers must urgently answer questions of major importance immediately. Also it doesn't allow ratepayers the ability to think over the presentations and then be able to come back and ask carefully thought out questions. This is not acceptable considering it is possibly the largest asset the ratepayer owns. Also many of my fellow ratepayers couldn't attend the second meeting because the notice for the meeting was too short.
We certainly need more future meetings. I suggest an answer and question time is at least 3 hours. Also I suggest allow at least 6 weeks notice of any new meetings.

5. Stake holders interesters.

Unfortunately from each of the two meetings I came away with the clear opinion we were being bullied and rushed along into making decisions. On talking to neighbours who also attended those meetings, very similar opinions were expressed.
It is clear to me decisions are be made behind closed doors, giving us the chance to comment, but not be involved in the decisioning making process. I cannot see how this process is fully transparent. Because of the above I do not believe the city is adopting a collaborative approach. The steering committee does not have one ratepayer representative or suitably qualified nominee involved, therefore the steering committee must be of the opinion we have nothing positive to give. I was of the clear opinion the council was there to represent ratepayers interests, especially when we collectively are the major contributor of the city's source of funding. I have problems when laws do not allow ratepayers near the coast to protect their properties, then allowing the city the right to bulldoze these houses down if they feel it may be a danger to the public. If these sort of laws are not made absolutely clear it is a recipe for disaster.
It was pointed out to me by a fellow ratepayer at the last meeting that a farmer can protect his main asset by installing a fire break around his farm, yet we have no right to protect our main asset from the ocean. Please explain to me how this is a fair and collaborative approach.
The words being bandied around like *community, consultation, embrace, meaningful, collaborative, transparent*, do not appear to be part of the city's agenda and are only paying lip service and not carrying out the honest meaning of the above words.

6. Legal

The city is given guidelines, if these are in any way misinterpreted to the affected ratepayers, resulting in it being unfair, unreasonable, with inequitable outcomes it could lead to legal action.
Please remember a legal agreement is not a ratchet or a one way agreement, it operates both ways. If we do not obey the agreement, the city has the right to legally charge us accordingly. Likewise if the city and its councillors don't fulfil their obligations in an honest, diligent and unbiased manner, on behalf of the ratepayers, we have the right to activate class action against the city and the decision makers, both individually and collectively.

We note that our submission is not exhaustive and only considers key matters and we therefore reserve our rights to prepare more detailed submissions, including applying for extensions of time to do so.

Signed: Ross Stanley

Date: 20/09/2021

Signed: Roz Stevens

Date: 20/09/2021

SUBMISSON 14

Sent: Wednesday, 22 September 2021 11:11 AM
To: Enquiries - City of Busselton <city@busselton.wa.gov.au>
Cc: Councillors / SMG and Governance <Councillors@busselton.wa.gov.au>
Subject: CHRMAP

⚠This message was sent from outside of City of Busselton.
Please do not click links or open attachments unless you recognise the source of this email and know the content is safe.

Re City of Busselton **FUTURE COASTAL HAZARD RISK MANAGEMENT AND ADOPTION PLAN**

I am a resident of CoB residing at 402 Caves rd Siesta Park (a property being part of 9 purple titles comprising some 360 contiguous meters of high water mark titles)

I am most concerned at the City's proposed adoption of the CHRMAP as it focuses on the Siesta Park /Marybrook (SP/M) coastline and submit the following for consideration.

- I respect that the City is obliged to prepare a CHRMAP however do not believe due process has been followed with appropriate pre resident consultation . In particular I fail to see why the City have isolated The Siesta Park /Marybrook coastline as their primary focus on coastal erosion when the *Department of Transport* Document does NOT mention SP/M as a coastal erosion 'hot Spot " as it does for other areas of Busselton.
- My observation is that the SP/M coastline is less affected by erosion than most areas of Busselton and that the private coastal management structures have been very affective over the past 30 years at NO cost to the City and its rate payers. (In my case 70 years of coastal protection structures have resulted in minimal land loss since they were constructed)
- Accordingly ,why would the City now propose to create a continuous Foreshore Reserve that the *Infrastructure Coastal Management Response* states will "protect ' buildings and construct a buried sea wall east of Lennox River drain and west of Locke Swamp Drain . (This would well suit the City in protecting the Locke Estate that they manage and lease to church camps and others)
- *The Coastal Management plan* does not mention this wall and the cost is proposed to be born by "beneficial owners ". This is contradictory when elsewhere in the document they propose to deny the "beneficial owners " (Us landowners) their right to privately protect our foreshore and land at our cost .
- A proposal to create a foreshore reserve could not be done in our location without some form of land acquisition.Have the City factored this into future funding requirements and considered the considerable cost yet alone legal action in defending our legal land rights .
- Please in considering any issue relation to the Siesta Park foreshore take into account the legal title rights of the 9 purple title, high water mark owners who will vigorously defend their position individually and collectively.
- My interpretation of the CHRMAP proposal to create a foreshore reserve to accommodate the City controlling coastal inundation by constructing a sea wall and series of groins ,is that it will involve a special area rate (SAR) for the affected foreshore land owners. WHY ? When in the affected SP/M foreshore area, landowners have successfully protected their properties at their cost.
- Granted, a coordinated approved structure plan should be implemented for landowners to carry out this work but it does not warrant the COB acquiring land to create a reserve ,to create a SAR to protect private foreshore properties .

I respect that the City are required to implement a CHRMAP and this is probably an

inevitable but tiresome task however we as coastal landowners can not sit by and allow our property values to be eroded by a plan that takes away our rights to protect our properties and have development approvals limit to 2070 when newly constructed infrastructure can be required to be removed . (*The Multi Criteria Analysis* identifies that SP/M should be protected until 2120 ,the same as the rest of Busselton coastal communities)
There are a multiple of issues that the proposed CHRMAP raise and I sympathise with the City having to deal with yet another major issue. However I encourage any proposal leaves foreshore protection in the hands of landowners directly affected where possible.

Regards,

Geoffrey E. Hanson
Director
geoff@hansonproperty.com.au
(0418926290)

SUBMISSION 15

I am currently the property owner of 59 Siesta Park Road I have been visiting this area my entire life, as my parents were previously property owners on Siesta Park Road including 45 Siesta Park Road and my current property. In 2001 I purchased this property back from the person who bought it from my parents, so I have a long history with the area. I have been involved in property since 1965, both for my own residence and for my development business.

I am not going to talk to the accuracy of the presented information as others with far more knowledge in those areas will do that, however the science presented to me seemed to be lacking and in business terms what I would call an "unapprovable package".

In the early 1960's there were wooden groynes running north-south to the east of Siesta Park Holiday Resort and an additional sea wall was constructed east of Siesta Park Holiday Resort by all the landowners along the beach (I do not remember where it stopped) this seawall failed.

Frank Higgs took up the fight to protect the beach (his sister lived in the most eastern house of Siesta Park Road), the groyne was to be constructed to the east of house. The groyne was constructed in two stages (due to expected time for the weed and sand to fill and a government funding issue) the rocks used were sourced from Capel Sands, the mineral sands company water cannons could not wear down these rocks, so were thought appropriate. As it turned out the roughness of the rocks has proven very successful in making the groyne operate successfully.

A group working for the Public Works Department were charged with the task to study the sand movement in the bay around the time of the groyne construction (I do not know when the started studying the area), they may have existing relevant information on this topic. Sometime in the mid 80's the group was disbanded. To this point none of that (potentially vital) information has been included in the 3 presentations I have seen at the council offices. This is of concern to me.

Prior to the construction of the groyne, I recall one winter storm roughly in 1960's where the waters edge was near the tree on my current property pictured to the left of the photo below. This is only 15m from the property boundary.



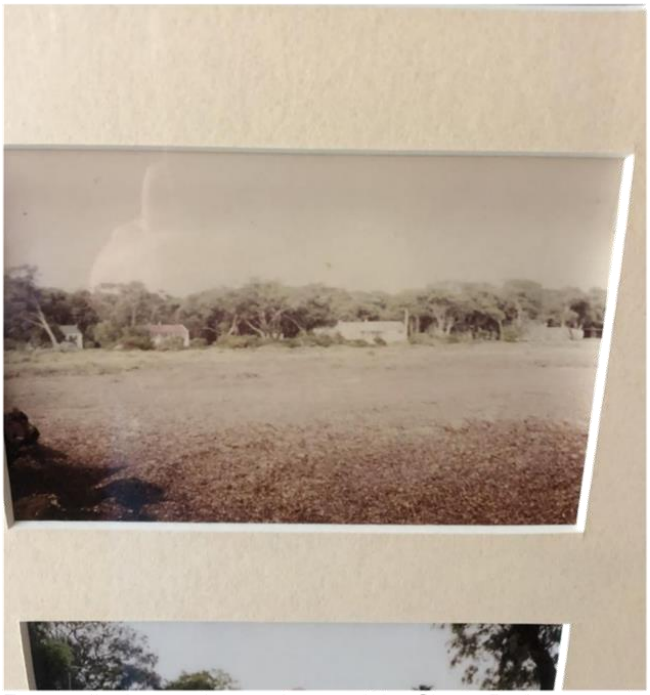
When the groyne was constructed, it was well publicised that the way the groynes work is that for every 1000 feet it fills to the west, it will eventually fill 100 feet to the east and it will not fill to the east until it has mostly filled to the west.

During a winter storm around the late 70's, early 80's the first of the sand was dumped east of the groyne and the process has slowly continued since.
The other critical part to the groyne's performance is the movement of seaweed. The weed will be left to sit on the beach (and stink) after which time the rotting weed it will be covered with sand and today's beach is the result.

The below photo from the winter after the groyne installation show the masses of weed dumped on the beach. With the photo after showing how close the weed come to the houses along Siesta Park Road, as you would be well aware, the

potion of the current houses has not changed much.



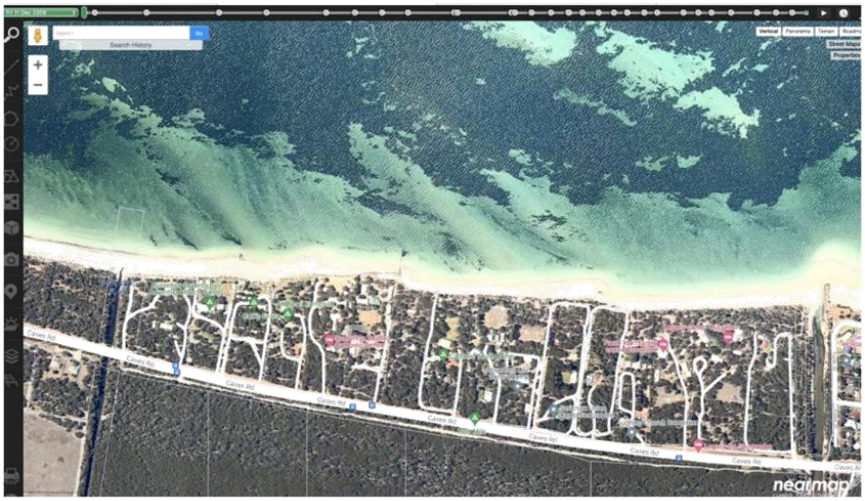


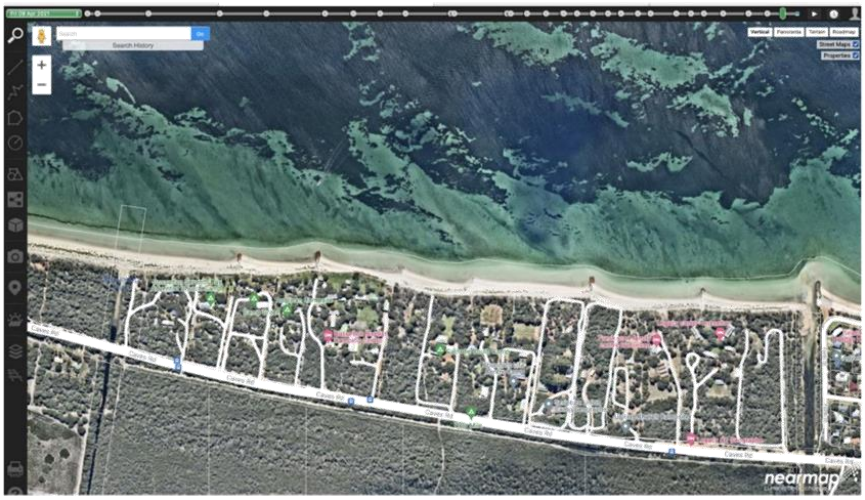
Eventually the sand moved around the Siesta Park groyne to the east towards Locke's Estate Drain & the groynes beyond. Locke's Estate drain is now completely blocked & has been so for approximately 15-20 years & is covered with green algae from years of stagnation. The sand then presumably continues to move east if I understand the advice of the original public works department engineers and the present scientists.

It has always been a concern by the residents of Siesta Park Road that the land owned by the government and controlled by the shire east has never been protected. Now the camps have been protected (with the installation of groynes) Locke's estate is now protected. It would be a very courageous of an expert to guarantee that changing of the groyne at Siesta Park would contribute to the protection of the beach east and west of us.

The below nearmaps photos show the change in the beach since 2009 (where their aerials go back to) showing the changing beach. It also shows that groynes effect to the east is minimal over that period.

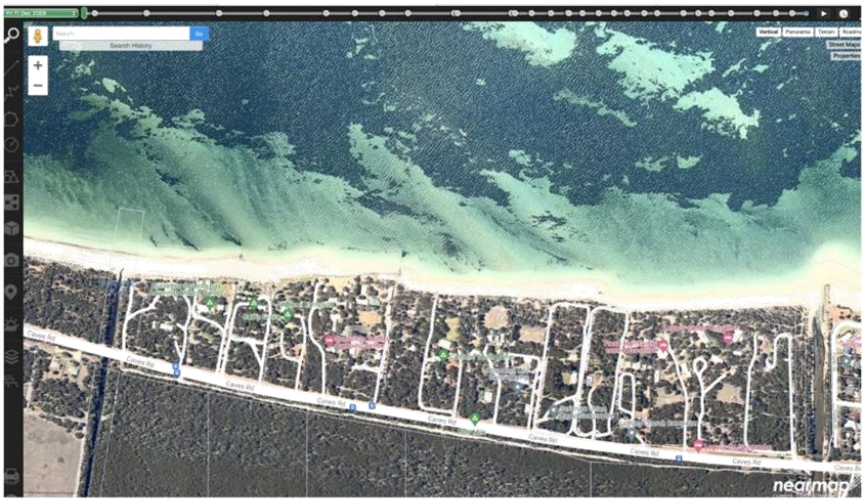
2009

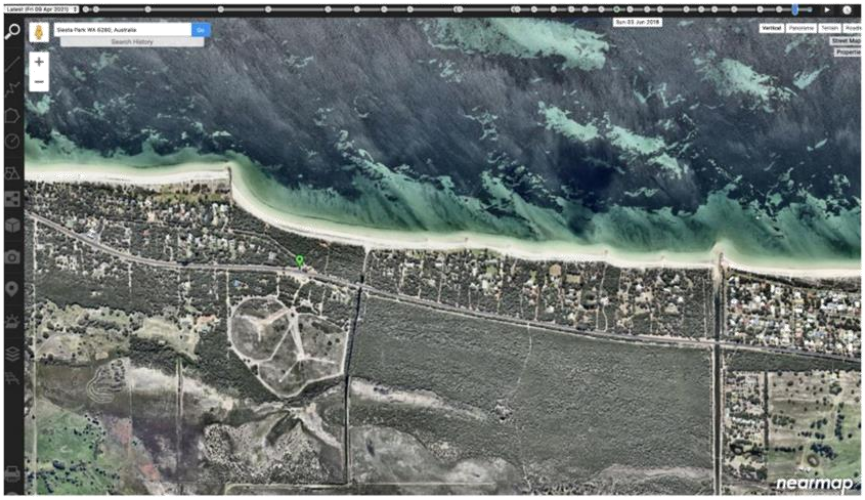






2021





West of our property, where the groynes effects don't exist, the idea of having continuous bags has obvious merit and should be supported. However, the failure of the plan will be the government land also needs to be included as part of this action point. From the information presented, the slides shown at the presentations displayed the failure of the bags where the government owned the land and did not 'make good' or the shire was not part of the solution. We understand that the sandbag wall is not a permanent solution and will require maintenance where the groyne does not. The Shire has control of vast lengths of land along the road abutting the beach, protecting their assets; Locke reserve has been given no such protection.

It appears to me that there is still not an iron-clad reason to tamper with the groyne, maybe there is a scientific reason that has not been disclosed, I am still utterly confused by this point. To change a piece of successfully operating infrastructure seems odd without significant reasoning, modelling and consultation with abutting landowners.

When I purchased this property in 2001, one of the items I looked for was finding a property that was close to the water, but still being capable of being insurable. Most insurance companies wont offer insurance if the property is built within 100m from the nominal high water mark. This property (with the help from the groyne) allows that. While I know that certain issues are beyond the scope of a local government investigation, I question how actions can be taken to will lead to a number of properties not being able to be insured with being shown modeling of what the new shoreline will be and presenting that information to effected landowners. While sea levels and climate change may well happen, natures

action to change the shoreline was not decided at a council meeting.

To the best of my knowledge the only landholders pre-existing the groyne is the state government and the associated agencies, all other landholders acquired there land and with the groyne in place. The expectations of the landholders should be considered prior to any council vote and any determinations by the shire. I have been around this area for a long time, which is very close to my heart; a working group around this area would helpful to reach an outcome that allows for coastal protection without needless alteration to existing infrastructure.

Kind Regards,

Bradley and Rebecca Moore
59 Siesta Park Road
0418 918 658

SUBMISSION 16

DR Lee Shore Pty Ltd atf
Lee Shore Trust

Level 1, 1 Station Street, Cottesloe WA 6011 | PO Box 435, Cottesloe WA 6911
T: (+61 8) 6183 4601 | F: (+61 8) 6183 4612

PRIVATE & CONFIDENTIAL

24 September 2021

Attention: https://yoursay.busselton.wa.gov.au/chrmap/survey_tools/chrmap-submissions

City of Busselton
2 Southern Drive
Busselton WA 6280

Dear Sir/Madam

SUBMISSION

428 Caves Rd, Siesta Park | Lee Shore| Draft Coastal Hazard Risk Management and Adaptation Plan (CHRMAP)

We are the owners of a property located at 428 Caves Rd, Siesta Park ("Landowner") and wish to make the following submissions in relation to CHRMAP in accordance with the public consultation process.

We, or our representative, attended the two most recent CHRMAP public consultation meetings for Marybrook and Siesta Park landowners in August and September.

1. **Support and Continued Allowance for Private Coastal Structures with 25 year lifespans**

We would maintain that Council should allow Landowners such as ourselves be permitted to continue to protect our assets provided they meet with reasonable Council stipulated requirements in terms of coastal engineered design and use of materials.

We have separately supported, in other correspondence with Council, our views on Council's 10 year approval policy for private coastal structures which we maintain given the significant capital investment for private owners this should be 25 years. This is well supported by independent coastal engineers where such structures are responsibly designed.

2. Council Imposed Structures – Significant Consultation with Landowners

While we fully support the Council should protect rather than retreat for the Siesta Park area to support Landowners from any future inundation, we would request that:

A. If any Council installed coastal structure for example, a groyne, was to be installed near our Property, we would strongly object to this given the substantial impact this would have on the extent of beachfront/erosion to our beachfront and adjoining surrounds which is vital to our amenity.

B. Full consultation would be made with all Landowners prior to installation of any structure and any levy to support the costs of such a structure would be fair and equitable to Landowners.

C. Landowners who have invested to protect their properties with private coastal structures should be supported and allowed to retain their structures especially given would sit within private boundaries.

D. Consideration of whether Landowners funding their own private structures should not have to pay the same levy towards future Council coastal structures as compared to Landowners who have not invested anything in their properties and will rely wholly on Council Coastal infrastructure.

3. AHD 3.4 to 3.8

For future development and investment in improvements in our property we would submit that the AHD remain at 3.4 for existing Landowners adding to or extending existing improvements. There is a significant cost associated with resetting existing improvements to higher AHD levels and Council should show flexibility on this point for future development approvals.

The Landowner respectively seeks Council's review of this correspondence prior to finalising determination of the of the CHRMAP. The Landowner would welcome further discussion with Council planning executive to discuss.

Should you have any queries please do not hesitate to contact Ben Bartholomaeus of our office on 0405 506608.

Yours sincerely

Denby Roberts
Director/Landowner

SUBMISSION 17

26/09/2021

Busselton Coastal Hazard Risk Management and Adaptation Plan (CHRMAP)

Introduction:

This document has been written by New Property Owners in Busselton, who anticipate retiring to the region after having visited Busselton, Siesta Park and Dunsborough for many years and have become irrevocably attracted to the S.W. coastal lifestyle.

As Perth residents we are coming from a very low knowledgebase as to the history of the coastline and its challenges over previous decades. However, we wish to learn about costal management and how best to protect our investment. After having read the CHRMAP (and admittedly not fully comprehending the technical detail), what did concern us is the lack of protection strategies offered for the Siesta Park MU, and seemingly the area is intended to be a "sacrificial anode" should the expected impacts of climate change and sea level rise be realised over the next decades.

It is with this level of knowledge of the area that we offer the following comments and questions.

Climate change and sea level rise:

We understand that jurisdictions Australia wide are expected to provide CHRMAP reports, but it seems the process by which this is undertaken is with a "hard inevitability". Whilst we are by no means climate change sceptics, we feel it would be good to dovetail CHRMAP planning with other pre-emptive measures to reduce the impact of climate change such as, but by no means limited to, strong moves to renewable energy and carbon storing technologies.

Our interaction with the process to date:

Our first involvement with this process was by way of a letter from the Council inviting us, as Busselton/Siesta Park landowners to an Information session to discuss coastal Management in the region.

CONCERN #1: We would have very much liked to attend this meeting, primarily to commence our engagement with our local community – not realising, at the time, the importance of what was being discussed. Being based in PERTH there was no possibility we could have attended this meeting in person. Our expectation would have been that there was the availability of web based remote access to the meeting (Zoom, Teams WebEX etc) to enable those that could not be present to attend. This was not the case.

Following the meeting there was no further contact, no minutes or summary of what was discussed, and no action plan distributed to the invitees. This was somewhat disappointing.

What seemed to be a matter of weeks later we were alerted to the release of the draft CHRMAP document by way of an article in the Busselton – Dunsborough Mail (dated September 22) and titled "Suburbs wiped from Plan". Our Concerns rose with Siesta Park being mentioned as being excluded from any protection measures after 2070.

Our feeling is that the process is being rushed without appropriate time or communication with potentially affected owners for additional and iterative consultation and discussion.

26/09/2021

Note: As new landowners we have had a couple of informal meetings with the planning dept over the last 12 months. There was never any mention that we should consider the potential impacts of the CHRMAP.

Siesta Park and Public Infrastructure:

The CHRMAP has defined the Siesta Park area as not having much in the way of public infrastructure and LOCAL use, effectively relatively pristine. There seems to have been no consideration as to the attraction and value of this type of coastline to the tourist industry (as well as locals) and the likes of us who have invested in living in this kind of coastal environment. I would also argue that the Siesta Nature reserve and the Siesta Park Resort are both provide public facilities, albeit with the latter privately owned.

Continuity of the beautiful Geographe bay coastline must certainly have value, similar to the expanses of beach in the Kimberley, that, although having limited infrastructure is realising enormous potential for tourism.

Siesta Park – Current Status:

CONCERN #2: As we understand it, Siesta Park is currently not identified as a HOTSPOT for Coastal erosion, (Costal erosion Hotspots in Western Australia information Sheet) but the CHRMAP seem to intend to make it one, simply to provide sand. Robbing Peter to pay Paul is NOT a long-term strategy in our view and biases ratepayers of areas of recipient sand (such as Locke, Abbey and Broadwater) over those in Siesta Park. This seems to fly in the face of one of the key concepts of the CHRMAP, namely equity.

CONCERN #3: Even in the short term we believe there is a plan for works on the Siesta Park groin. The protective groin at Siesta Park is expected to be reduced to provide additional sand supply to Locke, presumably, at the expense of Siesta Park. (CMP Coastal Management Programme). This sounds very much like the 'start of the rot' for Siesta Park and we are a long way from 2070!

Siesta Park – Future Status:

CONCERN #4: The CHRMAP management response highlights the limited public infrastructure in the Siesta Park area meaning this area has limited value, meaning a retreat strategy will have limited impact. We obviously have major concerns of this approach which seems based solely on fiscal elements, whereas the intangible values of the area, such as those mentioned above, are seemingly ignored. Again, an equity issue in our view.

CONCERN #5: Additional Planning approval restrictions for Siesta Park as opposed to other areas which include, among others, "time limited approval" with approval lapsing no later than 1 July 2070.

QUESTIONS: What does the proposed approval restrictions/time limited approval mean for us who are planning on a new residence costing a significant amount? When will this clause be implemented? We do NOT wish to invest millions of dollars into the Busselton Community without ownership in perpetuity, and the ability to protect our investment. Rather than kicking the 'protection' can down the road by having future generations having to deal with the issues of

26/09/2021

protection of our coast we believe decisions and commitment to protect today will provide the best result for our future generations.

CONCERN #6: We are also concerned about the effect the caveats on approval, the 'limited value' the CHRMAP put on the area, and the withdrawal of protection after 2070 will have on the value of our property going forward. Protecting the value of our investment is very important.

CONCERN #7: Inequity with the proposal that the cost of protection measures in the Siesta Park region be borne by the benefiting landowners citing the lack of public access. The beach along the entire Siesta Park area is publicly accessible.

CONCERN #8: We not differences in the level of "Protection" planned for different MU's. For example, The Quindalup MU protection measures are defined to protect Foredunes, infrastructure and Buildings. In Siesta Park, However the "protection" only mentions buildings. QUESTION: Does this mean any infrastructure and/or Foredunes in our area will NOT be protected?

Protective measures:

Many of the Management strategies involve the use of seawalls and/or Groins as required. There is little information on where, when and what impact the construction of any structures could have on the downstream areas as far as further erosion.

In the short term, protect what needs protecting, but not at the expense of areas that currently don't.

Given the above issues, and the lack of sufficient consultation with affected landowners at Siesta Park and we feel there has not been enough transparency in the above process and that the decision process feels rushed. We request that the council continue to accept additional information, provide additional consultation to those who could not be involved in the previous rushed discussions, allow interested landowners to gain further independent professional comment regarding the assumptions of the current CHRMAP and provide the time to feed this back before this document is considered by council. I trust the concerns outlined in this document can be allayed to our satisfaction, and to others in the affected ratepayers who may have similar concerns.

Regards

Phil and Helen Jones

62 Siesta Park Road, Siesta Park.

Email: Indawings@gmail.com

SUBMISSION 18

Submission in response to the City of Busselton's draft Coastal Hazard Risk Management and Adaptation Plan

After reading the draft CHRMAP, we feel that the Plan does not meet the overall objective of the City of Busselton with regards to planning and management of coastal hazards (page 25 of (CHRMAP), in that it lacks transparency, its effectiveness is unknown and extremely difficult to predict and model, and the proposal is inequitable and has a detrimental financial impact on the residents in the Marybrook and Siesta Park areas.

1. **Transparency**

The draft CHRMAP was presented to the Council for consideration on 24/2/2021 and the councillors voted in favour of issuing the draft CHRMAP to the community. However, the letter to residents in Marybrook and Siesta Park was only issued on 17/5/2021, despite councillors voting overwhelmingly in favour of informing residents.

Given the CHRMAP identifies areas and assets that could be potentially impacted by coastal erosion and inundation hazards over the next hundred years, and in light that the City of Busselton has been developing the CHRMAP over several years, why is the City so keen to not only minimise consultation with residents in the Siesta Park and Marybrook areas, given these areas are significantly impacted according to your worst case scenarios and potentially the worst off financially?

In order to gauge the use of the beaches in the Marybrook and Siesta Park areas (which according to Mike Archer (CEO, City of Busselton) quoted on page 3 Busselton-Dunsborough Mail (Wednesday 22nd September 2021) "has relatively little public use of the coast", we would like to be advised of :

- What weight did the survey "City of Busselton Coastal Adaptation Research" conducted by Research Solutions (published in November 2018) have in the decision making and what number of residents in Marybrook and Siesta Park were surveyed?

- Given only 410 ratepayers were telephoned and 49 on-line surveys conducted for the whole of the City of Busselton (representing approximately 1% of the population) it is difficult to understand why the City would place any importance on such a low representation of the population and how and where they use different coastal areas in the City's jurisdiction.

- An explanation of what 'relatively little public use' means.

It is unclear as to why the City has not allowed residents in Marybrook and Siesta Park sufficient time to obtain their own advice and complete any due diligence given the significant financial impact.

There have been numerous building approvals granted along Caves Road in Marybrook over the past few years (including our own home) where the owners have invested (and borrowed) heavily in order to improve the amenity of their property. Surely, the City had a duty of care to flag any potential issues with regards to imminent policy changes and development limitations that could be financially detrimental in the future to the owner/s prior to granting these development approvals?

2. **Effectiveness**

We appreciate that climate change is a major concern for all. Given the Governments around the world are constantly trying to improve industry and the way in which we live in order to reduce our global footprint, how effective and accurate is your modelling over an enormous time period given potentially the situation may improve? Why would you impose a levy (which is unknown according to Paul Needham during the consultation to residents) for these residents only?

3. **Inequality**

The proposed CHRMAP is discriminatory against residents of Siesta Park and Marybrook and places them in a vulnerable financial position. The Multi-Criteria Analysis on page 36 of the draft CHRMAP identifies that Siesta Park and Marybrook should be protected to 2120 – the same as the rest of the City's coastal communities.

Residents in these areas already pay higher rates via a Gross Rental Value.

The decision not to protect these areas appears to be driven by largely unexplained Economic and Policy related matters.

Solution:

- Allow residents in this area at least 24 months to be provided an opportunity to investigate the impact of the draft CHRMAP on their homes.

- If the cost of future coastal management is to be met by the residents in the Siesta Park and Marybrook areas, then public access in these beaches should cease and/or a fee for accessing these areas be introduced to the public.

In summary, we would like an extended period in which to investigate and research the potential impact to our property. In addition, we expect (as a ratepayer) answers to the questions above prior to any policy changes being implemented and reserve the right to raise any additional issues regarding CHRMAP as they come to light.

Regards,

Cameron and Shannon Prentice
546 Caves Road
Marybrook WA 6281
Ph: 0418-934-918

SUBMISSION 19

From: Paul Needham
To: Angeline Dewson
Subject: FW: Submission regarding the Draft CHRMAP
Date: Tuesday, 28 September 2021 8:34:09 AM
Attachments: SO GO Submission and Comments CHRMAP.pdf

Can you please put into YourSay

Paul Needham
Director Planning and Development Services
p: (08) 9781 0476 m: 0428 959 666
Paul.Needham@busselton.wa.gov.au

City of Busselton
2 Southern Drive, Busselton WA 6280
Locked Bag 1, Busselton WA 6280
p: (08) 9781 0444
www.busselton.wa.gov.au

"Where environment, lifestyle and opportunity meet"

From: Shelley O'Brien <shelleyobrien72@gmail.com>
Sent: Monday, 27 September 2021 9:55 PM
To: Councillors / SMG and Governance <Councillors@busselton.wa.gov.au>
Cc: garyob57@gmail.com
Subject: Submission regarding the Draft CHRMAP

⚠This message was sent from outside of City of Busselton.
Please do not click links or open attachments unless you recognise the source of this email and know the content is safe.

Good morning
We trust you all had a relaxing long weekend.
As long time residents of Busselton, this is our first personal submission to council. Normally my husband Gary and I feel that the City of Busselton Council and Staff mostly do a fine job in directing our city and have achieved some great results for us in our ongoing development, albeit not without some controversy of late.
The recent release of the draft CHRMAP and it's potential effects for Siesta Park and Marybrook residents and landowners has us rather confused and feeling perplexed at the lack of consideration for a large section of ratepayers, and in large parts, a lack of rationale for the document planning response. It is raising issues of lack of proper consultative process and questionable evidence behind the restrictive planning and "possible managed retreat" to be imposed on these selected management units.
Gary and I hope that you will take the time to read our submission attached. This has been submitted via the Your Say portal at the City. At only 4 pages it is a lot shorter than some of the perhaps hundreds that are going to be submitted in what is becoming a very controversial issue. It will no doubt become a major issue for council and we would assume as councilors you would want to be across it.

In summary

- We are concerned at the speed at which a final CHRMAP is being proposed, and as a 100 year document, what hope we have in altering a course of desertion from the City of Busselton in their protection of selected MU's.
- It has failed to give suitable rationale for a potential managed retreat in these selected MU's from 2070 .
- We believe the draft CHRMAP has overlooked the environmental value of the Siesta Park and Marybrook MU's as part of an integrated continuation of the whole of Geographe Bay that currently sits in a fine balance and is vulnerable to knock on effect.
- It has overlooked the value and consideration of the landowners and ratepayers that reside there.
- It raises issues of concern for future ability for landowners to protect their own property, whilst the City commits to doing nothing to protect.
- It raises concern of future land and property values in the selected MU's.
- Given the considerable detrimental consequences that landowners in these MU's are to be faced with, the consultation process has been inadequate.
- It does not acknowledge the considerable public space that exists including the over 5KM of beaches so highly valued by residents and visitors as demonstrated in earlier preliminary survey, that are in these areas. This would include the walk/cycle path that also continues from Busselton to Dunsborough through these 'expendable' MU's for some 8 km's if you include the possible retreat zone of the Locke Estate.
- Caves Rd exists within the retreat zone from 2070. Is this also expendable?
- The "other factors" and "Integrated Protection Approach" referred to at the 2nd September Community Information Session (CIS) are still yet to be defined with transparency and clarity.
- An underlying plan to remove part or alter the Siesta Park Groyne seems without clear rationale and is in fact to be questioned (and answered) with current accretion evidence to it's east to contradict it.
- Why were current google earth arial pictures not included in the presentations at the CIS to show what is actually happening now?
- We are concerned that whilst other CHRMAPS have clearly utilized the Guidelines and been developed by external consultants, we wonder at our process here in our LGA.

Kind Regards

Shelley and Gary O'Brien
74 Siesta Park Rd.
PO Box 1220 | Busselton | 6280 |WA
0438 381 790

SUBMISSION 20

Submission to City of Busselton in relation to CHRMAP.

I don't intend to repeat all the words of many of my fellow residents so that those who receive the submissions are not overwhelmed by reading the same thing over & over again. The repetitive nature of comments in these submissions surely must tell the receivers that there is significant objection to a number of key initiatives in CHRMAP. The process of CHRMAP & it's presentation by the City of Busselton to its residents was, in my view, very unprofessional & discriminates against a number of locations. Community feeling about this has been provided very adequately by submissions from other residents, which I have read. In general, it is one of almost disbelief, certainly anger & a determination to fight the inequities in this CHRMAP long & hard. These residents have put many hours (literally hundreds) into these submissions. They also agree wholeheartedly that we do need to work together to provide the pathway forward to combat the possible circumstances that may lie ahead. I am a resident of Siesta Park & will comment only on this area as it seems to me that each area has its own distinct problems, differences & possible solutions. I have owned this property for only 16 years but since CHRMAP was released I have had many meetings & lengthy in depth conversations with families that have a long term association with the area. These families also have valuable historical photo's & records going back generation's. I have had the opportunity to view a lot of this information. I have also searched the internet for information that would be considered relevant to the current situation to be able to verify certain claims made about the effect of the Siesta Park Groyne when established back in 1965. This comparative information from various periods in time goes back as far as 1941.

To my east is the Siesta Park groyne, a public owned asset installed by the Public Works Department beginning in 1965 when 46 metres was created and a further 91 metres in 1967. These works have successfully protected the housing in this section of the beach as was intended when first constructed. There is a plan mooted for modifications to the SP groyne beginning in October 2025. As I understand this is based upon information provided by Shore Coastal in the Busselton Coastal Management Program (2020-2030) & again on pages 82 & 83 of the CHRMAP document. In the BCMP (2020-2030) the author of this report on page 45 writes the following:

"The construction of the Siesta Park Groyne in 1965 interrupted the supply of sand to this management area (Siesta Park groyne to Holgate Road groyne), resulting in significant erosion, including recession of the coastline at Locke Estate by hundreds of metres. Since that time at least a dozen coastal protection structures have been constructed in this management area, including groyne fields at Locke Estate and Abbey, a training wall for the drainage outlet at Forth Street, protection for the boat ramp at Abbey and the longer Holgate Road Groyne at the eastern end of this management area. During times when Locke Estate or other areas were eroding, this would have increased the sand supply to the region east of these areas."

Basically this means they want to **sacrifice Siesta Park beach** to send the sand east to "wherever it lands". I have provided the information that follows that will assert that it's possible this BCMP (2020-2030) report may be misleading & factually incorrect.

The first sentence "The construction of the Siesta Park Groyne in 1965 interrupted the supply of sand to this management area" (Siesta Park groyne to the Holgate Road groyne).

The following dictionary definition of "interrupt" FYI.

1.
stop the continuous progress of (an activity or process).
"the buzzer interrupted his thoughts"

I'm not an expert but I seriously doubt that the SP groyne **stopped** "the supply of sand" which is carried in the current. The currents I've experienced scuba diving when coming onto an object will simply work their way around said object. In this case the object is the SP groyne & I'm certain the current would go around the groyne & continue to the east. Keep in mind the groyne was built in 2 stages, approx. 46 metres in 1965 & 91 metres in 1967. As we can see today, sand did accrete against the groyne after it was built & today we see the final result. Back in those days I believe that a certain amount of sand would still have continued around the groyne with the current. The beach has been the same now for many years apart from severe weather events such as the storm in ??????? which eroded between 5 & 10 metres but is now rebuilding as part of the natural process.

We have always walked regularly on that part of the beach east of SP groyne & since the CHRMAP was released have taken particular notice of the groynes installed on the beach adjacent to the Locke Estate. They are clearly accreting sand which is a clear indication SP groyne is not interrupting sand supply to the east.

We also note that for a very large part of the year, with a normal tide, it is possible to walk on the sand or on the very end of the groyne/sand combination around to the east to the beach of the Locke Estate Native Reserve demonstrating again there can be little to no effect to flow.

As evidence of how I have come to this conclusion please consider the following photo's, their location, the impact of any accretion and/or erosion & information of their origin.

1. 1941 aerial shot of Siesta Park overlaid on a 2017 image from Google Earth. Provided by a resident of Siesta Park Road whose family have been there for 70 years plus.

This 1941 image can be partially or fully overlaid by holding control on your keyboard & click the link below for the active image to be opened in another window. Then drag the 1941 image back & forward.

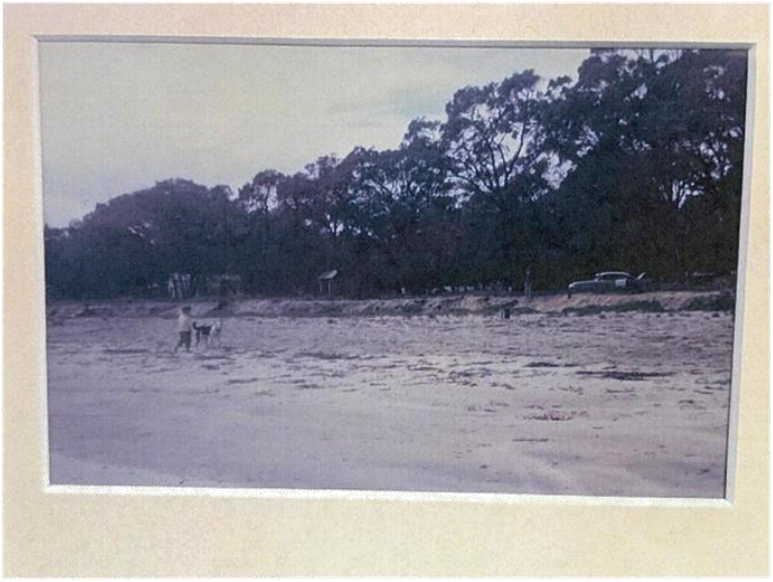
https://imgsli.com/NzE5NDg



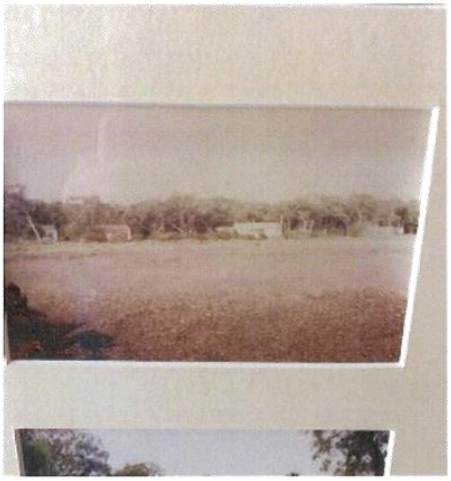
2. Circa 1962 beach photo looking west & would seem to be from somewhere within the area of the Locke Estate Nature Reserve It clearly shows the significant impact of erosion at this time or prior. Note the houses in the distance very close to beach. The exact time & circumstance of the erosion I can't positively identify, but it is obviously as a result of storms and/or currents. This shows the beach was severely eroded in the early 1960's which would have been similar further east at the Locke Estate Nature Reserve. Picture provided by a resident of Siesta Park Road whose family have been there from 1962 and prior.



3. Circa 1965 - the first & last photos are just prior to the construction of the first portion of the Siesta Park groyne. The noticeable point here is the obvious repair of the beach since the 1962 photo by sand accretion. The photo with red arrow was taken in the last month. They are all at the same location in Siesta Park Road. The tree with the red arrow is about 7 metres north of the property boundary. This tree in 1965 is approximately where the beach started. It appears that even though the beach had improved from the circa 1962 erosion photo it doesn't appear to have moved any further from the approximate location in 1962.







4. 1970 aerial survey plan which clearly shows the accretion of sand as a result of the Siesta Park groyne and no impact on the eastern side. The traditional beach line at Siesta Park is as per the previous photos but additionally shows from the new SP groyne, the beach east is as it was prior to the installation of the SP groyne.



5. A shot from Google Earth which shows there was some erosion of this section after 1970. To calculate the extent of this I have added 2 lines. The West to East line is an approximation of the probable beach line prior to the building of the SP groyne. I apologise for my inability to do anything other than to have a perfectly straight beach but the previous photo indicates it is generally accurate to make it easily understandable. The North to South line is a measurement from the approximate waterline shown on the previous photo to the current beach at the widest point which is approx. 37 metres.

Referring back to the assessment on page 45 in the Shore Coastal BCMP (2020-2030) I am suggesting that the erosion that occurred to the Locke Estate Nature Reserve was not "hundreds of metres" but something more like the 37 metres I've calculated or something not too dissimilar.

If they can provide me concrete evidence that what I'm suggesting is incorrect, please do so.



Conclusion.

It's obvious from these photo's the beach at the Locke Estate Nature Reserve was already significantly eroded before the Siesta Park Groyne was installed. It would seem the BCMP (2020-2030) is the guiding document for the maintenance/shortening of the SP groyne and is relying on the statement by the author as follows:

"The construction of the Siesta Park Groyne in 1965 interrupted the supply of sand to this management area (Siesta Park groyne to Holgate Road groyne), resulting in significant erosion, including recession of the coastline at Locke Estate by hundreds of metres."

This may not be correct which calls into question the need for any maintenance/modification to the SP groyne. The evidence also indicates the beaches directly to the east have been stable now for many years.

Again I say, I am willing to listen to any plausible explanation that would show that my investigations are wrong.

I'll wait for the call.

One further point I would like to make in the strongest of terms. Given that the Groyne is not causing any erosion issues and requires no modifications and our section of Siesta Park is absolutely stable and under no threat, there should be NO detrimental planning controls for our section of Siesta Park….

I will now refer to CHRMAP page 82.

Infrastructure / coastal management response

Subject to resolution of land tenure and access issues -

1. To protect buildings, construct a buried seawall from a point somewhat to the east of the Lennox River Drain to a point somewhat to the east of Locke Swamp Drain.
2. To protect the beach and beach amenity, construct one or more groynes along the beach.
3. Supplement the infrastructure described above with beach nourishment (note: the shortening of the existing Siesta Park Groyne may be appropriate, to reduce coastal erosion hazard on the eastern side).

Reference points 1 & 2 noted & understood & would be desired options for us as landowners.

Reference point 3 is the one I have a problem with.

When I review Figure 8.2 Coastal Management Program – Scheduled Works, we note Maintenance Coastal Structures (Siesta Park) for October 6/10/2025. What does this mean ? In the BCMP report it states "refurbishment or modification of this structure" and then in CHRMAP above it states "shortening of the existing Siesta Park Groyne may be appropriate".

There is no reference in the Scheduled Works for Items 1 & 2 above. Why?

Will this be done prior to dealing with Option 3 including possible "shortening" of SP groyne.

If Points 1 & 2 were implemented prior to point 3, modifications to SP Groyne may not be necessary. If a modification was still deemed to be needed then a modest, staged approach would be practical.

This area now is as it was when I purchased my property. As previously stated, this is a public asset & any modification by the City of Busselton which had a detrimental impact on the property I own, I would most certainly be considering legal action against the City & any other proponent of this process. I know I won't be the only one looking at taking legal action in this circumstance.

Ron Agland.

77 Siesta Park Road,

Siesta Park.

0419 906 464.

SUBMISSION 21

"Galway Bay" Precinct
Property owners of 568, 570, 572, 574, 576, 580 and 582 Caves Rd,
Marybrook, WA, 6280

c/- Adrienne Meakins,
30 Alfred Rd, North Fremantle, WA 6159.
Email : adrienne@ausquest.com.au

September 22, 2021

The Planning Department,
City of Busselton Locked Bag
BUSSELTON WA 6280
Email : planning@busselton.wa.gov.au

Dear CHRMAP Planning Officer,

Thank you for the opportunity to comment on the Busselton Shire's proposed CHRMAP Plan. We, the undersigned write jointly as long term (generally +20 years) owners of 568, 570, 572, 574, 576 580 and 582 Caves Road, Marybrook - part of the old "Galway Bay" holiday park. With the exception of the large modern home in a well set-back position at 168 Caves Rd, most Galway Bay residences are small timber and/or fibro cottages. By dint of Council's resumption of land along the Galway foreshore in times past, these cottages are set hard to our northern property lines, immediately adjacent to Coastal Reserve. Without exception we all love the aspect and ambience of Galway Bay – set both "on the beach" and sheltered from the bustle of Caves Rd by stands of peppermint trees.

Whilst we would like to think that our properties will persist as a legacy for future generations, we acknowledge the possibility that at some point in the future the land and structures may be impacted by coastal erosion and/or inundation. Obviously we hope that such an outcome is far distant in time, but nonetheless we accept this risk and the fact that under law we are not entitled to any government compensation if this were to be the case.

We welcomed the opportunity to attend the second Public Meeting specific to the residents of CHRMAP Management Units Marybrook and Siesta Park. It was interesting to hear the scientific rationale behind the Shire's CHRMAP plan – albeit geared to presenting a worst-case scenario. Whilst we understand the rationale of "planning for the worst but hoping for the best" we think that it is important to keep in mind that the Damara models are just that – models – and that even though they are scientifically based, they are unlikely to be accurate predictors of inherently erratic climate-related events over extended time-frames (particularly out to 100 years).

We have also read in detail the Shire's CHRMAP Draft Coastal Hazard Risk Management document which is premised on those worst-case models. Whilst generally supportive of the proposed "integrated" (Council and landowners together) approach to help protect Marybrook coast, there are some aspects of the document's assumptions and the scope and timing of proposed remediation plans that give us cause for considerable concern. Whilst the document allows for some flexibility in application of practical "Coastal Management Measures", some of the more punitive Shire "Planning Measures" proposed exclusively for Marybrook and Siesta Park (e.g. "restricting private development", "ceding" land, "time-limited planning approval", etc.,) are clearly premature, unfair and unreasonable. We do not support Council adopting the proposed Planning rule changes for Marybrook until such time as the Damara models are supported by "real" data.

We hope that the following comments will be addressed before the Shire acts to adopt the Draft CHRMAP. Our comments (shown in red) specially address items raised in Recommendation 8 of Section 7 Recommendations and Adaption Pathways for the Marybrook Management Unit 08 in the Shire's Draft CHRMAP Report (pages 79-81). *Italicised* passages are direct quotes from the Draft CHRMAP document.

Short Term Adaption Pathway (Current to 2040)

Key Issues and Rationale Points (Draft page 80)

Much of the rationale surrounding the proposed adaption pathways for Mary brook is based on assumptions that;

- there is limited public access to the beach in the area. This is incorrect – Smith and Mitchell Streets as well as multiple pathways in the Birl Elbow area provide multiple access points for visitors from the large Four Season's Caravan Park and Ramada Resort in holiday periods. The beach is also a favoured longer walk for many Busselton town residents who drive to the area to walk their dogs and exercise. This section of coast is also regularly accessed for picnics and recreation by members of the public arriving by boats.
- there is an absence of a substantial and continuous foreshore reserve (at these eastern end of Marybrook MU). Local residents and members to the public do not avoid walking and swimming along this section of the beach because of restricted reserve width and/or continuity.
- That public infrastructure is limited and as such, there is little public benefit to be gained from coastal protection in this area. In fact, substantial public infrastructure (e.g. dual bike/walk way, Caves Road, power, water etc) exists along the entire Marybrook strip. The fact that it runs adjacent to Caves Rd at the eastern end does not negate the fact that it is there and is worthwhile.

Planning Responses (Draft page 79)

1) *Include all land within the 2120 coastal erosion hazard line within the Coastal Management Area.* Agree.
2) *Prohibit private development (other than landscaping works) on the on the seaward side of a line that would be determined by identifying the line behind which development could be considered 'infill development'.* Potentially this clause could have very significant adverse implications for individual landowners but without Council actually defining the position of the "line" referred to in Point 2 on a map for each property, it is totally unreasonable to expect any property owner to sensibly comment on Point 2. If a property owner is prepared to take the sole risk that they will, in time, potentially lose any structure built on their land due (or indeed all their land) to coastal erosion and/or inundation, why should they be prohibited from building to the existing guidelines?
3) *As a condition of approval of any development or subdivision, ceding of land to ensure there is a foreshore reserve of a minimum width of approximately 20m.* This is a discriminatory clause applied exclusively to Marybrook/Siesta Park properties. It is neither fair nor reasonable and could conceivably be challenged in law. Council has resumed land for Foreshore Reserves from the beach side of many Marybrook properties in the past and by way of CHRMAP is now proposing to acquire more. We note that if we had to cede any additional land from our properties most of us would lose our homes. It is also potentially pointless: –if the Damara hazard lines and time frames are realistic, a 20m foreshore reserve

which is resumed in the short term could be consumed by coastal erosion within the next few decades.

4) *Establish minimum FFL for habitable floor space at 3.8m AHD (note: existing private property natural ground and second floor levels can be substantially below 3.8m AHD).* Achieving a (very high) 3.8m FFL for new houses and surrounds will inevitably bury a lot of vegetation and destroy native fauna habitat. It will also negatively impact the amenity of existing homes. A lower FFL height would be more reasonable.
5) *Calculate height for purposes of building height, setback, overshadowing and/ or overlooking controls as if ground levels are a minimum of 3.8m AHD (or higher, if natural ground level is higher than 3.8m AHD).* No comment.
6) *Require development approval for all development.* No change from current approval process.
7) *Prohibit private coastal protection structures.* The current approach is piecemeal. We support the rationale for a single entity to be responsible for building such continuous protection structures as are necessary at different points in time.
8) *Where development approval is granted, it must always be subject to a 'time limited approval', with development approval lapsing no later than 1 July 2070.* At present, any development approval on our properties is subject to the addition of a Section 70A Notice to our Titles acknowledging that the property may be vulnerable to coastal erosion within the next 100 years. To add a "time limited approval … lapsing no later than 1 July 2070" is unnecessary and may be inappropriate if sea-level rises are not progressing at the rates proposed by Damara models. It would be more reasonable for new development proposals to be subject to a future review process before they are deemed to lapse.
9) *Do not support any subdivision or increases in permissible development.* Read in conjunction with Point 2) which refers to theoretical lines associated with "infill development" this statement has the capacity to confuse. However we are generally supportive of the concept.

Infrastructure/Coastal Management Response (Draft page 79)

Subject to resolution of land tenure and access issues –

1) *To protect buildings, construct a buried seawall from a point somewhat to the east of the Station Gully Drain to a point somewhat to the west of the Molloy Drain, continuing from a point somewhat to the east of the Molloy Drain to a point somewhat to the east of the Lennox River Drain.*
2) *To protect the beach and beach amenity, construct one or more groynes along the beach.*
3) *Supplement the infrastructure described above with beach nourishment.*

As a general comment about the planned interventions, much of the coastline in the Marybrook area is currently actively accreting and it may well be preferable to "do nothing" in those areas until such time as demonstrable erosion starts to occur. We acknowledge that the area may still be vulnerable to storm surge events however, we support the concept of minimalist intervention where possible.

At the very least, council needs to work with local residents to determine the most appropriate height and location of the proposed buried sea wall which presumably will grow in height over time and not be constructed at 3.8m ASL in the first instance.

Given the unintended consequences of the Siesta Park rock groyne causing significant erosion along the coast of the Locke Estate area to the west, we are hesitant about the imposition of additional groynes in the Marybrook MU.

Emergency Management (Draft page 79)

Establish emergency management plans and protocols to identify, and evacuate or provide temporary protection for, any remaining buildings with habitable floor space below projected the maximum potential water level for an expected storm surge event. Caves Road may also need to be closed to traffic.

We fully support Council's proposal to enact the proposed Emergency management response plan. However, in keeping with the area's natural amenity we ask that any associated signage is minimised (much like the current emergency response signage).

Financial Response (Draft page 79)

Subject to resolution of land tenure and access issues, and implementation of an integrated protection strategy, consider applying a Specified Area Rate to fully fund works required to protect properties from coastal erosion hazard.

We note that this proposal – for local residents to fully fund the costs incurred by the Busselton Shire in undertaking coastal protection works – is specific only to the Marybrook and Siesta Park Management Units. By comparison, in all other Management Units (with the exception of the charitable camp lessees in the Lock Estate area who will be asked to pay 50% of coast remediation works), it is proposed that by 2030 residences within the 2120 coastal erosion hazard line will pay a 2% rates levee to fund a general "Coastal Adaption Fund". The quantum of the proposed levee specific to Marybrook and Siesta Park residents is not discussed in the CHRMAP Draft Report but hearsay suggests that the Charitable Camps are currently paying in the order of $4,000 per year to fund ongoing coastal remediation. A levee of that magnitude would be a significant impost.

The stated rationale (page 80) for the disproportionate impost on Marybrook and Siesta Park residents is that as the area only supports limited public access and public infrastructure, there is no value to the greater public if Council were to contribute to coastal remediation costs. Council interprets the sole beneficiaries to be the private residents. Although not mentioned specifically one imagines that Council is also of the view that because real estate values in the Marybrook-Siesta Park areas are high, local residents can "afford to pay".

This proposal is objectionable on several levels. It is discriminatory and displays no sense of the Shire's Duty of Care to protect all of its ratepayers and all of the land under its administration. Furthermore, whilst there is no doubt that many of the Marybrook Siesta Park land owners can "afford to pay", the proposal overlooks the fact that not all local residents in Marybrook and Siesta Park are multi-millionaires and may struggle fund their share of costs.

Prior to Council adopting this strategy, further consultation needs to occur.

Longer Term Adaption Pathways (2040 and beyond)

(Draft Page 80)

It is difficult to make any meaningful comments on the proposed longer term adaption pathways. other than to comment that it is probably not reasonable to abandon protective measures and adopt a "retreat" policy for the Marybrook MU if Council intends the residents to sole fund earlier coastal adaption measures. Such costs would normally only be considered reasonable if there was a strong likelihood of some form of "security of tenure".

Any longer-term proposals should be determined far closer to mid-2021.

Conclusions

In its entirety, the Busselton Shire CHRMAP plan is an attempt to be pro-active in mitigating coastal erosion and inundation risks associated with possible sea level rises and increasing climatic turbulence across the entire Shire coastal zone. We agree in principle with the planned physical interventions but only in areas where demonstrable degradation of the coast is currently occurring. This is not the case over much of the Marybrook Management Unit where the beach is actively accreting, and we question the need to commence any broad-scale intervention at this stage.

We have very significant concerns regarding the Council's planning proposals to introducing punitive regulatory and financial measures on landowners in the Marybrook and Siesta Park. These measures are premature and should only be considered in the future when sufficient time has elapsed to determine actual Marybrook coastal change patterns relative to those predicted by the Damara models. To enact the measures in the short term will adversely affect our rights as landowners and ratepayers. Relative to proposed measures for other coastal management units, the measures are unfair, unreasonable and are demonstrably discriminatory.

We trust that you will give our comments due consideration.

Yours Sincerely,

The undersigned property owners in the "Galway Bay" precinct, Marybrook

Signed: 

Murray Pollock and Adrienne Meakins,

for and on behalf of Jayleaf Holdings Pty Ltd,

Owner of 570 and 572 Caves Rd, Marybrook, WA, 6280

Signed:

Brian Robert Gould,

Owner, 568 Caves Rd, Marybrook, WA, 6280

Signed: Armstrong 27.9.2021 Clapin 27.09.2021

Lorraine Armstrong and Jennifer Clapin,

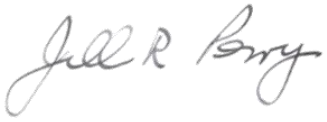
Owners, 574 Caves Rd, Marybrook, WA, 6280



Diane Vukelic

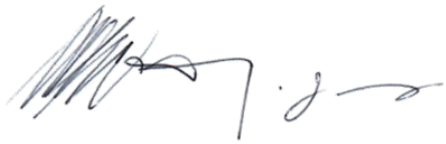
For and on behalf of Vukelic Investments Pty Ltd,

Owner, 576 Caves Rd, Marybrook, WA, 6280



Jill Perry,

Owner, 580 Caves Rd, Marybrook, WA, 6280



Frederick and Jennifer Mc Murray,

For and on behalf of Rediema Pty Ltd,

Owner, 582 Caves Rd, Marybrook, WA, 6280

14. ENGINEERING AND WORK SERVICES REPORT

14.1 NAMING PORT GEOGRAPHE CANALS, COVES AND PARKS

STRATEGIC THEME	LIFESTYLE - A place that is relaxed, safe and friendly with services and facilities that support healthy lifestyles and wellbeing
STRATEGIC PRIORITY	2.1 Recognise, respect and support community diversity and cultural heritage.
SUBJECT INDEX	Naming of Places
BUSINESS UNIT	Engineering and Technical Services
REPORTING OFFICER	Manager, Engineering and Technical Services - Daniell Abrahamse
AUTHORISING OFFICER	Director, Engineering and Works Services - Oliver Darby
NATURE OF DECISION	Advocacy: to advocate on its own behalf or on behalf of its community to another level of government/body/agency
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Plan of Port Geographe Coves and Park Names Attachment B 1.8.1 Consulting with the Community (Landgate Policy) Attachment C Public Consultation Comments

OFFICER RECOMMENDATION

That the Council:

1. **Supports the selected names list in the officer comment section of this report for the various canals, coves and parks in the Port Geographe area; and**

2. **Submit a formal request to Landgate requesting the naming of the various parks, canals and coves as per the Plan of Port Geographe Cove and Park Names (Attachment A).**

EXECUTIVE SUMMARY

This report presents the outcome of a request from the Port Geographe Land Owners Association to name various Port Geographe canals, coves and parks and the subsequent consultation with the owners and occupiers immediately adjacent to the affected areas of the proposal.

This report recommends proceeding with the naming proposal outlined in the Plan of Port Geographe Coves and Park Names (Attachment A).

BACKGROUND

The City received a request from the Port Geographe Land Owners Association (PGLOA) at the end of 2021 to officially name the waterways and parks of the Port Geographe area, including a list of proposed names.

The City contacted the Department of Transport (DoT) to clarify there would be no objection to the City naming the canals, coves and parks within Port Geographe. The DoT advised they had no objection to the naming proposal.

City officers also contacted Landgate seeking guidance on the naming of canal, coves and parks in Port Geographe and the advice received was that the naming of these areas must follow Landgate's Policies and Standards for Geographical Naming in Western Australia**.**

City officers met with representatives from PGLOA in December 2021, and from this meeting and subsequent discussions, a final list of proposed names that conform to Landgate's Policies and Standards has been developed.

OFFICER COMMENT

The request to name the waters ways and parks in the Port Geographe area provides benefits in relation to communications such as postal and news services; emergency service response; and tourism and assisting visitors to the area. The following is a list of the proposed names as suggested by the PGLOA and which meet the criteria set out by Landgate.

PGLOA Canals	**PGLOA Parks**
A. Grand Canal	1 Spinnaker Park
B. Geographe Quay	2. Marina Park
C. Windjammer Canal	3. Dolphin Park
D. Helm Canal	4. Keel Park
E. Yardarm Canal	5. Woodhenge Park
F. Leeward Canal	6. Layman Park
G. Foremast Canal	7. Circle Park
H. Fathom Canal	8. Footbridge Park
I. Mizzen Canal	9. Burgee Park
J. Trysail Canal	10. Tallwood Park
K. Pearler Canal	11. Pebble Park
Coves	12. Seahorse Park
L. Lagoon Cove	13. Portage Park
M. Galley Cove	14. Cutter Park
O. Anchor Cove	15. Transom Park
	16 Geographe Beach Park

The Minister for Lands has the authority to name Crown Land and features, on the request from a Local Government.

Statutory Environment

The *Land Administration Act 1997* provides that the Minister for Lands (the Minister) has the authority for officially naming and un-naming all local parks and recreational reserves in Western Australia.

Through delegated authority, Landgate acts on the Minister's behalf to undertake administrative responsibilities, including the development of policies and procedures required for the formal approval of local parks and recreational reserve names.

Relevant Plans and Policies

The officer recommendation aligns to Council Policy: Naming of City Roads and Assets.

Financial Implications

Signage for the new names will be installed at various locations. Aluminium signs will be placed on the canal walls and Replas park signage, signs made from recycled plastic, for the parks.

The cost for signage is estimated at $7,000, to be funded from the 2022/23 Port Geographe General Improvements Foreshore budget.

Stakeholder Consultation

In accordance with Landgate Naming Policy – Section 1.8.1 - Consulting with the Community (Attachment B), the City undertook public consultation with the "immediate community" ie owner / occupiers adjacent to the affected areas for the proposed naming.

A total of 557 letters were distributed with a map showing the area for the naming on the Thursday 28 April 2022 with a closing date for comments of Wednesday 25 May 2022 (Attachment C).

As a result of this distribution 6 responses were received, with many of the comments suggesting alternative naming for the canals, coves and parks which had previously been put to and rejected by Landgate.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. No risks of a medium or greater level have been identified.

Options

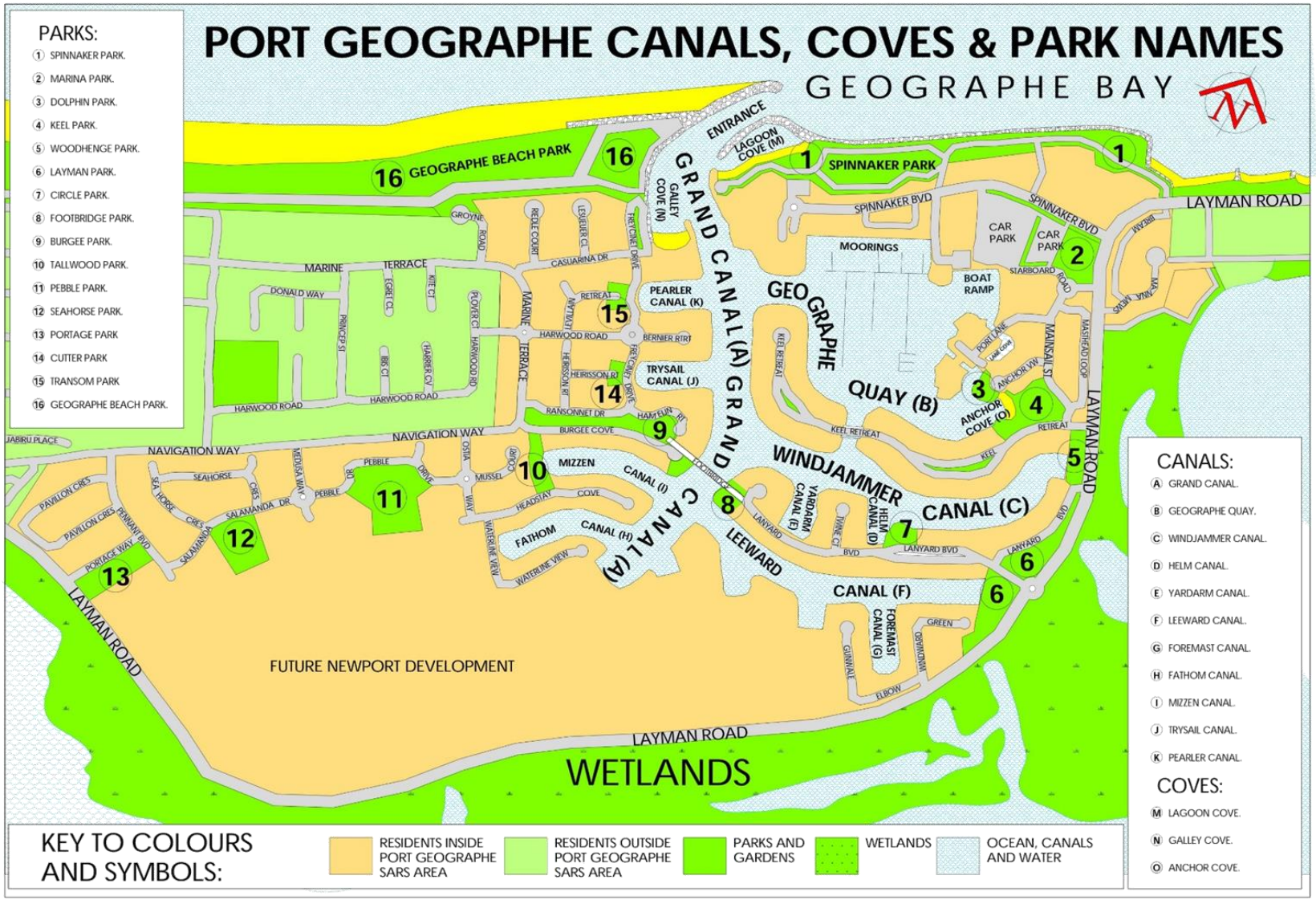
As an alternative to the Officer Recommendation Council may recommend alternative names, request further consultation or for reject the proposal.

CONCLUSION

The City has received a proposal from PGLOA to name various parks, canals and coves in the Port Geographe area. It is recommended that the Council supports the naming selection as per the Plan at Attachment A and submit this to Landgate for final approval.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

Should Council endorse the naming of Port Geographe Canals, Coves and Parks, officers will submit the recommendation to Landgate to process the request for naming as per the State *Land Administration Act* procedures.


PORT GEOGRAPHE CANALS, COVES & PARK NAMES
GEOGRAPHE BAY
PARKS:
1 SPINNAKER PARK.
2 MARINA PARK.
3 DOLPHIN PARK.
4 KEEL PARK.
5 WOODHENGE PARK.
6 LAYMAN PARK.
7 CIRCLE PARK.
8 FOOTBRIDGE PARK.
9 BURGEE PARK.
10 TALLWOOD PARK.
11 PEBBLE PARK.
12 SEAHORSE PARK.
13 PORTAGE PARK
14 CUTTER PARK
15 TRANSOM PARK
16 GEOGRAPHE BEACH PARK.
CANALS:
A GRAND CANAL.
B GEOGRAPHE QUAY.
C WINDJAMMER CANAL.
D HELM CANAL.
E YARDARM CANAL.
F LEEWARD CANAL.
G FOREMAST CANAL.
H FATHOM CANAL.
I MIZZEN CANAL.
J TRYSAIL CANAL.
K PEARLER CANAL.
COVES:
M LAGOON COVE.
N GALLEY COVE.
O ANCHOR COVE.
GEOGRAPHE BEACH PARK
SPINNAKER PARK
LAYMAN ROAD
ENTRANCE
LAGOON COVE (M)
GALLEY COVE (N)
GRAND CANAL (A)
SPINNAKER BVD
CAR PARK
MOORINGS
BOAT RAMP
STARBOARD ROAD
MARINA LANDS
MARINE TERRACE
DONALD WAY
CASUARINA DR
PEARLER CANAL (K)
GEOGRAPHE QUAY (B)
ANCHOR COVE (O)
HARWOOD ROAD
BERNIER RTRT
TRYSAIL CANAL (J)
HEIRISSON RT
RANSONNET DR
HAMELIN RT
BURGEE COVE
NAVIGATION WAY
JABIRU PLACE
KEEL RETREAT
KEEL
WINDJAMMER CANAL (C)
MIZZEN CANAL (I)
YARDARM CANAL (E)
HELM CANAL (D)
LANYARD BVD
LEEWARD CANAL (F)
FOREMAST CANAL (G)
FATHOM CANAL (H)
SEAHORSE
PEBBLE
MUSSEL
COVE
HEADSTAY
WATERLINE VIEW
PAVILION CRES
SALAMANDA DR
PORTAGE WAY
FUTURE NEWPORT DEVELOPMENT
WETLANDS
GREEN
GUNWALE
ELBOW
KEY TO COLOURS AND SYMBOLS:
RESIDENTS INSIDE PORT GEOGRAPHE SARS AREA
RESIDENTS OUTSIDE PORT GEOGRAPHE SARS AREA
PARKS AND GARDENS
WETLANDS
OCEAN, CANALS AND WATER

Attachment D -

Policies and Standards for Geographical Naming in Western Australia

1.8.1 Consulting with the community

Any proposal requesting the renaming of an approved name or any new naming proposal considered to be of significance to the immediate or extended community must include evidence of consultation with the community. Local governments must ensure that the level and form of consultation undertaken reflects the significance of the naming proposal.

This policy does not apply to the naming of new roads within subdivisions where there are currently no residents, businesses or ratepayers who will be directly affected. With the use of Aboriginal names, Section 7: Appropriate use of Aboriginal and dual naming applies.

The immediate community is defined as including residents, ratepayers and businesses within the immediate area who are directly affected by the submission.

The extended community includes residents, ratepayers and businesses surrounding the area directly affected by the proposal, any visitor groups to the area, and government or non-government organisations with an interest in the area.

Where there is a risk to public safety, Landgate may endorse naming proposals in the absence of community support if it is deemed that the proposal will reduce the risk to safety. Formal approval of the Minister will then be sought.

This further information regarding community consultation requirements and procedures can be found within Section 9: A Guide to Consultation.

Resident comments	Action
Re: "B", Geographe Quay. We have discussed the proposed names with our friends and neighbours and are disappointed that the name for the area of water providing anchorage for the majority of vessels, the actual harbour, is suggested as "Geographe Quay" and not as we know it as "Geographe Marina"! We think "Marina" is a better description for a leisure facility and that "Quay" suggests a more industrial venue (see, for example, Google's definition). Otherwise, we like the majority of suggested names, although would prefer "Spinnaker Park and Gardens" (No. 1) because they are outstanding! W & H Gaskins, 9/33 Spinnaker Boulevard (we and our neighbours overlook the Marina!).	Suggestion not compliant with the Policies and Standards for Geographical Naming in western Australia.
Please be advised that Land Use Management and Land Use Planning divisions within the Department of Planning, Lands and Heritage do not have any objections to naming of the Canals, Coves and Parks. **Martin Hughes** | Senior Planning Officer | Land Use Planning Bunbury Tower, Level 6, 61 Victoria Street, Bunbury WA 6230 9791 0572	No comments just okay with the concept
Dear Wendy and the Busselton City Council. Please forward the following to the CEO and appropriate council staff: Dear Sir/Madam, Thank you for the opportunity to comment on the suggested names of the Port Geographe Canals, Coves and Parks. We were not aware of a Port Geographe Landowners Association and not aware that this was on the agenda for the council but are pleased that the council is progressing this initiative and asking for further input. While we have some concerns that there is a Leeward Canal but not a corresponding Windward Canal (😉) we would like to suggest some alternative, perhaps some might say more imaginative, names. It is such a great opportunity to have a more multicultural but still sea/water-based theme that celebrates great ancient literature as well as honoring the local First Nations peoples and their history and language. **Suggestions for naming the Parks** We feel that the First Nations peoples need to be recognized in this important naming process. As such, we suggest that the Parks are all given local Indigenous language names that may represent sea creatures and other local flora and fauna, or perhaps represent culturally important activities that occurred in the location prior to colonisation. It does concern us that there is no First Nations representation in this important naming and there are certainly local Aboriginal people that can provide expert advice to the council for this important process.	For consideration for the future development of the canal.

Suggestions for naming the Waterways As we own 4 Twine Court, we selfishly wanted to change the name 'Helm Canal' to 'Kraken Canal' as you may know that a boat has sunk in that canal not too long ago. Upon further thinking, we decided that mythical sea creatures would be appropriate for all canals but that, to ensure good luck and fair winds for sailors, it would be best to steer towards positive and helpful mythical sea creatures. There are a wealth of Nereid Sea Nymphs after which the canals and coves could be named. Below are some beautiful and meaningful names and explanations of who they are that we feel would be both appropriate and exciting to use in this context: ***The Nereid Doris - The Sea's "Bounty"*** *Doris was the Nereid of the sea's "bounty" or else the mixing of freshwater with the brine. She was the wife of the sea god Nereus and the mother of all Nereids.* *Doris was also the daughter of Oceanus and Tethys and a sea nymph herself. She was considered as the fertility of the ocean, goddess of the rich fishing grounds found at the entrance of rivers where fresh water mingled with the brine.* ***The Nereid Doto - The Protector of Safe Voyage*** *Doto was considered to be the Nereid who gave safe voyage or generous catch to fishermen. Her Greek name is translated as "generous offers".* ***The Nereid Dyname - The Sea's Power*** *Dyname was the Nereid of the sea's power.* ***The Nereid Erato - The Lovely*** *Erato was a Nereid whose name means "the lovely".* ***The Nereid Galene - The Creator of Calm Seas***	

Galene was the Nereid of the calm seas. She was considered a minor goddess and there is a historical dispute over her origin. ***The Nereid Proto - The Protector of First Voyage*** *Proto was known as the Nereid of sailing and was considered the Nereid of the first voyage.* ***The Nereid Sao - The Creator of Safe Sea Passages*** *Sao was the Nereid of safe sea passages, and "responsible" for the rescue of sailors.* There are 14 canals and coves and the above names are suggestions to give you an idea of where to start. There are many more nymphs as you can see in the link https://www.wattpad.com/910170848-book-of-names-names-of-nymphs-in-greek-mythology/page/4 and it may be of help to engage an expert in Greek mythology to choose the most appropriate sea nymphs for this task. We believe that our suggestions lead to wonderful opportunities to create visual artistic stories in relation to the names, possibly representative sculptures in the vicinity of the areas being named, which local Aboriginal and non-Aboriginal artists would be able to contribute to and create a lasting, beautiful and meaningful project for all the people of Busselton and surrounds to celebrate. We look forward to your response to our suggestions. While we realise that such a radical change from what is suggested would take more time and require more engagement with appropriate representatives, this project of naming the Port Geographe Canals, Coves and Parks needs to stand the test of time for all. Mr Gregory Russell Josephs and Dr Vivienne Manessis Owners 4 Twine Court, Geographe PO Box 5429, West Busselton, WA, 6280	
Re the proposed naming of the Port Geo canals, I am a resident of Keel Retreat and I support the concept of naming the canals. I can see a lot of thought has gone into it. My husband (and neighbours I have spoken to) particularly like Grand Canal (and Woodhenge Park). However, we would far prefer simpler names, such as Keel Canal instead of Windjammer, Lanyard Canal instead of Leeward, Headstay Canal instead of Fathom and Burgee Canal instead of Mizzen. Relating the canal names to the nearest road names will assist us enormously in getting accustomed to – and using - the names.	Suggestion not compliant with the Policies and Standards for Geographical Naming in Western Australia.

Thank you for your consideration, Kerry Stewart 61 Keel Retreat, Geographe 0419909176	
Dear Wendy Great idea naming our gorgeous canals but as a family that lives on the proposed Windjammer Canal we would love more consideration given to finding a more pleasant sounding name. Great Southern, Reflection's or even Sailors Rest as in storms many yachts find shelter on vacant landings in our canal. Please consider Yours sincerely Simon & Pauline Rudge 53 Lanyard Blvd Geographe	Supported but alternative suggestion not compliant with the Policies and Standards for Geographical Naming in Western Australia.
From: Kevin Strapp <kjstrapp@bigpond.com> **Sent:** Saturday, 7 May 2022 3:55 PM **To:** 'wendy.meksic@busselton.wa.gov.au' <wendy.meksic@busselton.wa.gov.au> **Subject:** PROPOSED NAMING PORT GEOGRAPHE CANALS. Daniell. I have no objections to the naming of the water ways within Port Geographe in general, however the Geographe Quay could be better called the Basin which it is. While on naming within Port Geographe some 5/6 years ago the land Owners Association approached the City in writing to name Port Geographe as a separate Suburb of Busselton. At the time we were advised that a list of suburbs to be named all within 6280 Post code was being drawn up for submission to the nomdapuculture Committee (excuse spelling.) On verbal enquiry some six months later, we were advised that the committee had some objections, could you please advise what those objections are. Port Geographe is now growing at a rapid rate with additional new subdivisions on the way, it certainly qualifies as a separate suburb to "Geographe." Kevin Strapp.	Supported but alternative suggestion not compliant with the Policies and Standards for Geographical Naming in Western Australia.
Dear Sirs Thank you for the opportunity to comment on the above proposal. I would suggest that Mizzen Canal and Leeward Canal be combined and called Leeward Canal. I would further suggest that Woodhenge Park and Layman Park be combined and called Layman Park.	Alternative suggestion not compliant with the Policies and Standards for Geographical Naming in Western Australia.

It seems superfluous to name Galley Cove and Anchor Cove, however, as Lagoon Cove has public leisure facilities at its edge it seems appropriate to name it. Gail Priest Owner 13 Hamelin Retreat, Geographe	

15. COMMUNITY AND COMMERCIAL SERVICES REPORT

Nil

16. FINANCE AND CORPORATE SERVICES REPORT

16.1 LOCKE ESTATE CAMPSITE 16 LEASE

STRATEGIC THEME	ENVIRONMENT - An environment that is valued, conserved and able to be enjoyed by current and future generations.
STRATEGIC PRIORITY	1.2 Work with the community to manage and enhance natural areas and reserves and their biodiversity.
SUBJECT INDEX	Locke Estate
BUSINESS UNIT	Corporate Services
REPORTING OFFICER	Leasing and Property Officer - Julie Oates
AUTHORISING OFFICER	Manager Legal and Property Services - Ben Whitehill
NATURE OF DECISION	Choose an item.
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Campsite 16 Lease Plan

OFFICER RECOMMENDATION

That the Council

1. **Enter into a lease with The Legacy Club of Western Australian Incorporated subject to the consent of the Minister for Lands for the occupation of a portion of Reserve 22674, Lot 5303, Deposited Plan 220583; Volume LR3088, Folio 423, Caves Road, Siesta Park as indicated in Attachment A, on the following terms and conditions**
   - **(a) The term of the lease commencing no later than 1 October 2022 and expiring on the 30 November 2032;**
   - **(b) The annual rent to commence at $2,500.00 plus GST with annual rent increase of CPI or 3% whichever is greater;**
   - **(c) For up to the first 6 years of the term of the lease the lessee is required to pay Council $4,000 per annum to be placed in an interest bearing Reserve for future coastal works adjoining the Locke Estate;**
   - **(d) The lease being consistent with the City's standard Locke Estate lease agreement; and**
   - **(e) All costs for the preparation of the lease to be met by the lessee.**

EXECUTIVE SUMMARY

Campsite 16 at the Locke Estate has been vacant since 2019. This report recommends that Council enter into a lease with The Legacy Club of Western Australian Incorporated (Legacy) for Campsite 16 at Locke Estate.

BACKGROUND

Reserve 22674, Lot 5303, Caves Road, Siesta Park, also known as the Locke Estate, is an 'A class' crown reserve vested with the City of Busselton (City) for the designated purpose of 'Recreational Camp Sites and Group Holiday Accommodation'.

The Locke Estate consists of sixteen campsites. Fifteen of the campsites are currently leased and operated by various not-for-profit organisations. Council recently resolved to enter into a lease with South-West Aboriginal Medical Service Aboriginal Corporation for campsite 7 following an expression of interest process. Meanwhile campsite 16, the subject of this report, remains vacant.

Campsite 16 was leased between 2016 and 2019 by the Grand Lodge of Western Australian Freemasons Homes for the Aged Incorporated (Masonic Care). The lease was surrendered by Masonic Care in 2019. Since then the campsite has been managed by the City.

Unoccupied campsites have typically been leased by an Expression of Interest (EoI) process with applications assessed against detailed selection criteria designed to assess a prospective lessees' ability to meet the lease purpose and terms relevant to the Locke Estate campsite. The selection criteria were reviewed in 2015 (C1506/155).

Campsite 16 has limited development potential due to a lack of existing infrastructure, high bushfire risk, small development zone and a small lease term of approximately 10 years.

Due to the constraints Council have considered several options for Campsite 16 including:

- Seeking EoI's for the campsite;
- Retaining all or part of the campsite for community use;
- Leasing all or part of campsite to Legacy who currently lease the adjoining campsite 15.

Following discussions officers were requested to explore leasing Campsite 16 to Legacy.

OFFICER COMMENT

Legacy cares for the families of Australian Defence Force men and women who have lost their lives or their health as a result of their service. Legacy currently uses campsite 15 to support the partners and children of veterans.

Legacy has held its current lease of campsite 15 since 2011 but have occupied the campsite for a significantly longer period with the majority of the infrastructure built after the Korean and Vietnam conflicts. During this time they have demonstrated their capability to manage the campsite both logistically and financially.

In 2021 Legacy were given a temporary approval to use Campsite 16 as an overflow camping area as part of the annual Legacy Ward Camp. Legacy has indicated that their use of Campsite 16 will be for tent camping in the proposed area with guests utilising Legacy's current building assets including ablution block, kitchen utilities and check in office (all located on campsite 15).

The benefits of offering the lease of Campsite 16 to Legacy are:

1. Legacy will be able to leverage off the existing infrastructure on campsite 15 reducing the development cost and burden otherwise associated with the constrained campsite; and
2. all Locke Estate campsites will be leased reducing the City's management costs and responsibility.

Legacy have been provided with a draft lease for Campsite 16 and understand the constraints of the campsite. They have indicated a willingness to enter into a lease on the proposed lease terms and conditions.

Proposed Lease terms and conditions

The proposed lease terms and conditions are consistent with the City's standard Locke Estate Lease Agreement and include the following:

- a term of approximately 10 years expiring on the 30 November 2032;
- an annual rent to commence at $2,500.00 plus GST with annual rent increase of CPI or 3% whichever is greater;
- a requirement to pay an annual coastal protection contribution of $4,000 for up to the first 6 years or a lesser amount if determined by the City.

Consideration of alternatives

As an alternative to leasing to Legacy the City could seek EoI's. Since early 2021 the City has conducted three EoI's for campsite 7 and received a limited number of proposals. Campsite 16 is significantly more constrained from a development perspective than campsite 7. Unless development constraints are removed it is unlikely that seeking EoI's will receive viable development proposals.

Similarly retaining Campsite 16 for community use is not viable because it is not consistent with the reserve purpose being "Recreational Camp Sites and Group Holiday Accommodation". Furthermore if retained by the City there is no budget for any capital works and the City would continue to incur ongoing costs associated with the maintenance of the campsite.

Statutory Environment

Section 3.58 of the *Local Government Act 1995* (LGA) sets out the process for how a local government can dispose of property.

Exemptions exist to the processes outlined in s 3.58 of the LGA. Relevantly reg 30(2)(b) of the *Local Government (Functions & General) Regulations 1996* states that if land is disposed to a body (incorporated or not) with the objects that are of a charitable, benevolent, religious, cultural, educational, recreational, sporting or other like nature and where the members of which are not entitled or permitted to receive any pecuniary profit from the body's transactions it will be excluded from the application of s 3.58 of the LGA.

Section 18 of the *Land Administration Act 1997* requires the approval of the Minister for Lands for a lease on a crown reserve.

Relevant Plans and Policies

There are no relevant plans or policies to consider in relation to this matter.

Financial Implications

Rent will commence at $2,500 per annum plus GST with annual rent increases of CPI or 3%, whichever is greater. A contribution of $4,000 per annum from the Lessee for coastal protection works for up to a maximum of 6 years is also required and will be transferred to the Locke Estate Reserve.

Stakeholder Consultation

No external stakeholder consultation was required or undertaken in relation to this matter.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. No risks of a medium or greater level have been identified.

Options

As an alternative to the proposed recommendation the Council could:

1. Resolve to retain Campsite 16.

2. Resolve to seek expressions of interest for Campsite 16.

CONCLUSION

Legacy have agreed to enter into the terms of the lease as outlined in the Officer Recommendation and be able to development the campsite in a short period of time.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

It is anticipated that the lease will commence on or before 1 October 2022. Legacy would be required to submit a development application within 12 months of the commencement date and commence any significant building works within 3 years.


337395E
6274534.4N
337465.4E
6274524.6N
337383.2E
6274514.7N
337459.2E
6274518.4N
Coastal Setback Zone
Development Zone
Site 13
Site 14
Site 15
Site 16
Conservation Area
Geographe Bay Rd
Forth St
John St
Caves Rd
337370.5E
6274243.2N
337468.9E
6274243.4N
337470.8E
6274245.2N
337464.6E
6274239.2N
Coastal Setback Zone
Conservation Area
Development Zone
Lease Area
Cadastre
Locke Estate Lease Plan
Lot 5303 Reserve 22674
Camp Site 16 - 110 Caves Rd
0 20 40 m
Scale at A4 - 1:2,000
Disclaimer
The City of Busselton does not guarantee that this map is without errors and accepts no responsibility for consequences of actions that rely on this map.
Map Produced on 4/3/2022
GIS Section, City of Busselton
City of Busselton
Geographe Bay
Locke Estate Campsite 16 - 117041.qgz

16.2 CEO RESIGNATION AND VEHICLE DISPOSITION

STRATEGIC THEME	LIFESTYLE - A place that is relaxed, safe and friendly with services and facilities that support healthy lifestyles and wellbeing
STRATEGIC PRIORITY	2.12 Provide well maintained community assets through robust asset management practices.
SUBJECT INDEX	Employment
BUSINESS UNIT	Corporate Services
REPORTING OFFICER	Manager Governance and Corporate Services - Sarah Pierson
AUTHORISING OFFICER	Director Finance and Corporate Services - Tony Nottle
NATURE OF DECISION	Executive: Substantial direction setting, including adopting budgets, strategies, plans and policies (excluding local planning policies); funding, donations and sponsorships; reviewing committee recommendations
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Valuation

OFFICER RECOMMENDATION

That the Council, with respect to Mr Michael Archer's resignation from his position of Chief Executive Officer:

1. **Thanks Mr Archer for his dedicated service to the City of Busselton for the past 12 years;**

2. **Endorses his requested notice period and his final date of employment as 19th August 2022; and**

3. **Authorises disposal of Vehicle Registration Number BSN59BA, a Mazda CX9, to Mr Michael Archer for $34,046 exclusive of GST, subject to the City satisfying the requirements of s3.58(3) of the *Local Government Act 1995* (WA).**

EXECUTIVE SUMMARY

This report seeks to formalise the Chief Executive Officers resignation and notice period, in addition to seeking council approval for the disposal of his current city provided motor vehicle, in accordance with his contract and the requirements of the *Local Government Act 1995* (the Act).

BACKGROUND

Mr Michael Archer commenced employment with the City on 9 August 2010. His current contract of employment expires on 28 July 2023.

Mr Archer provided notice of his resignation from his position on Friday 8 July 2022, having been offered the position of CEO at Shellharbour City Council in NSW. In resigning Mr Archer noted that it was with 'a tinge of sadness' that he tender his resignation after nearly 12 years but that he had been offered an exciting opportunity to further his career in a larger regional council in a different legislative environment. He also noted that 'the right time to move on, with most of what I came to Busselton to achieve (on behalf of successive Councils) having been completed or on the way to being realised'.

Mr Archer's contract of employment stipulates a notice period of three months, however Mr Archer has requested a reduced notice period of six weeks. His last day would be Friday 19 August 2022.

In relation to his motor vehicle, the contract provides for Mr Archer to request, and the City to agree, to Mr Archer purchasing his vehicle at its depreciated value, subject to complying with the Act.

OFFICER COMMENT

The Council is requested to formally resolve on Mr Archer's requested period of notice, and his final day of employment as 19 August 2022.

The Council is also requested to formally agree to dispose to Mr Archer his current motor vehicle – a Mazda CX9, registration number BSN59BA - at its depreciated value of $34,045.79. It should be noted that the provision of a vehicle to the CEO for private use has been accounted for within his employment package, with the CEO having paid $25,000 for the vehicle through his package since 2019.

The car is nearly 3 years old, with a market value according to Redbook of $52,850 for a private sale, based on the condition of the car being very good and kilometres of 57,586. Trade in value by comparison is $46,050.

It is also likely that, if a vehicle is offered as part of the package for a new CEO, they would be provided with option of a new vehicle.

It is therefore recommended that the Council resolve to dispose of the vehicle to Mr Archer at its depreciated value – as per the contract of employment, and subject to local public notice of the proposed disposition being advertised in accordance with Section 3.58(3) of the Act.

Statutory Environment

The relevant clause of Mr Archer's contract reads:

"Upon termination of employment you may request and the City may agree that you can purchase the motor vehicle currently allocated to you at its depreciated value subject to complying with all relevant sections of the Act"

Section 3.58 of the Act relates to the disposal of property by local government. It enables a local government to dispose of property:

- To the highest bidder at public auction;
- By way of a public tender process; or
- By giving local public notice of the proposed disposition and following the public consultation process as prescribed by s 3.58(3) of the Act.

Local public notice of the disposition must include:

- A description of the property concerned;
- Details of the proposed disposition (including names of the parties concerned; the consideration to be received and the market value of the disposition); and
- An invitation for submissions to be made before a date to be specified in the notice, being not less than 2 weeks after the notice is first given.

Relevant Plans and Policies

There are no relevant plans or policies to consider in relation to this matter.

Financial Implications

As noted above Mr Archer's contract of employment provides for the disposal of his vehicle at its depreciated value. Given this is lower than the market value, it will have some financial impact on the Plant Reserve.

Stakeholder Consultation

No external stakeholder consultation was required or undertaken in relation to this matter.

Risk Assessment

An assessment of the potential implications of implementing the officer recommendation has been undertaken using the City's risk management framework, with risks assessed taking into account any controls already in place. No risks of a medium or greater level have been identified.

Options

As an alternative to the proposed recommendation the Council could:

1. Request the CEO to provide a longer notice period; and / or

2. Not agree to dispose of the motor vehicle; and / or

3. Not agree to dispose of the motor vehicle at its depreciated value as per the contract and instead seek market value.

CONCLUSION

Mr Archer has served for 12 years as the Chief Executive Officer of the City of Busselton and during that time has successfully led the organisation through a period of significant growth and development. It is recommended that the Council endorse Mr Archer's requested notice period and that, in accordance with the contract, agree to the disposal of his current motor vehicle to him, subject to the provision of local public notice.

TIMELINE FOR IMPLEMENTATION OF OFFICER RECOMMENDATION

If the officer recommendation is endorsed local public notice will be given as soon as is practicable.

Red Book

Automotive Data Services Pty. Ltd.
A.B.N. 21 0001 680 593
www.redbook.com.au

Issued on 15 Jul, 2022

Valuation Certificate

Vehicle Details

2019 MAZDA CX-9

Description:

TC Azami Wagon 7st 5dr SKYACTIV-Drive 6sp i-ACTIV AWD 575kg 2.5T (5yr Roadside)



Private		Trade-in	
As New:	$53,850	As New:	$47,000
Very Good:	**$52,850**	**Very Good:**	**$46,050**
Good:	$50,900	Good:	$44,200
Average:	$48,900	Average:	$42,300
Fair:	$47,400	Fair:	$40,900
Poor:	$45,900	Poor:	$39,500

Condition & KM scale

Condition: Very Good

Kilometres: 57,586

User Notes: seller

Energy & Safety

Safety: ★★★★★

Green Star Rating: Not Available

206 grams/km = 4 tonnes/year | For details see GVG

Fuel Consumption: 8.8 Litres/100 Km

Features

Description	
Body Style	Wagon
Badge	Azami
Doors	5
Seats	7
Series	TC

Specifications	
Drive	4X4 On Demand
Transmission	Sports Automatic
Engine Size	2.5 (2488cc)
Power	170kW @ 5000RPM
Torque	420Nm @ 2000RPM

Extra Features Included

Standard Paint

After Market Features Included

Tinted Windows

Tow Bar

To the Purchaser: Automotive Data Services Pty Ltd (Red Book) has prepared this certificate from information provided by the owner of the vehicle. Red Book is not responsible for the information provided by the owner and you should not rely on the information in this certificate without making your own independent assessment of the vehicle. Red Book is not liable for any loss or damages (other than in respect of any liability which may not lawfully be excluded) relating to your use of, or reliance on, this valuation certificate. Red Book has used its best efforts to provide correct information but does not guarantee or make any representations regarding the use of, or reliance on, this Certificate.

To view this certificate online : http://www.redbookasiapacific.com/cert/view.php?id=4461879&code=84bc1bd087f8a125

17. CHIEF EXECUTIVE OFFICERS REPORT

17.1 COUNCILLORS' INFORMATION BULLETIN

STRATEGIC THEME	LEADERSHIP - A Council that connects with the community and is accountable in its decision making.
STRATEGIC PRIORITY	4.2 Deliver governance systems that facilitate open, ethical and transparent decision making.
SUBJECT INDEX	Councillors' Information Bulletin
BUSINESS UNIT	Executive Services
REPORTING OFFICER	Reporting Officers - Various
AUTHORISING OFFICER	Chief Executive Officer - Mike Archer
NATURE OF DECISION	Noting: The item is simply for information purposes and noting
VOTING REQUIREMENT	Simple Majority
ATTACHMENTS	Attachment A Community Assistance Program - Round Six

OFFICER RECOMMENDATION

That the items from the Councillors' Information Bulletin be noted:

17.1.1 Minor Donations Program – June 2022

17.1.2 Community Assistance Program

17.1.3 Current Active Tenders

EXECUTIVE SUMMARY

This report provides an overview of a range of information that is considered appropriate to be formally presented to the Council for its receipt and noting. The information is provided in order to ensure that each Councillor, and the Council, is being kept fully informed, while also acknowledging that these are matters that will also be of interest to the community.

Any matter that is raised in this report as a result of incoming correspondence is to be dealt with as normal business correspondence, but is presented in this bulletin for the information of the Council and the community.

INFORMATION BULLETIN

17.1.1 Minor Donations Program – June 2022

The Council allocates an annual budget allowance to the Minor Donations Program. This is provided such that the eligible groups and individuals can apply for and receive sponsorship to assist them in the pursuit of endeavors that bring direct benefit to the broader community.

Allocation of funds is delegated to the Chief Executive Officer, in accordance with the published guidelines and funding availability.

Two applications were approved in June 2022, totaling $1,400, as outlined below:

Recipient	Purpose	Amount
Dunsborough and Districts Progress Association; and The Lions Club of Vasse	Assistance to cover the cost of a Traffic Handling Course. The groups formed a partnership to hold this course for their volunteers. It will equip them with the knowledge and skills to undertake traffic handling at community events, saving the groups from having to pay traffic management companies, and allowing them to re-direct their funds to other community projects.	$700 per group
June Total		**$1,400**

17.1.2 Community Assistance Program

Attachment A outlines the applications received and funded in Round Six of the Community Assistance Program.

17.1.3 Current Active Tenders

Note: Information in *italics* has previously been provided to Council, and is provided again for completeness.

EOI 01/21 SOUTH WEST REGIONAL WASTE MANAGEMENT SERVICES

- *Requirements – a waste management expert to provide solutions to participating local governments in the South West of WA for sustainable, long term management of municipal waste.*
- *An expression of interest on behalf of a number of South West regional local governments was advertised on 30 September 2021 and closed on 25 November 2021.*
- *12 submissions were received.*
- *An evaluation panel has reviewed the submissions and is finalising a report to the CEOs of the South West Regional local governments.*

RFT 24/21 BUSSELTON MARGARET RIVER AIRPORT – GENERAL AVIATION HANGARS

- *Requirements – a suitable Contractor to design and construct four general aviation hangar sheds at the Busselton Margaret River Airport.*
- *A request for tender was advertised on 22 December 2021 and closed on 25 January 2022.*
- *3 submissions were received.*
- *An evaluation panel is reviewing the submissions.*
- *The value of the contract falls within the CEO's delegated power for accepting tenders.*

RFT 04/22 DIGITAL BILLBOARD

- *Requirements – a suitable supplier to design and construct a digital billboard on Bussell Hwy.*
- *A request for tender was advertised on 23 March 2022, closing on 27 April 2022.*
- *Nine submissions were received and are currently being assessed.*
- *The value of the contract falls within the CEO's delegated power for accepting tenders.*

RFT 05/22 AIRPORT – CARPARK EXPANSION

- *Requirements – a suitable supplier to construct a new carpark at Busselton Margaret River Airport.*
- *A request for tender was advertised on 4 June 2022, closing on 28 June 2022.*
- Six compliant submissions were received.
- The value of the contract exceeds the CEO's delegated power for accepting tenders and a report to Council to decide on which tender to accept is expected to be presented at the 17 August 2022 council meeting.

PQS 01/22 TRAFFIC MANAGEMENT SERVICES

- *Requirements – a panel of pre-qualified suppliers to supply the City's ongoing traffic management services.*
- *A request for applications was advertised on 28 May 2022, closing on 16 June 2022.*
- Four submissions were received and City Officers are in the process of reviewing the applications.
- The CEO has delegated power to appoint contractors to panels of pre-qualified suppliers.

PQS 02/22 SUPPLY AND DELIVERY OF PRE-MIXED CONCRETE

- Requirements – a panel of pre-qualified suppliers to supply the City's ongoing requirements for pre-mixed concrete.
- A request for applications was advertised on 11 June 2022, closing on 7 July 2022.
- Two applications were received and City Officers are in the process of reviewing the applications.
- The CEO has delegated power to appoint contractors to panels of pre-qualified suppliers.

RFT 06/22 AIRPORT – BMRA Transportable buildings

- Requirements – a suitable supplier to construct up to three transportable buildings at Busselton Margaret River Airport.
- A request for tender was advertised on 2 July 2022, closing on 21 July 2022.
- The value of the contract is not expected to exceed the CEO's delegated power for accepting tenders.

RFT 07/22 Dunsborough Waste Facility – Landfill Liner Cell 2

- Requirements – a suitable supplier to supply and install a new landfill liner at Dunsborough Waste Facility, Cell 2.
- A request for tender was advertised on 13 July 2022, closing on 3 August 2022.
- The value of the contract is expected to exceed the CEO's delegated power for accepting tenders.

PQS 03/22 SUPPLY QUARRY PRODUCTS

- Requirements – a panel of pre-qualified suppliers to supply the City's ongoing requirements for quarry products.
- A request for applications was advertised on 16 July 2022, closing on 4 August 2022.
- The CEO has delegated power to appoint contractors to panels of pre-qualified suppliers.

Community Assistance Program 2021/22

City of Busselton
Geographe Bay

Panel Assessment – ROUND 6

	RUNNING BUDGET TOTAL:		**$41,313**
ORGANISATION:	**PROJECT TITLE:**	**REQUESTED AMOUNT:**	**RECOMMENDED FUNDING AMOUNT TOTALS:**
CAPE MOUNTAIN BIKERS	STAGE 3 MEELUP ZONE MOUNTAIN BIKE TRAILS	$22,000	$22,000
BUSSELTON POTTERY GROUP	CONSTRUCTION OF ANNEX	$10,000	$10,000
CINEFESTOZ (GEOGRAPHE FRENCH AUSTRALIAN FESTIVALS)	AUSLAN INTERPRETERS FOR CINEFESTOZ	$2,720	$0
	ROUND 6 TOTAL	**$34,720**	**$32,000**
	CAPS REMAINING BUDGET		**$9,313**

18. MOTIONS OF WHICH PREVIOUS NOTICE HAS BEEN GIVEN

Nil

19. URGENT BUSINESS

20. CONFIDENTIAL MATTERS

Nil

21. CLOSURE