

EMU BEACH

Foreshore Management Plan

Prepared for City of Albany Project Control Group and Steering Committee

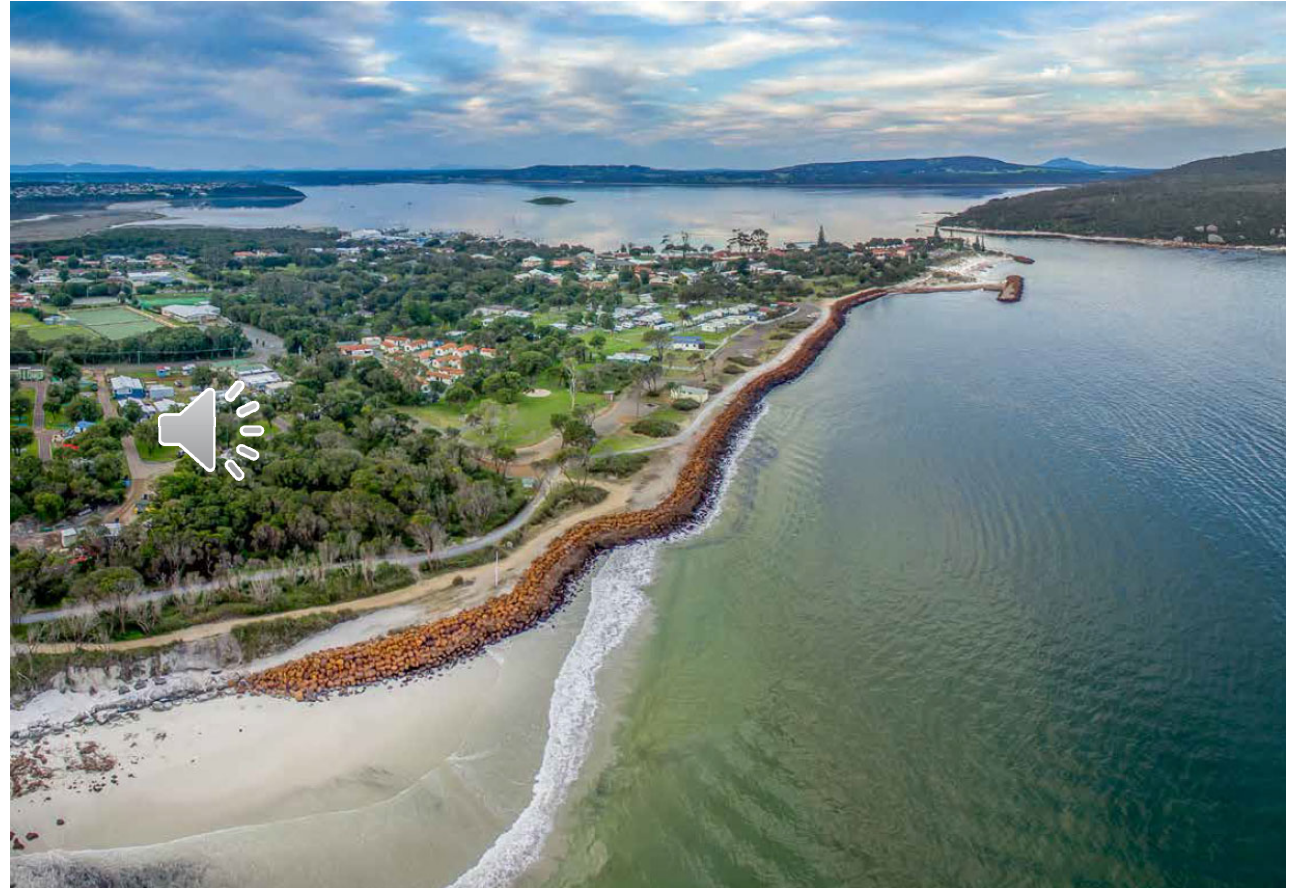
May 2021



Foreshore Management Plan (FMP)

Project Overview

- Tasks 1 - Initiation and Task 2 - draft FMP 30% complete
 - Presentations to Project Control Group and Steering Committee undertaken on 25 – 26 February 2020
- Task 3 - draft FMP 50% complete
 - Draft FMP 50% complete delivered on 07 April 2020
 - Virtual presentation to Project Control Group and Steering Committee
 - Virtual display boards for community consultation
- Task 4 - draft FMP 90% complete
 - Draft FMP 90% complete delivered on 30 April 2021
 - Virtual presentation to Project Control Group and Steering Committee
- Task 5 – FMP 100% complete
 - Delivered post receipt of comments on draft 90% complete documentation



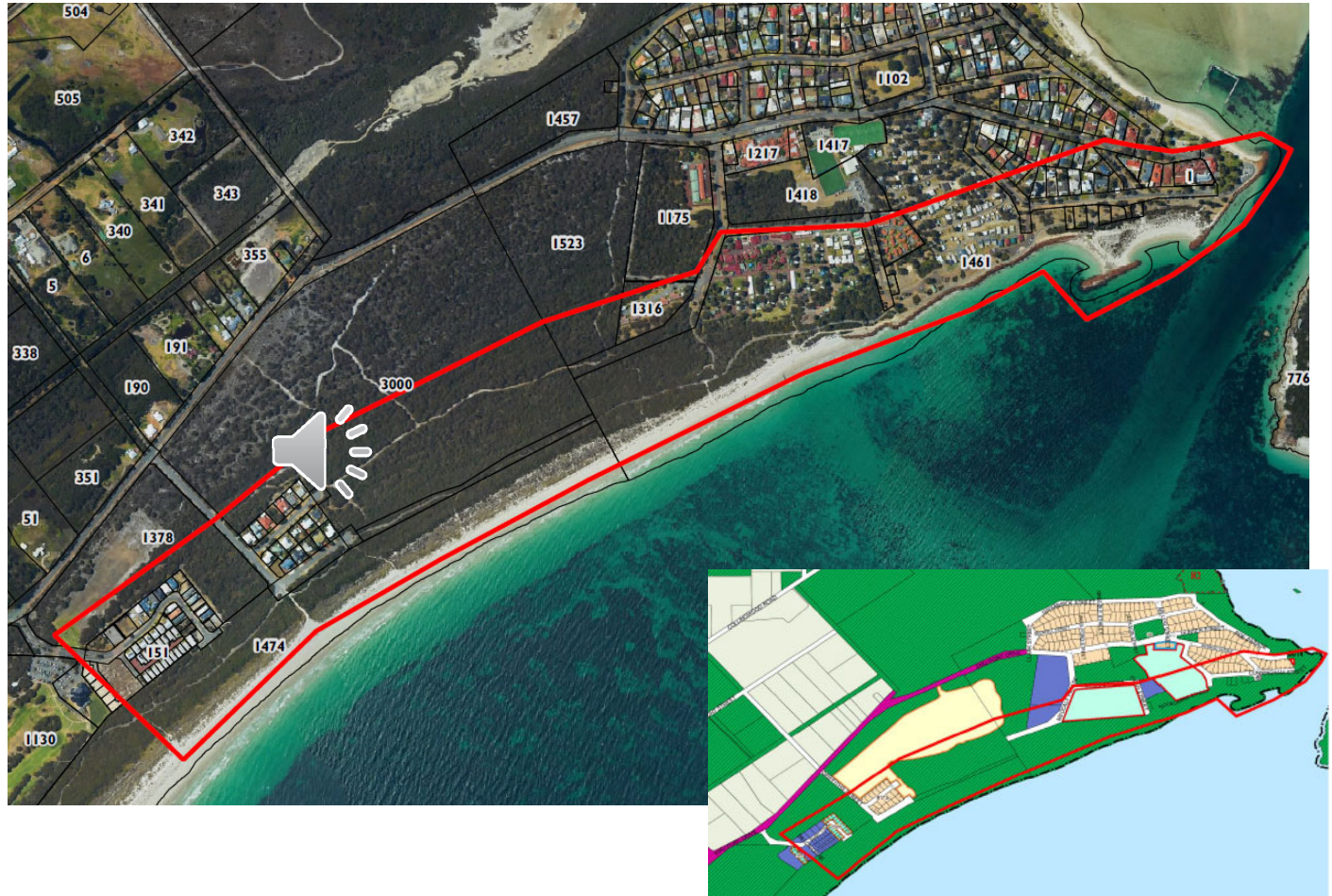
FMP Purpose

The Emu Beach FMP has been prepared to provide the management framework for the implementation of the coastal adaptation responses in the Emu Point Beach and Emu Point localities, consistent with State Planning Policy 2.6: State Coastal Planning Policy and the endorsed Emu Point to Middleton Beach Coastal Hazard Risk Management and Adaptation Plan.



FMP Project Area

- 8.5 km north-east of Albany city centre
- 59 ha parcel of coastal land
- Key land uses:
 - CoA-managed coastal foreshore reserves
 - Residential development:
 - Barry Court and Dillion Close, Griffiths and Hope streets and Cunningham Street
 - Holiday accommodation:
 - Emu Beach Big4 Holiday Park
 - Havana Villas
 - Rose Gardens Beachside Holiday Park
 - Future urban development:
 - Emu Point residential estate



Flora and Vegetation



Terrestrial Fauna



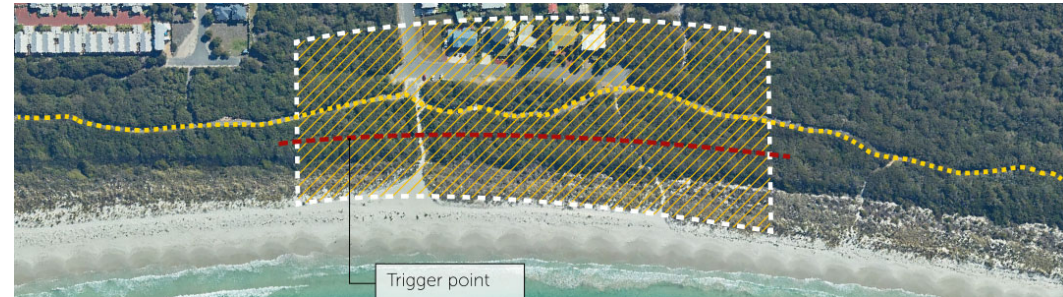
Coastal Hazard Risk Management and Adaption Plan (CHRMAP)

- Assesses the coastal processes potentially affecting the FMP project area over a 100-year planning period in accordance with SPP 2.6 requirements
- Identified coastal processes allowance lines to inform potential coastal hazard risk over the 100-year planning period



CHRMAP Recommendations

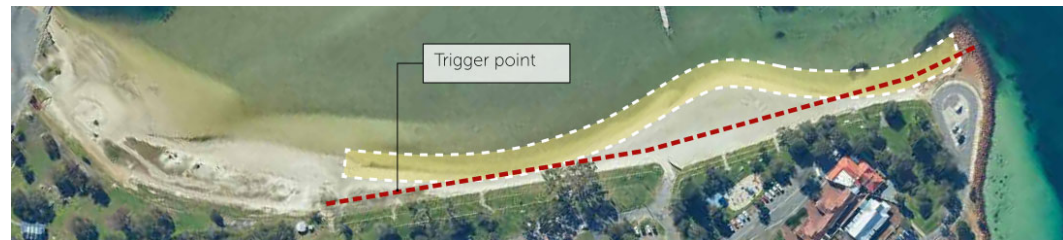
14. MU3: Properties on Griffiths Street - Managed Retreat. Relocate properties from Griffiths Street
15. MU3: Emu Beach Holiday Park - Managed Retreat of assets in the southern portion
16. MU3: Emu Beach Holiday Park – Upgrade of groyne field
17. MU3: Emu Beach Holiday Park - Upgrade existing protection structure (western extent)
18. MU4: Foreshore Reserve - Seagrass replenishment program to be continued
19. MU4: Foreshore Reserve - Revetment be upgraded (eastern extent) and redevelopment of foreshore park and removal of sandbag revetments
20. MU5: Eastern Oyster Harbour Beach - Sand nourishment



recommendation 14



recommendation 15-17, 19



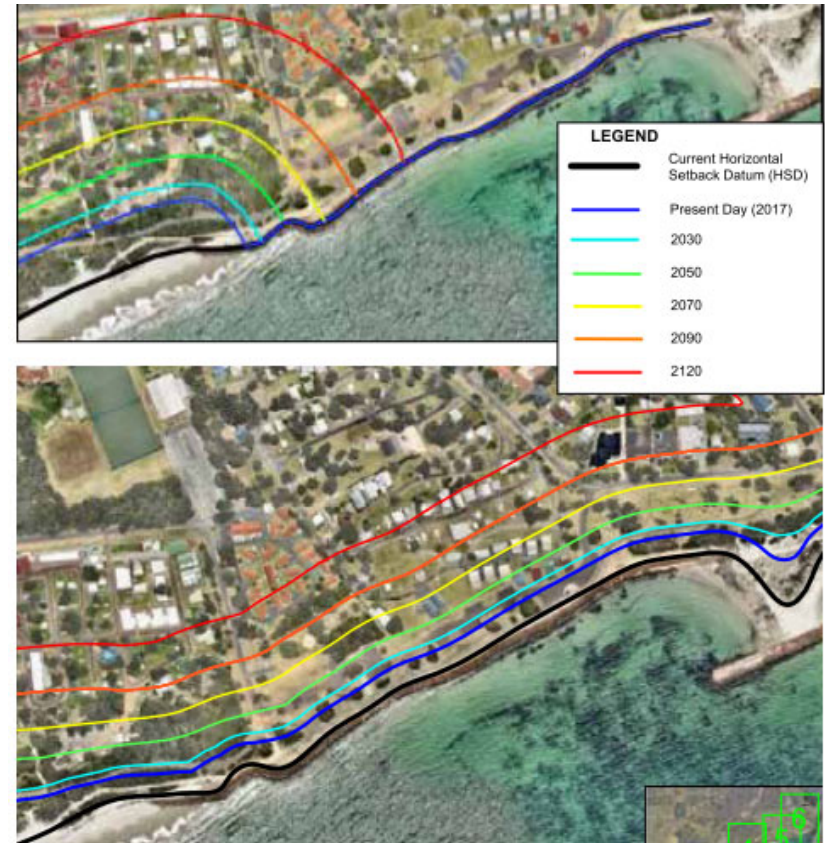
recommendation 20



Proposed Coastal Infrastructure

Design Requirements and Key Principles

- The first row of houses on Griffiths St are the most vulnerable private property to coastal inundation as they are located furthest seaward without any 'hard' coastal protection
- The rock revetment seawall in in MU4 is critical to the preservation of important coastal assets, it is nearing its design life and may pose risk for public access
- The shared path and foreshore reserve fronting Big4 is at risk from inundation due to an eroded upper beach
- The trial GSC groyne structures have been shown to retain sediment on the west and due to their reduced length and lowered profile allow sediment to bypass. They are currently at the end of their initial trial life
- Eastern section of Oyster Harbour Beach is prone to seasonal erosion reducing recreational amenity due to the point of no useable beach.
- Coastal protection is to have a design life of at least 50 years (may be staged) and to be developed in conjunction with key stakeholders to provide high quality community amenity
- Avoid locating facilities too close to an eroding shoreline or on the eroding side of a groyne where there is a risk of damage or loss
- Stabilise adjacent exposed sand through planting or mulching the surface



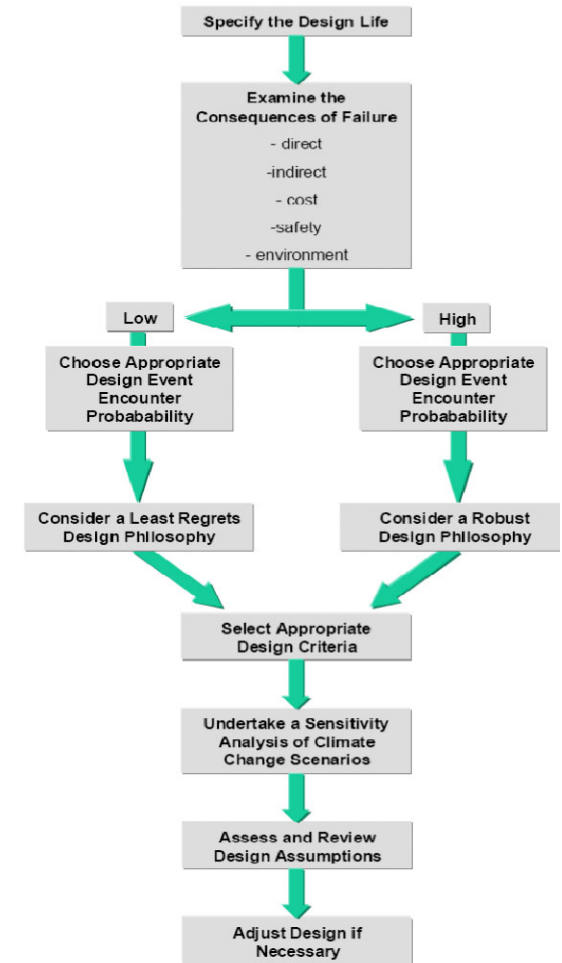
MU4 Hazard Map with existing structures (top) without existing structures (bottom)



Proposed Coastal Infrastructure

Design Process

1. Determine the water level range for the site – including wave setup and sea level rise
2. Determine the design storm wave heights
3. Select minimum stable armour size for the design waves
4. Determine run-up as well as permitted overtopping to decide the crest elevation
5. Aim to protect and maintain coastal foreshore reserves, integration of coastal/marine planning and land use planning, protection of significant views and vistas, protection of significant natural landscapes and protection of significant indigenous and cultural heritage
6. Design scour level, adequate toe protection and founding
7. Design suitably sized, sorted and compacted filter layer as well as geotextile layers and fill material and compaction for new designs or expanded seawall sections
8. Confirm extent, spacing and alignment of rock structures (groynes and revetment)



Proposed Adaptation Concept - Short Term (0-10 years)

- **Groyne field** to be upgraded:
 - Additional groyne to be added (following detailed design)
 - Length, width, height and spacing of groynes to be finalised (following detailed design)
 - All groynes to be built from suitably sized granite
 - Beach nourishment to infill between western groyne and rock revetment. Beach will be graded and profiled over the dry beach to match natural profile.
- **Triggered** beach nourishment:
 - Eastern section of Oyster Harbour
- **Opportunistic** beach nourishment:
 - upper beach between the western groyne and rock revetment
 - the western lee of the detached breakwater

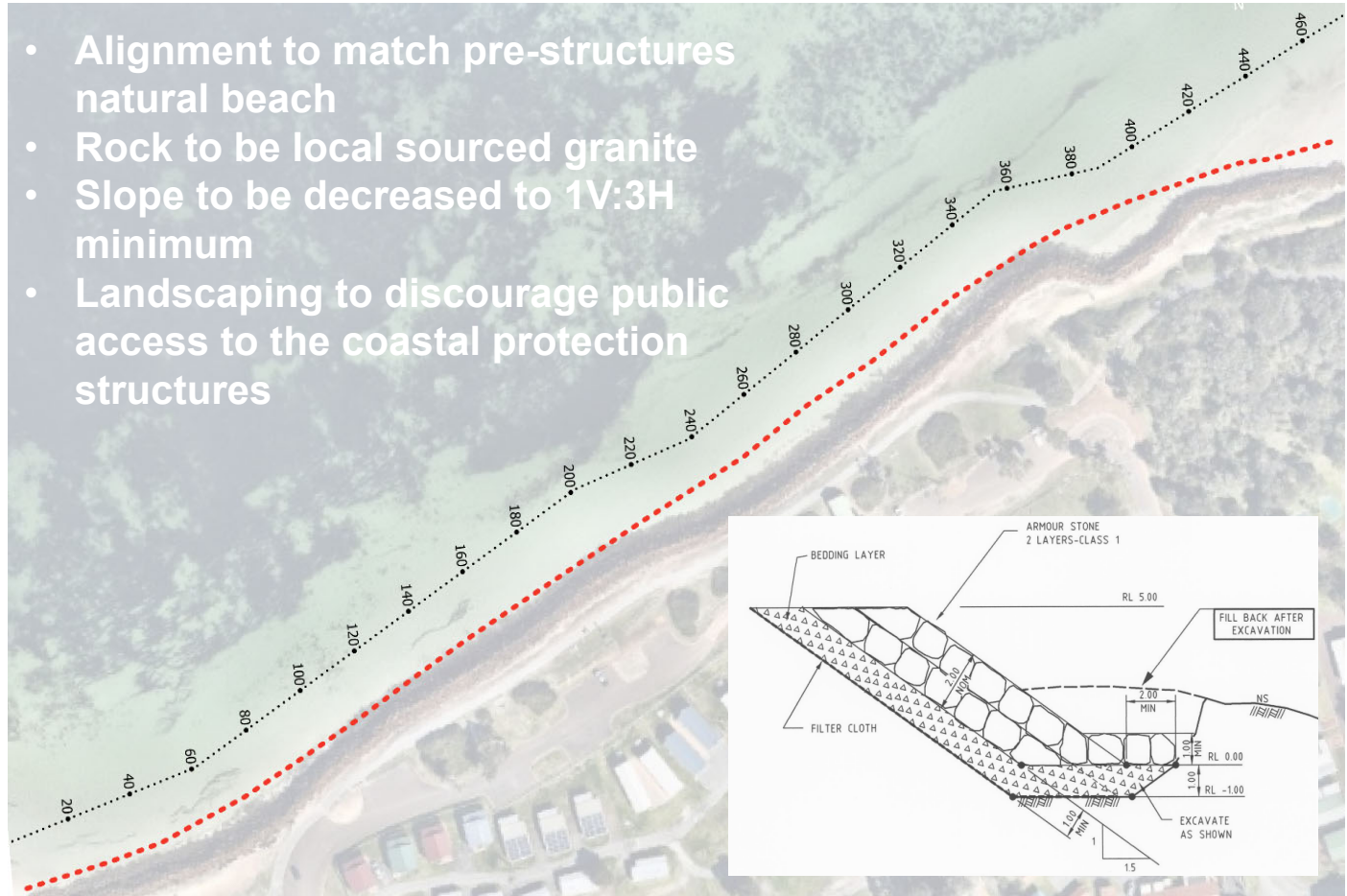


Proposed Adaptation Concept - Triggered

Rock revetment to be upgrade based on a **Trigger Value:**

- rating of 'Very Poor' resulting from standardised assessment
- Greater than three (3) overtopping events of the structure within a 12-month period
- A condition assessment of structures to be undertaken every 3 years

- Alignment to match pre-structures natural beach
- Rock to be local sourced granite
- Slope to be decreased to 1V:3H minimum
- Landscaping to discourage public access to the coastal protection structures



Current and proposed alignment

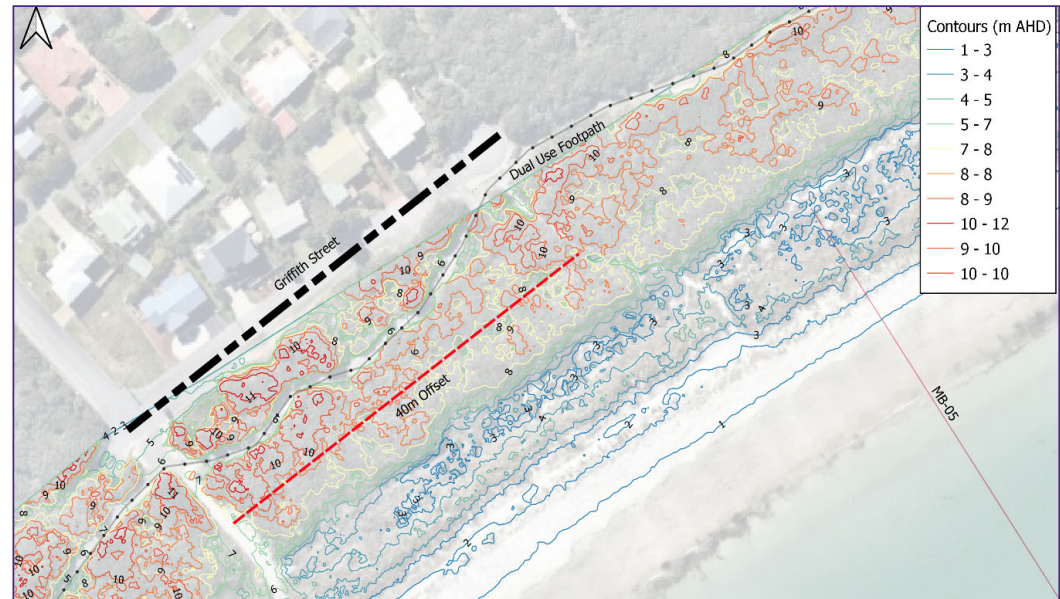
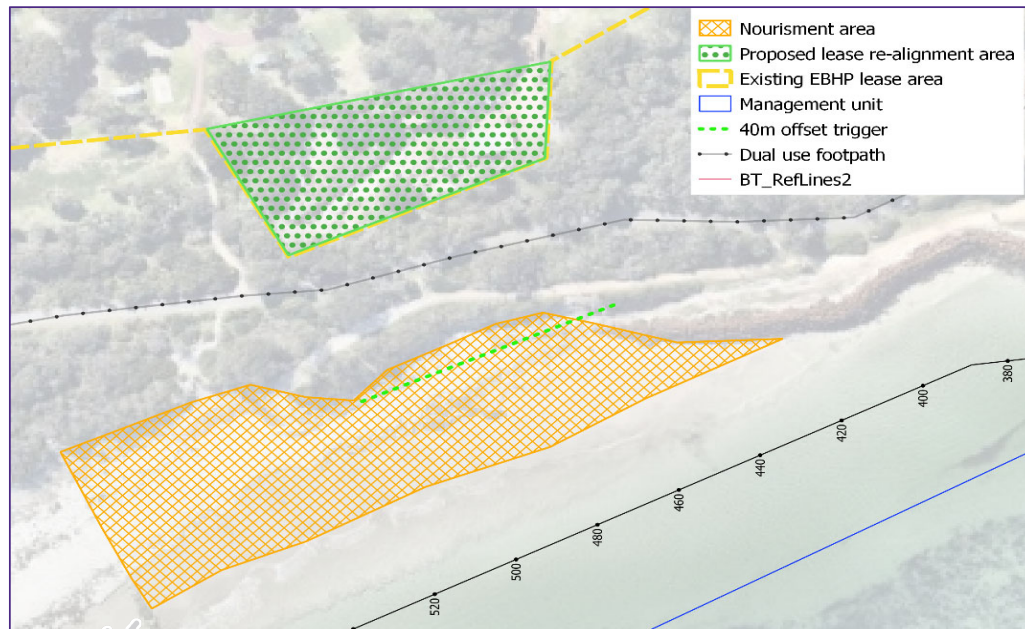


Proposed Adaptation Concept - Triggered

Managed retreat of assets based on a *Trigger Value*

Emu Beach Holiday Park (southern assets):

- Relocation of assets when HSD is less than 40m from lease boundary
- The City has been working with the leaseholder (Big4) to plan for staged retreat of assets within the southern portion of the site as well as commence discussions around the re-alignment of the current lease boundary

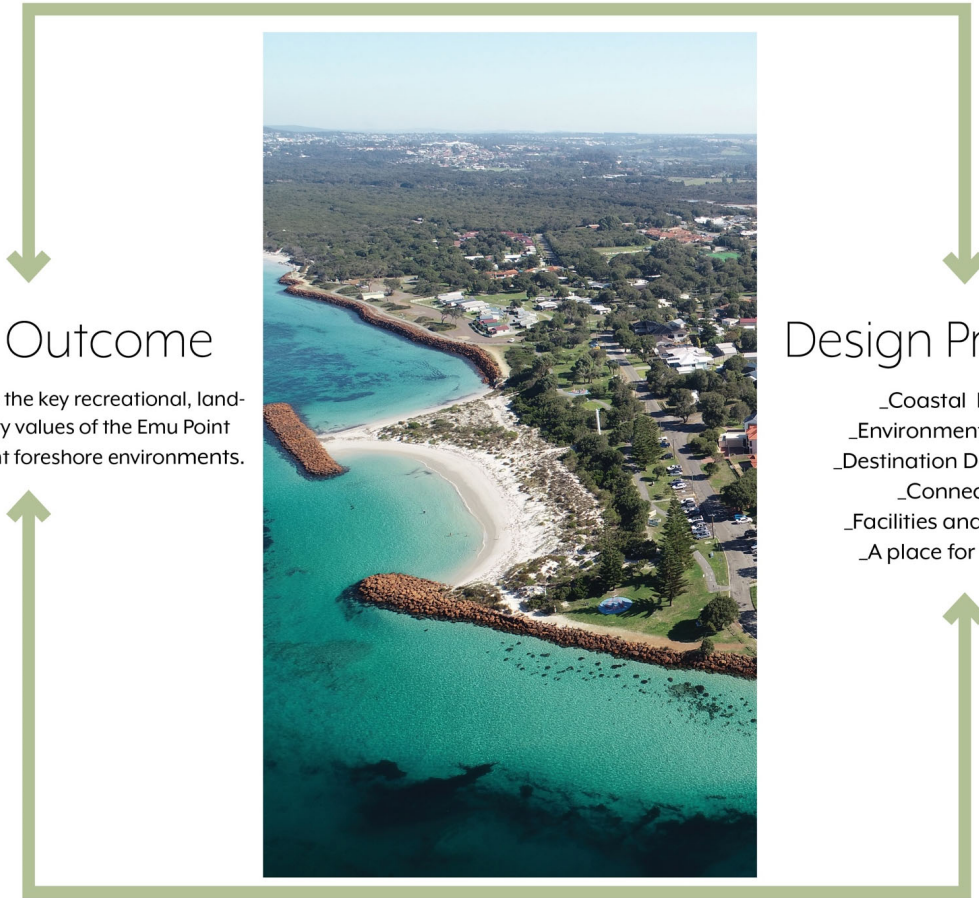


Griffiths St:

- Relocation of properties when Horizontal Shoreline Datum (HSD) is less than 40m from Griffiths Street



Landscape Design Principles



Design Outcome

Retain and enhance the key recreational, landscape and amenity values of the Emu Point Beach and Emu Point foreshore environments.

Design Principles

- _Coastal Identity
- _Environmental Quality
- _Destination Development
- _Connections
- _Facilities and Amenities
- _A place for Everyone

The City of Albany has previously conducted community surveys as part of the Emu Point to Middleton Beach Coastal Adaptation and Protection Strategy (2013) along with the Coastal Parks Enhancement Plan (2014)

Strategic values critical to the enhancement of the Coastal Parks including Emu Beach and its surrounds have been determined

These identified theme and values will form the key principles to the landscape design outcome for Emu Beach



Landscape Design Principles

Design Considerations



ACCESSIBILITY
Ensuring that the landscape is accessible to people of all abilities will result in repeat patronage and ensure an inviting place for all



COMFORT
Providing protection from both sun, rain and prevailing winds throughout the precinct with both vegetation and structures to ensure patron comfort



ENHANCED ENVIRONMENT
Through the protection and rehabilitation of remnant vegetation key wildlife corridors can be maintained to support species



LOCAL
Emu point should look and feel like a place that is itself. By using local materials and leaning on local vernacular to retain the landscape character across the site



DESTINATION
Strengthen and enhance the existing qualities of Emu Beach landscape and create a hierarchy various of activities



ROBUST
The use of robust, well-engineered materials within the coastal conditions allows the creation of a landscape that remains viable for many years to come



AMENITY
Establish varied and numerous amenities for public use to allow year round activation



CONNECTIVITY
Enhance existing connections to the pedestrian/cycle network with the creation of nodes



VEHICLE MANAGEMENT
Priorities pedestrians where possible + formalise parking to increase capacity and improve use of recreational spaces

Emu Beach

Foreshore Management Plan

2

Landscape Design Principles

Design principles plan

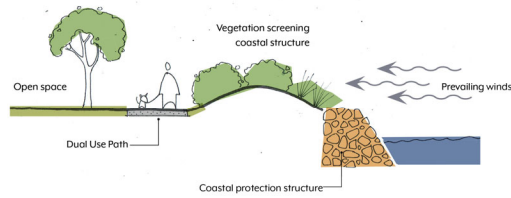


-  **Amenity** Provide additional and upgrades to public amenities
-  **Comfort** Provide protection from coastal elements with landforms and robust structures
-  **Accessibility** Provide universal access along the parkland allowing greater moment for all
-  **Connectivity** Provide a continuous connection along the waterfront finalising the port to point link
-  **Vehicle Management** Rationalise parking and road layout enhancing the legibility of vehicles and shared
-  **Enhanced Environment** Increase ecological value and increase native vegetation along the foreshore including increased tree canopy
-  **Destination** Creation of spaces that enhances the user experience for both local and tourists to Emu Beach

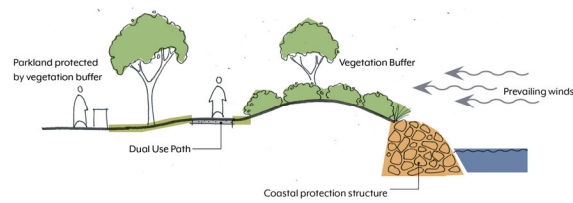


Landscape Design Principles

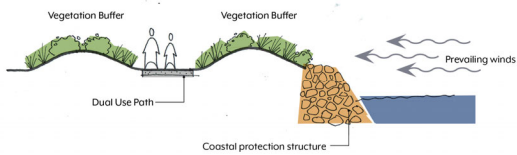
Design Strategy Sections



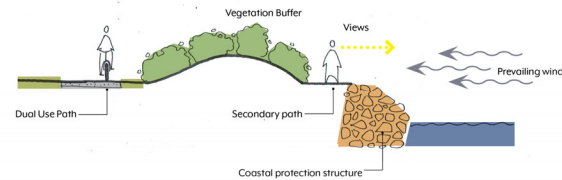
1_Vegetation Buffer



3_Buffer to Parkland



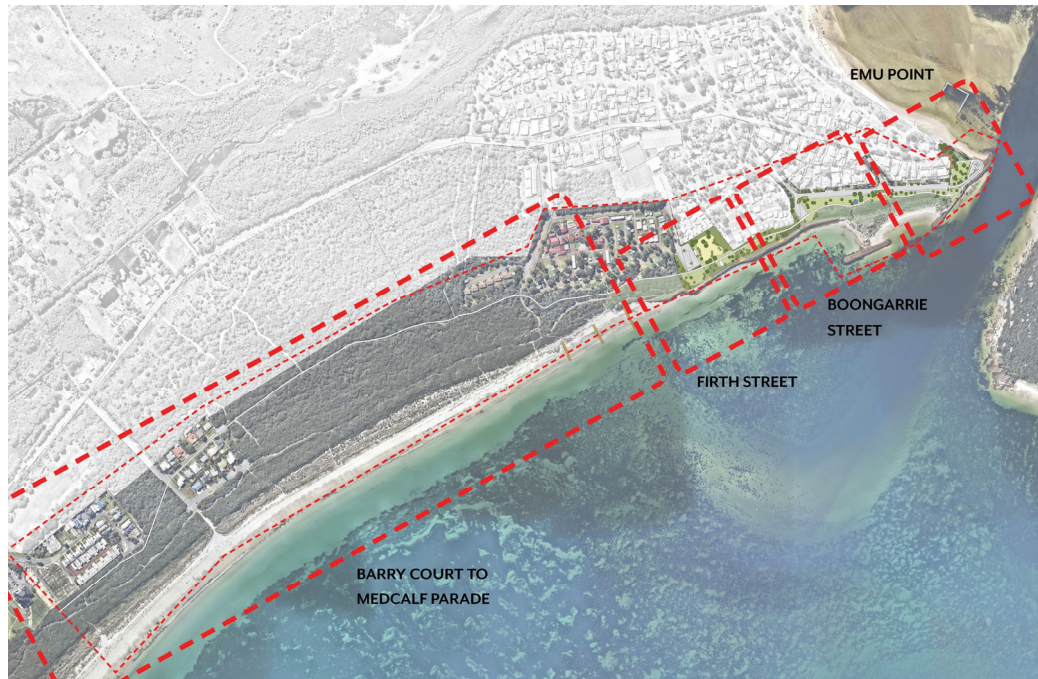
2_Dual Vegetation Buffer



4_Dual path Buffer

Landscape Masterplan

Overall plan



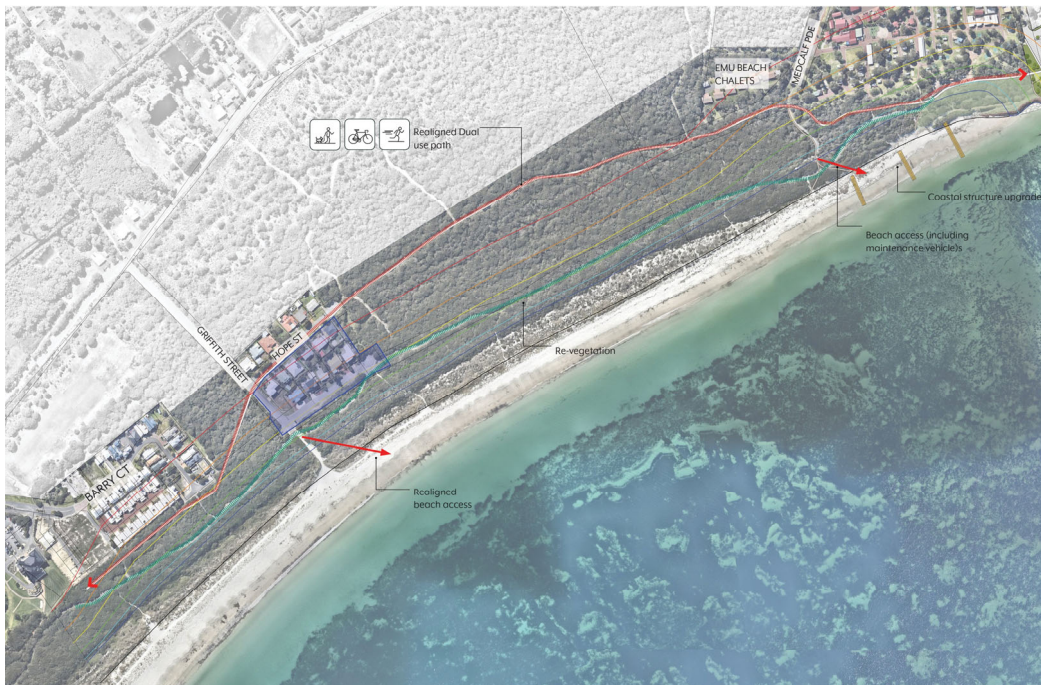
Emu Beach

Foreshore Management Plan

5

Landscape Masterplan

Barry court to Medcalf parade



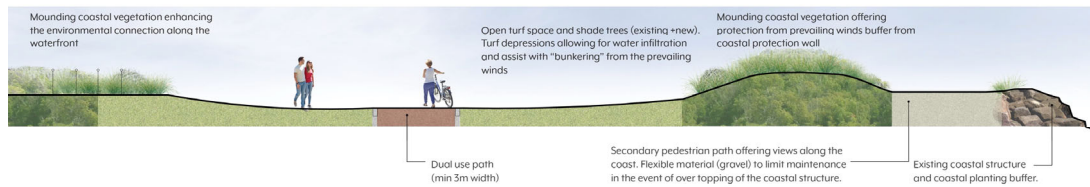
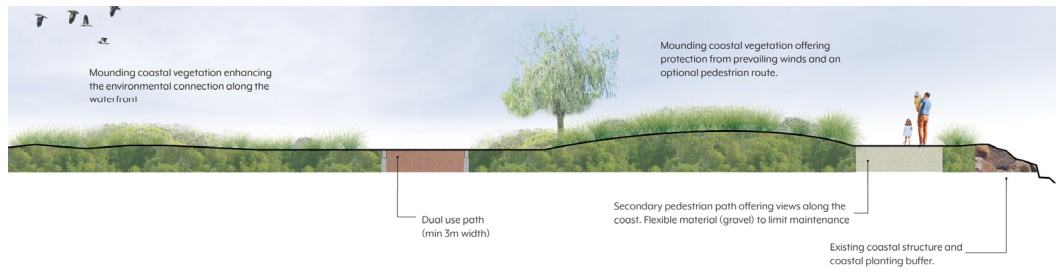
Landscape Masterplan

Firth street



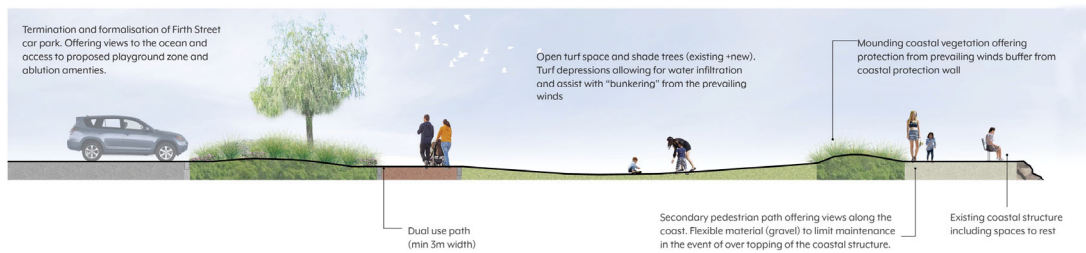
Landscape Masterplan

Typical sections



Landscape Masterplan

Typical sections



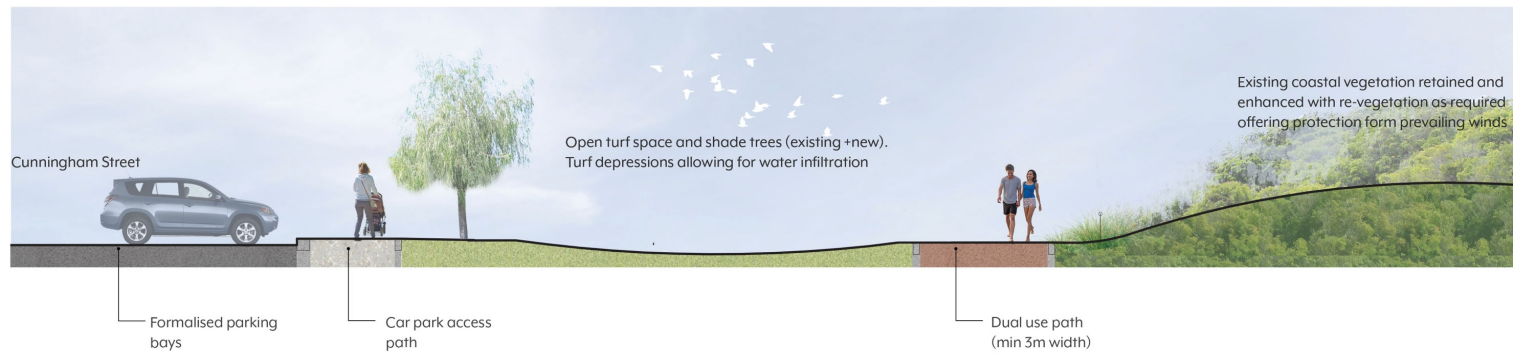
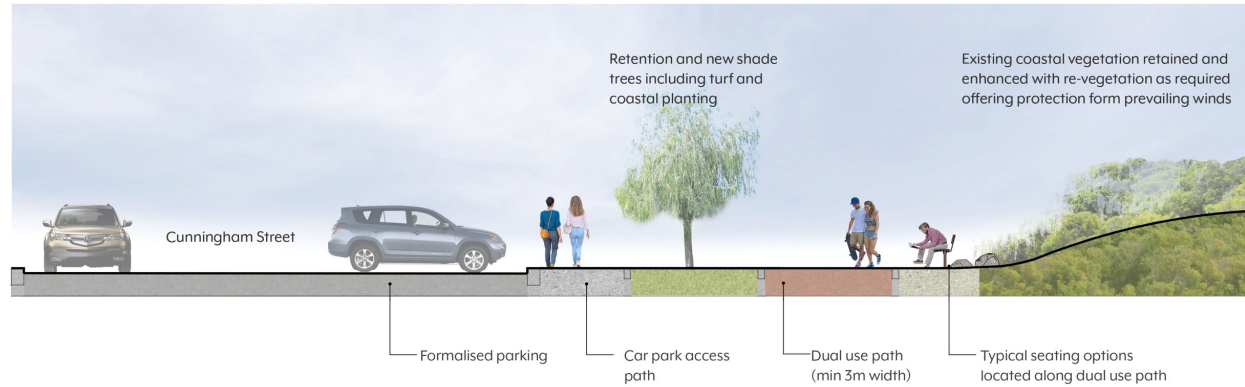
Landscape Masterplan

Boongarrie street



Landscape Masterplan

Typical sections



Landscape Masterplan

Emu Point

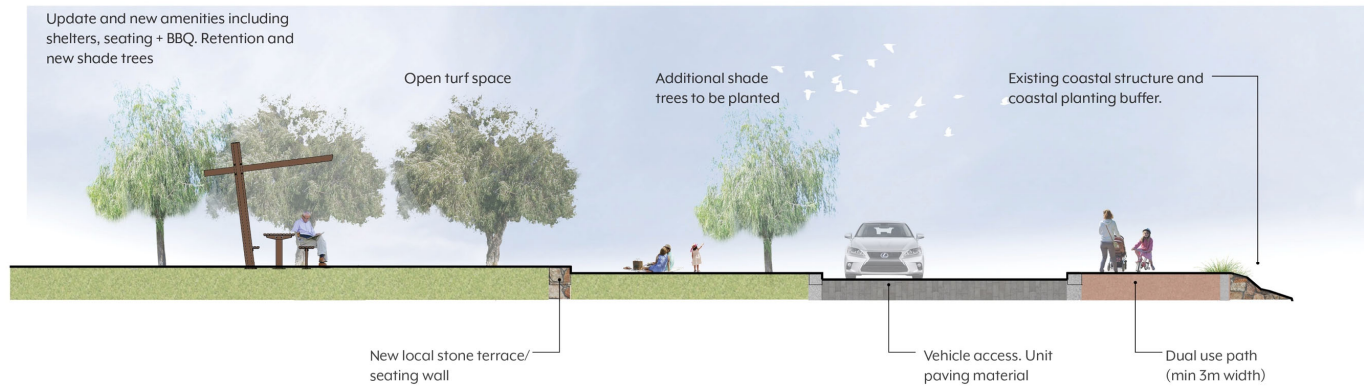
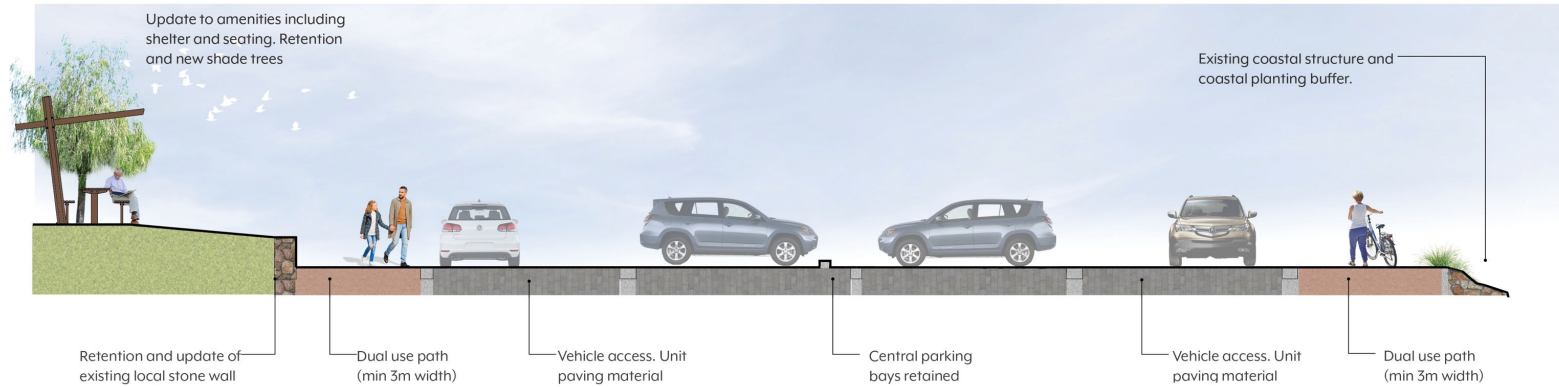


Emu Beach

Foreshore Management Plan

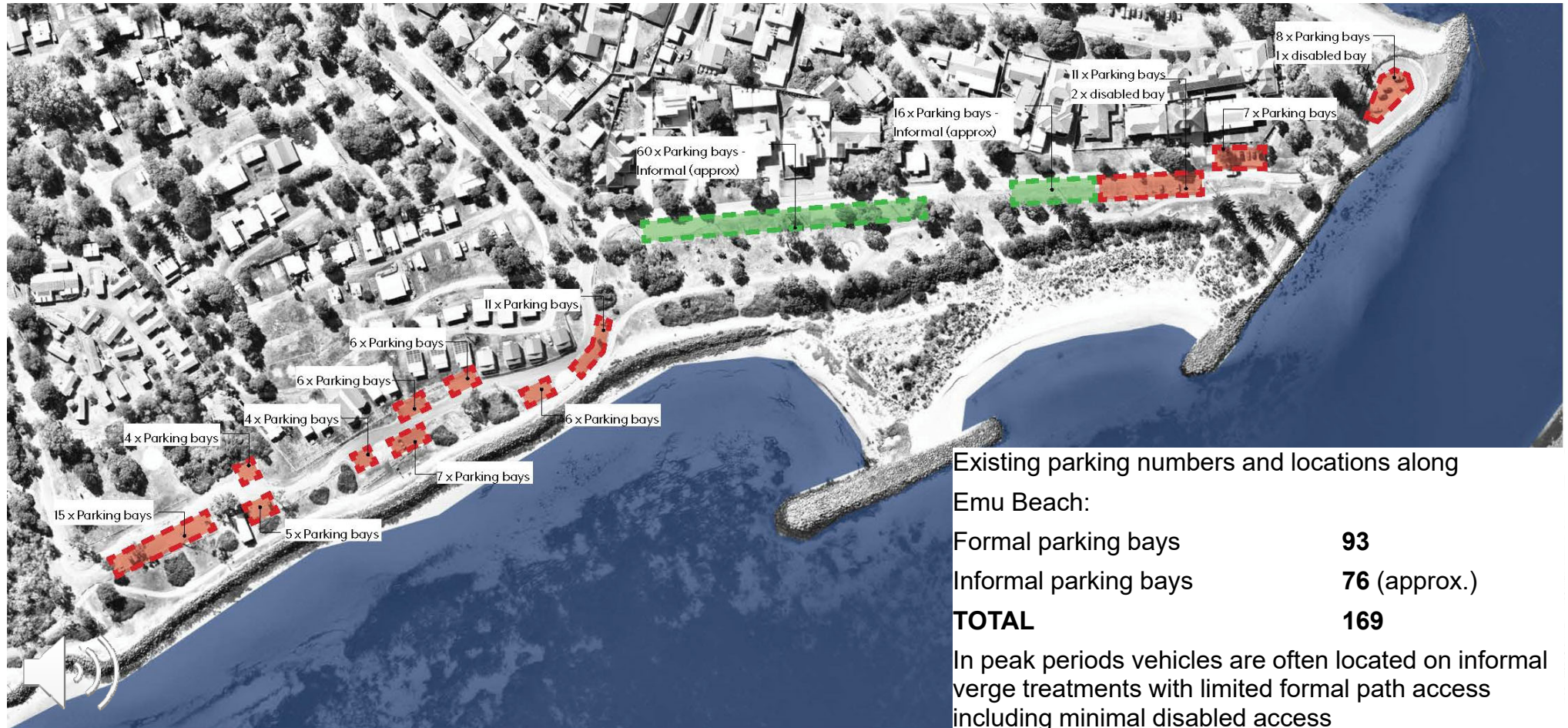
Landscape Masterplan

Typical sections



Landscape Masterplan

Existing Parking



Emu Beach

Foreshore Management Plan

Landscape Masterplan

Proposed parking

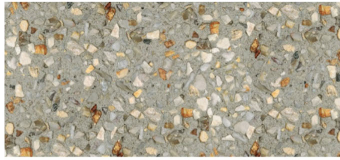
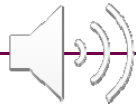


Emu Beach

Foreshore Management Plan

Landscape Palette

Finishes, furniture + fixtures



1. Exposed aggregate concrete - Sandstone Pebble

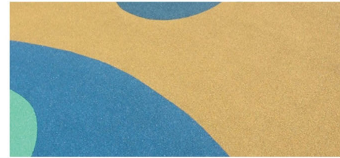
2. Asphalt

3. Composite deck

1. Bench seating

2. Picnic Setting

3. Shelter



4. Unit Paver

5. Stabilised local granitic/gravel fines

6. Softfall

4. Barbecue

5. Bins

6. Exercise equipment

7. Bike Racks



7. Local stone walling

8. Off-form concrete

9. Block Work Walling

8. Drinking Fountain

9. Shower

10. Bollards

11. Fencing

12. Way finding + interpretation

Emu Beach material palette will require selections to offer the following; robustness, long term sustainability and create a sense of place
 The extreme coastal conditions will require materials to be resilient and tough. Constant salt winds and moisture along with frequent public use will require materials to be hard wearing whilst reducing overall maintenance requirements for the City
 A palette with a strong sense of place will play an important role in ensuring Emu Beach maintains its uniqueness while creating a memorable experience

Landscape Palette

Coastal Planting



Emu Beach foreshore, parkland and street scape has the opportunity to utilise both local and West Australian coastal species. Many of the species are available commercially allowing planting to enhance the local material palette whilst ensuring low water use and maintenance

Low level planting is nominated to maintain site lines in key open public spaces with the inclusion of larger coastal shrubs to offer protection and buffer the strong prevailing coastal winds

Native trees to be selected to offer shade along the parkland whilst ensuring the species are adaptable in the harsh coastal conditions

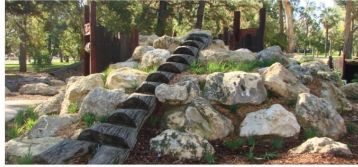
Rehabilitation and re-vegetation of the emu beach foreshore is critical to ensure the future of the key wildlife corridor increasing biodiversity whilst improving user experience

Landscape Destination

Play space



PUMP TRACK



NATURE PLAY



ALL AGES



MULTI USE COURTS



A destinational play space creates the opportunity to bring together both the local community and visitors to the region.

The inclusion of various play options ensures that all members of the community are catered for. With the opportunity to include intergenerational play elements with a range of activities including; multi use courts, nature based play, pump track and an all ages/ inclusive and accessible playground

Pump track - a multi use track for all ages offering locals and visitors year round entertainment and exercise

Nature play - responding to the surrounding natural coastal environment and encouraging children of all ages to explore and interact with 'nature'

All ages/inclusive and accessible - a play space designed to cater for all ages and disabilities. With the added benefit of proximity to both parking and ablution facilitates

Multi-use courts - various courts offering individual and group exercise opportunities for both local and visitors to the region staying within the Emu Beach accommodation zone



FMP Implementation – Short term actions

Next 0-10 years

- Implement sand nourishment in the eastern corner of the Oyster Harbour Beach, when there is less than 5 m between the HSD and the northern groyne
- Identify the coastal vulnerability of the FMP area in the CoA's strategic planning framework
- Undertake a planning scheme amendment to include the vulnerable zone (the modelled hazard area to 2120) in a Special Control Area
- Agree on updated lease arrangement for the southern portion of the park with Emu Beach 'BIG4' Holiday Park
- Seek State and Federal funds to undertake the capital works for the Landscape Master Plan and granite boulder groyne field establishment
- Commence Emu Beach sand nourishment



FMP Implementation – Medium term actions

Next 10-50 years

- Investigate the opportunity to acquire at risk land as it becomes available on the public market, when the HSD is less than 40 m from Griffiths Street
- Seek State and Federal funds to undertake the capital works for the upgrades to the existing coastal protection structures when:
 - any section of rock revetment is assessed to be in "Very Poor" condition; or
 - more than three overtopping events of a rock revetment structure are recorded within a 12-month period.

