BRIDGEWATER FORESHORE MASTER PLAN

DRAFT ISSUES AND OPPORTUNITIES DISCUSSION PAPER

Written By Phillip Loone
Edited by Project Steering Group
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INTRODUCTION

This issues and opportunities paper explores the key issues put forward by the stakeholders and the opportunities.

The purpose of the Bridgewater Master Plan that incorporates the Coastal Management Plan (the management plan) is to set clear directions for the future management and improvements to the Bridgewater Foreshore Reserve (the foreshore reserve).

The plan serves as a guide for any Committee of Management as the organisation responsible for the management of the Foreshore Reserve, and to the various individuals, groups and organisations that use the reserve in some way. This issues and opportunities paper explores some of the options and key outcomes to address the emerging issues to do with:

- Ground water
- Beach access
- Dune and foreshore erosion
- Sea level rise
- Layout
- Formal paths
- Cars and pedestrians
- Facilities
- Green space and day visitor facilities
- Amenities and maintenance
- Aboriginal interpretation

Description of the study area

Bridgewater Bay Foreshore Reserve is located approximately 20km west of Portland at the western end of Bridgewater Bay. The Reserve is approximately 1km long and ranges between 20 and 120 metres wide. It extends from the high water mark to Bridgewater Road and has a total area of about 1.7ha. The key physical elements of the foreshore reserve include: (Figure 1 over the page shows the boundaries of the reserve).

- The beach environs
- The Bridgewater Surf Life Saving Club
- The Bridgewater Kiosk/cafe;
- Public change rooms, showers and toilets;
- Boat ramp; Beach access paths; and,
- Car parks and service areas.
Strategic context

The foreshore reserve is an integral part of Bridgewater Bay and has many unique natural features and attractions within the bay. The area is one of the most popular recreational beaches in the Council region.

The foreshore reserve is located at the bottom of the water catchment surrounded by steep hills. The topography provides a sense of enclosure and remoteness to the beach environs and there are views to close and distant landmarks.

Bridgewater Road provides an edge to the foreshore reserve and is the only access to Cape Bridgewater. Residential dwellings and tourist accommodation overlook the beach.

Management principles

The management plan seeks to strike a balance between the protection of environmental values and to ensure that the use of coastal resources occur in a sustainable way for future generations to enjoy. The guiding principles relate to the following matters:

- Maintain beach & water quality
- Protection of coastal assets (infrastructure)
- Retain the coastal character
- A well connected foreshore
- Safe vehicle & pedestrian movement
- Dune and foreshore protection
- Sustainable use of the natural assets
- Protect wildlife habitat
- Responsive day visitor facilities
- Coastal dependant uses
- Well maintained amenities.

Community consultation

The management plan was developed through a process that engaged the community and key stakeholders. The issues and opportunities identified can be seen in Appendix 1.
Figure 1 - Boundary of the study area
KEY PLANNING ISSUES

Ground water

Ground water is sourced from a bore and locally used. The Portland (Bridgewater) Surf Life Saving Australia (Surf Club), public toilets and the Bridgewater Kiosk are plumbed to septic systems. Algal plumes have appeared on the beach and are evidence of nutrient loading in the sand. The plumes that appear on the beach can cause algal discoloration and smell.

Beach access

There are many informal paths to the beach opposite the car parks. People who arrive to the beach by car often access the beach at the nearest point. Informal beach access is causing loss of vegetation, dune instability and lowering of the dune/beach profiles. The narrow wooden beach steps are not user friendly and as a consequence are infrequently used i.e. especially if you are carrying a surf board or supplies.

Dune and foreshore erosion

The historic profile of the dunes is being lowered by the destabilisation of vegetation and loss of sand from the crest of the dunes. The lower dune profile reduces the effectiveness of dunes as a buffer and as a first line of defence against storm events and inundation. Dune instability in front of the Kiosk presents a risk to this property with continued foreshore recession.

Figure 2 – Historic photos.
Sea level rise

Monitoring stations at Lorne and Stony Point in Victoria have recorded sea level rises of 2.8mm per year and 2.4mm per year respectively since 1991 (National Tidal Centre, BoM, 2006). Sea level rise and storm events are likely to accelerate erosion and more frequent inundation of coastal structures.

Layout

The layout of the reserve is fragmented and disjointed because of inadequate definition of the boundaries of the reserve, car parks, buildings and green spaces. The foreshore lacks adequate fences to appropriately direct users. The lack of connections also contributes to a perception that the reserve lacks a coherent structure.

Formal paths

The reserve has weak connections to the surrounding residential areas and the regional paths. The absence of a foreshore promenade to link car parks, steps to the beach and facilities results in informal movement throughout the reserve and to the beach. Pedestrians currently walk in between the cars to walk along the reserve. There are few formal paths to direct movement to popular destinations.

The Bridgewater Kiosk straddles the foreshore reserve and restricts public access through this part of the reserve. The design of the western track (leading to the upper car park) is not easy to use and is not suitable for disabled access. Further sections of the track to the seal cruises jetty could be improved.

Cars and pedestrians

There is a mix of pedestrians and traffic during busy periods especially at the entrances to the reserve, car parks and in front of the Surf Club. This increases the likelihood of accidents occurring at these access points. Pedestrian and bicycle movement should be clearly separated for ease of movement and safety. There is limited bus, boat trailer or designated disabled parking.

Facilities

There are three separate coastal buildings in close proximity to one another. The facilities are inadequate to service times of peak usage. Each building has limited capacity to service the users. Buildings collectively occupy limited space and the uses are separated by the car parks. Movement between buildings and the car park leads to an undesirable mix of vehicle and pedestrian movement. The surf club and kiosk have inadequate change rooms and toilets respectively.
Need for green space and day visitor facilities
The beach provides a wonderful setting but it is exposed to the natural elements. There is a need for comfortable green spaces for visitors to the area. Improvements may include park furniture, day visitor facilities, shade, lighting and bicycle facilities for visitors.

Amenity
Amenity of the reserve includes eroded dunes, basic fences, basic car parks, above ground power lines, old wooden steps, various signs and the use of non-coastal colours on buildings. Weeds and dilapidated edges also detract from the coastal character. Above ground water tanks and plumbing also impact on the visual aesthetics.

Maintenance
Council have overall management responsibility for the foreshore reserve including the lease of buildings. Some consideration of forming a Community represented Committee of Management and or Coast Care Group should be explored to involve local residents with the maintenance of the foreshore reserve.

Aboriginal interpretation
The area is the Aboriginal spiritual and cultural homelands of Kilcarer Gunditj. Aboriginal connections extend back over a thousand generations. These connections can be recognised in creating an authentic sense of place by using cultural interpretation as a part of environmental design.
Figure 3 – Beach erosion.

Figure 4 – Movement between buildings.

Figure 5 – Car parks.

Figure 6 – Bicycle parking.

Figure 7 – Dune erosion.

Figure 8 – Weeds.
STRUCTURE AND LAYOUT

The foreshore reserve has a fragmented layout due to the existing boundaries to roads, car parks and the curtilage around buildings. Definition of the boundaries and the individual spaces will enable visitors to understand the layout of the foreshore reserve and move from one space to the next.

Well-defined edges are needed to reinforce the boundaries of the reserve, separate pedestrians from vehicles, limit access to natural areas and to communicate the different spaces within the reserve. The spaces should be well-defined and connected.

Fences, ground level changes, roads, trees, vegetation and paths should be used to define edges and reinforce the boundaries of the different types of space. The consistent use of materials, landscape themes and tree species would provide a unifying theme that binds foreshore reserve together as a whole.

Objectives
- To improve the overall layout of the reserve
- To improve legibility and movement along the foreshore, to the beach and the surrounding areas
- To clearly separate the building curtilage from the car parks.

Strategies
- Separate pedestrians from vehicle movement
- Use fencing as a consistent and unifying theme to bind the spaces together as a whole
- Strengthen the boundaries and better define the entrances to the foreshore reserve
- Improve the layout of car parks to maximise their parking capacity
- Create pedestrian friendly space around buildings
- Prevent encroachment onto the natural areas with effective barriers.
Management actions

- Strengthen the boundaries along Bridgewater Road i.e. crash rail protection, a fence, landscaping or trees
- Design the entrances to improve their functionality and a sense of arrival to the beach
- Install heavy duty timber bollards to define the edges of the car parks
- Reinstalment of the Norfolk Island Pines or alternatively a selection of indigenous coastal trees to provide shade and or edge definition
- Raised timber edges should be used on the beach side to separate the car park areas from the proposed foreshore promenade
- Timber edge treatments and where appropriate delineation of car parks that assist with car parking capacity
- A aim of 5 metres landscape curtilage (pedestrian space) to the front and sides of buildings.
BEACH MANAGEMENT

It is proposed to reclaim sections of the foreshore reserve where it has eroded. Soft engineering solutions including sand entrapment and dune reconstruction are proposed. Erosion to the central part of the foreshore has accelerated largely due to the destabilisation of the dunes by informal beach access and climate change. Erosion has reduced the width of the already narrow reserve and if left to continual erosion may eventually threaten coastal buildings and structures.

Historic photographs indicate that the profiles of dunes located in the central area of the beach have decreased due to the destabilisation of the sand dunes. The wide stable beach contains plenty of sand that can be used to restore dunes and reclaim areas of the foreshore that have eroded. The dunes provide the first line of defence to storm events, flooding, and projected sea level rise. Dune stabilisation will be assisted by the planting of local indigenous vegetation.

Figure 9 – Beach reclamation.
Objectives

- To ensure that there is no change to natural systems and processes
- To restore and stabilise the degraded dunes to their historic profiles
- To use soft engineering solutions to prevent foreshore erosion.

Strategies

- Foreshore reclamation to widen the foreshore reserve
- Dunes restored back to their historic profiles to provide a buffer to storm events, halt erosion and to prevent inundation.
- Ongoing community involvement/education with the maintenance of the foreshore.

Management actions

- Construct; sand traps, buried storm erosion limiting structures, rejuvenate beach protecting natural limestone rock outcrops, sand fencing to extend the dunes seaward and or other works to provide for a more effective natural buffer to storm events
- Invasive weeds should be removed and replaced with a program of planting local indigenous coastal vegetation
- Protect bird and wildlife habitat in dune restoration works.
BUILDINGS AND COASTAL STRUCTURES

Council have recently invested funds to improve the Bridgewater Kiosk including entering into a long term lease of the facilities and have made improvements to the amenities block. The building footprints are to remain ‘as is’ in the foreseeable future due to lease, building improvements and the expected existing building asset lifecycle. The existing community change rooms and toilets have the capacity for increased use however, internal refurbishment and modernisation of these facilities may be required.

Ideally in the long term there should be one building that encompasses all of the coastal dependant uses. The individual facilities alone struggle to provide all of the services. Consolidating the buildings would increase the capacity to deliver coastal dependant uses under one roof, maximise the use of limited space and may allow car parks and entrances to be better linked.

The long term amalgamation of buildings could be triggered by major renovations, significant infrastructure upgrades, loss of buildings due to unforeseeable circumstance, end of lease agreements or the availability of funding.

Objectives

- To consider coastal dependant uses and facilities
- To provide facilities that have the capacity to service all of the users
- To ensure that the design of buildings relates to the coastal character.

Management strategies

- Limit the net increase of building footprints
- Ensure design solutions can accommodate future amalgamation of facilities and infrastructure to only coastal dependant uses
- Modernise public amenities to maximise their use
- Continue with the use of the Kiosk until expiry of the lease or before this upon agreement
- Pedestrian friendly space around buildings
- Ensure that public access along the foreshore is not obstructed in front of the kiosk
- Design should be in keeping with the coastal character i.e. coastal colours
- In the long term establish a Technical Working Group (TWG) to investigate the amalgamation of buildings and uses within the foreshore area.
**Management actions**

- Further improve the public toilets & change rooms i.e. internal fit out update, modern toilets, natural light, solar hot water and coastal colours and any other improvements deemed necessary
- Council to liaise with Surf Club to maximise the use of public amenities and to discuss possible shared management of the community change rooms and toilets during key events
- Car parking areas in front of the Surf Club to be replaced with a curtilage in front and at the sides of buildings (aim of 5 metres)
- Shared pedestrian vehicle space that provides limited access to the boat ramp (possibly incorporating access for all abilities and disabled car parking)
- Widen the foreshore promenade in front of the Kiosk
- Utility services should be unobtrusive and where possible placed underground
- Investigate whether food vans should operate in the foreshore reserve area during key events
- Provide services such as water and underground power for foreshore community event activities
- Request DEPI investigate improvements to the cape track and refurbishment of the Seal Cruises jetty to promote it as a public walk and viewing area.
PATHS & OPEN SPACE

The beach is a popular destination for a range of users who require access to the beach. Limited formal paths contribute to the informal use of the reserve. Visitors who arrive by car tend to access the beach directly from the nearest point. The beach steps are frequently not used due to their design, functionality and or repair. This has resulted in a plethora of paths leading to the beach that has contributed to dune instability and foreshore erosion.

In the absence of a foreshore promenade pedestrians move in-between cars which creates potential conflict between cars and pedestrians. There should be stronger connections along the foreshore reserve, to the beach, and links to facilities and to the surrounding areas.

There are few comfortable green spaces and day visitor facilities. Amenities such as shade, seats and tables should be provided in green spaces. Aboriginal themes could be interwoven into the green spaces to add visual richness to the areas culture and history.

Objectives

- To ensure paths appropriately connect to the beach car parks and to the surrounding areas
- To provide more day visitor facilities and services
- To incorporate Aboriginal themes into the coastal landscape
- To provide access for people of all abilities.

Strategies

- Well designed and functional steps, and or all ability ramps where possible, located at regular intervals to the beach
- A foreshore promenade that connects with popular destinations
- Provide more green spaces with facilities, shade and park furniture
- Access for all abilities to be provided near the buildings and services
- Consistent use of local limestone, granitic sand, wood and natural looking finishes are the preferred materials
- Consistent stylised interpretative signage
- Protect views to Cape Bridgewater
- Maintenance consideration for foreshore, treatments and materials used.
Management actions

- Create stronger links from Portland to Bridgewater Bay via a path and the Great South West Track
- A foreshore promenade that links the car parks, beach and the facilities (this is to be located over eroded areas and over the existing dynamic rocks to create more effective buffer to the foreshore reserve)
- Rationalise informal paths to the beach (this may require fencing)
- Better designed beach steps - wider, more functional and safer (aim at not more than 100 metres apart and a minimum width of 3.5 metres)
- Redesign the boat ramp to improve boat launching from the car park
- Green spaces located west of the surf club and east of the existing Kiosk
- Upgrade steps and or ramps as appropriate
- Request DEPI improve the track and jetty to the seal cruises
- Tree and vegetation planting that provide summer shade and wind breaks
- Investigate the use of Aboriginal design themes including revegetation, an interactive natural family play area and interpretative displays.
TRAFFIC & CAR PARKS

In Bridgewater Road cars have priority over the pedestrians at the entrances, access roads and car parks. The beach is a popular destination and the foreshore area needs to be pedestrian friendly. Pedestrian movement should be separated from cars to create a safe environment for all users.

The car parks could be better defined, configured and maintained to help to maximise the use of the available car park areas. The existing car park located adjacent to the surf club needs to be improved as it is a popular destination with a mix of pedestrians, cars, bicycles and boat access.

A pedestrian transition zone (curtilage around the buildings) would provide a refuge for pedestrians separated from vehicle movement at this popular destination. Redesign of the boat ramp access oriented towards the car park would assist with boat launching from the beach and limit traffic movement directly in front of Surf Club. Disabled car parking and areas suitable for buses, boat trailers, and bicycles should be provided in strategically located areas that provide convenient access the beach and the facilities.

Objectives

- To ensure that the entrances are safe and functional for all users
- To design for pedestrian priority and safety in and around the foreshore reserve
- To appropriately maximise the foreshore and road side car park capacity.

Strategies

- A pedestrian friendly Bridgewater Road.
- Pedestrian movement should be separated from cars
- Retention of limestone/natural material (stabilised) car parks
- Improve the layout and configuration of car parks to maximise their use
- Ensure pedestrian safety around the buildings and facilities
- A consistent approach to signage.
Management actions

- Separation of cars, pedestrians and bicycles at the entrances and car parks
- Make Bridgewater Road more pedestrian friendly by lowering traffic speeds (40kph) and providing footpaths and pedestrian access to the residential areas
- Investigate parallel parking along Bridgewater Road
- Improve the entrances to the reserve making them more functional and safe
- Provide parking for the disabled, buses, boat trailers and bicycles
- Prevent parking in front of the Surf Club
- Consider 2 disabled car parking spaces located beach side of the Surf Club and Kiosk
- Maintain beach access to boats and Surf Club
- Realign boat ramp to improve access and safety in front of the Surf Club (a shared space with pedestrian priority)
- Permit beach access and parking for the Surf Club, fishing vehicles and disabled parking west of the boat ramp.
- Develop a plan to permit dogs and horses owners to use the beach all year round 50m East of the Café (Norfolk pine tree), consider ‘on leash’ restrictions on the main public / Surf Club beach activity areas 8AM to 6PM during the summer
- Develop fire escape procedures for the reserve
- Develop a plan for motorised water based activities such as jet skis
- Car parks design as appropriate.
WATER QUALITY

The reserve is located at the bottom of a local catchment surrounded by hills. The groundwater flows in the sandy soil with a shallow water table. The proximity of water bores in the area create the potential for groundwater contamination. Groundwater is widely used by the public, Surf Club and the Bridgewater Kiosk.

Maintaining the water quality is one of the most important matters to reduce any adverse impacts on environmental and other values of the receiving waters. The aim is to prevent groundwater contamination and to manage stormwater on site. The use of passive stormwater treatments such as swales and rain gardens would slow the speed of stormwater flows and allow suspended solids to be leached out on site and should be integrated into the design of car parks and roads.

Wherever possible, Aboriginal land forming and vegetation themes should be used to shape the environment. This may include land forming and passive stormwater management. Typically this might take the form of a rock Aboriginal fish trap.

Objectives

- To maintain water quality and to prevent groundwater contamination
- To integrate passive stormwater treatments into the landscape setting
- Monitor water quality.

Strategies

- On-site stormwater management using passive stormwater treatment techniques
- Natural porous limestone car parks are to be retained
- Consider earth forming, swales, rain gardens and other passive stormwater treatments
- Test potable water quality from the local Council bore.
Management actions

- Installation of a secondary waste water treatment system to service the public toilets, Surf Club and the Bridgewater Kiosk
- Investigate options to incorporate swales as part of Bridgewater Road and foreshore car parks
- Where possible design green spaces and car parks integrating with passive stormwater treatments such as rain gardens and drainage outfalls
- Use permeable paving where appropriate
- Regular maintenance of stabilised natural limestone / granitic sand car parks pavement surfaces.

Figure 10 – Swales and rain gardens.
CONCLUSIONS

The coastal values relate to the coastal setting, the beach environs, leisure, recreation and tourism, wildlife, coastal vegetation, facilities and the opportunities and experiences that lie there-in. The natural beauty, pristine environment, connection with nature and tranquillity are much appreciated and valued by the local residents and visitors to the area.

However, some of these values are being impacted upon, evidenced by dune & foreshore erosion, loss of native plants, weed invasion, possible ground water contamination, lack of structure, lack of connectivity and risks associated with an unsafe mix of cars and pedestrians. The foreshore reserve presentation and urban design elements need to be improved.

Council has invested in improvements to the Kiosk and the toilets / change rooms. Further refurbishment of these amenities to a modern standard would assist to maximise their use. These facilities could be used and managed by the Surf Club as well as the community during key events. The individual buildings have a limited capacity and this could be addressed in the long term by the amalgamation of buildings.

The master plan provide strategies and actions to address the key issues such as improving the structure, beach management, edge definition, buildings and facilities, traffic management and pedestrian movement and ensure that the water quality is maintained.

There are opportunities to incorporate and share Aboriginal cultural themes in land forming, interpretive and directional signage, way-finding, sculptural elements and furnishings in acknowledgement of the Aboriginal’s past and ongoing relationship with the landscape.

There is a general consensus that where possible these strategies and actions need to embrace soft engineering finishes in keeping with the natural and unspoilt environment.
Appendix 1 – Issues and opportunities

A community workshop was held on the 27th February 2014 and public submissions received by Council closing the 28th March 2014. The communities’ aspirations were compiled from the key stakeholders workshop, submissions, meetings and comments that are summarised in point form below.

<table>
<thead>
<tr>
<th>Land use</th>
<th>etc.</th>
<th>the creation story, display of cultural materials etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widen foreshore reserve</td>
<td>Limit further residential development</td>
<td>A bus service that comes out to cape Bridgewater on weekends or during summer holidays.</td>
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<tr>
<td>Better maintenance of amenities</td>
<td>Green spaces for families</td>
<td>Better accessibility to amenities for all abilities</td>
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<tr>
<td>Improve waste management</td>
<td>Manage camping on the reserve</td>
<td>Improve cleanliness of toilets and change rooms</td>
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<tr>
<td>Active foreshore Committee of Management</td>
<td>Built form</td>
<td>Clarify management (more local involvement/responsibility needed)</td>
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<tr>
<td>Ongoing adequate maintenance budget</td>
<td>Natural Soft engineering solutions over any hard engineering structures</td>
<td>Fire escape route/management</td>
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<tr>
<td>Retain food services of café and consider food vans in peak times.</td>
<td>Amalgamate buildings (One mixed use surf club)</td>
<td>Manage dogs, horses and motorised activities (jet skiis)</td>
</tr>
<tr>
<td>More tourist accommodation needed</td>
<td>Better definition of boundaries, car parks &amp; space</td>
<td>More green space, BBQs, shelter, dog bag dispensers etc.</td>
</tr>
<tr>
<td>Provide wildlife/interpretive signs</td>
<td>Life span &amp; possible relocation or amalgamation of buildings/uses</td>
<td>A picnic / playground / BBQ area on the other side of the surf club.</td>
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<tr>
<td></td>
<td>Upper storey to Café</td>
<td>Movement</td>
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<td></td>
<td>Underground power lines/water tanks</td>
<td>A walk way along the fore shore linked to the Portland to Bridgewater Bay path and the Great SW track.</td>
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<td></td>
<td>Boat ramp needs improving</td>
<td>Separation of cars &amp; pedestrians</td>
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<td></td>
<td>Better jetty for seal cruises</td>
<td>Prevent parking in front of the surf club</td>
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<td></td>
<td>More change room &amp; storage space for the Surf Club</td>
<td>Pedestrian links to surrounding</td>
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<td>Social and cultural</td>
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<td>Aboriginal appreciation ( revegetation, interactive family/play area, interpretation of</td>
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<td>areas &amp; links to car parks &amp; beach access</td>
<td>Negate impacts of climate change</td>
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<tr>
<td>Better designed &amp; located beach access for all ages</td>
<td>Removal of weeds use native plants</td>
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<tr>
<td>Shared footpath &amp; pedestrian crossing point along Bridgewater Road</td>
<td>Reinstate Norfolk Island pines</td>
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<tr>
<td>Crash rail protection needed</td>
<td>Better stormwater management</td>
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<tr>
<td>Lowered speed limit for beach section (40ks per hour)</td>
<td>Protect bird &amp; wildlife habitat</td>
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<tr>
<td>Optimise car parking space</td>
<td>Don’t develop the Cape/ protect views</td>
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<tr>
<td>Boat, caravan, bus &amp; trailer parking</td>
<td>Use of solar power on all buildings/services where possible</td>
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<tr>
<td>Better traffic management/interpretative signage around the bay</td>
<td>Environmental</td>
<td></td>
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<tr>
<td>Sewerage system that incorporates all buildings</td>
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<tr>
<td>Soft engineering finishes</td>
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<td>Create natural barriers to stop erosion</td>
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<td>Leave relatively undeveloped natural feel</td>
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<tr>
<td>Manage coastal areas better</td>
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<td>Sand trapping to extend foreshore</td>
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**Appendix 2** – Various design options may include the following:

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<tbody>
<tr>
<td>1.</td>
<td>Bollards to define boundaries / entrances.</td>
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<td>2.</td>
<td>Bollards to separate roads from the pedestrian paths.</td>
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<td>3.</td>
<td>Bollards define a car park.</td>
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<tr>
<td>4.</td>
<td>Post and rail fences can be a very visual barrier.</td>
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<tr>
<td>5.</td>
<td>Car park and footpath (note timber wheel stops, fence wires not restricting views from car parks).</td>
</tr>
<tr>
<td>6.</td>
<td>Solar lighting to assist with car parking at night and capacity.</td>
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</tbody>
</table>
7. If natural vegetation is not allowed to capture sand hard solutions may be required.

8. If vegetation is not protected and allowed to capture sand hard solutions may be required.

9. Resilient vegetated beaches capture natural sand drifts, protect and regenerate after a storms.

10. Veranda, seating and shade.

11. Sand entrapment fencing assist to protect beaches.

12. Sand gabions assist to protect beaches until vegetation establishes.


15. Sand fencing can be underpinned with dynamic rock walls.

16. Beach side rock wall protection stage one 160m long (Port Fairy May 2014 currently under construction).

17. Ocean side multi-purpose artificial surfing / energy dissipation reef (Cable Beach, WA).

18. Artificial Reef intended as an offshore defence mechanism but also improve surfing conditions (Narrowneck, QLD 1999).
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<tr>
<td>22. Crossings must be to standard.</td>
<td>23. Rain gardens can improve and soften the treatment of drainage outfalls.</td>
<td>24. Bike path with vegetated (soft) edges.</td>
</tr>
</tbody>
</table>
25. Defined access to beaches reduce erosion.

26. Road with parking and dedicated bicycle lane.

27. Integrated car park furniture at collector points.

28. Car parking and low vegetation to retain views.

29. Boat parking requires a larger area.

30. Fish cleaning facility.
31. Low profile interpretive signage.

32. Low profile seating and textured pavements with curved interpretive signage on poles.

33. (fig 26) Sight poles to local landmarks.

34. Vandal resistant seat of san colours.

35. Information plaque on seating.

36. Bicycle stands.