



COASTAL MANAGEMENT PLAN



land insights
PLANNING DESIGN ENVIRONMENT

Prepared by

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executive summary

This document presents the Coastal Management Plan for the Shire of Esperance coastal reserves. The purpose of the Plan is to identify the current land uses, values and issues at the Shire's coastal reserves and to make recommendations for the future management for the next 10 years.

The Coastal Management Plan applies to land managed by the Shire of Esperance. It does not apply to land managed by the Department of Parks and Wildlife (previously Department of Environment and Conservation). The Plan focusses on the following coastal reserves:

- Munglinup Beach
- Quagi Beach
- Coastal sites between Butty Head and Dempster Head
- Wylie Head
- Wharton's Beach and Little Wharton's Beach
- Nares Island Beach and Duke of Orleans Bay
- Table Island Beach
- Membinup Beach
- Alexander Bay
- Kennedy's Beach
- Thomas River
- Israelite Bay.

The aims of the Coastal Management Plan are to provide a framework for:

- Management and protection of the Shire's coastal reserves in a sustainable manner so that they can be enjoyed by future generations
- Protection and enhancement of the Esperance coastal and marine environment
- Equitable, safe and sustainable recreational uses
- Increasing community awareness of coastal and marine management issues and encourage a sense of ownership
- Encouraging successful relationships between the community and the Shire to continue in the future to allow for better coastal management.
- Planning for future coastal industry, urban growth and tourism.

The Plan comprises two parts:

- Part A provides the strategies and actions for the Shire's coastal reserves. Chapter 2 considers a range of coastal management issues and provides strategies to address these issues. The purpose of the strategies is to establish an over-arching management framework that can be applied to any of the coastal sites within the Shire and aren't specific to one site. Chapter 3 presents the Action Plans for each coastal site.
- Part B contains background information relating to the Shire's coast, including a review of relevant policies and reports, environmental information and a description of the social environment.

A summary of the strategies is provided in the table below.

SUMMARY OF COASTAL STRATEGIES			
Strategy	Description	Priority	Responsibility
COASTAL TENURE			
CT1	Seek management of unallocated reserves (e.g. Reserve 24486 and 15042).	S	SoE, Landgate
CT2	Consider handing over Management Order of Reserves 518, 3805 and 38085 (Thomas River and Israelite Bay) with DPaW.	M-L	SoE, DPaW
CT3	Amalgamate fisherman leases with surrounding reserves (e.g. Reserve 38086 at Israelite Bay and Reserve 36979 at Nares Island).	M	SoE, Landgate
COASTAL PROCESSES			
CP1	Implement and review an Asset Management Plan focussing on existing infrastructure and recreational facilities in Shire-managed reserves and consider how they can be protected from coastal process such as storm events.	S-M	SoE
CP2	Give due regard to SPP 2.6 to ensure that the location of coastal facilities and development takes into account coastal processes and that appropriate coastal setbacks are implemented and maintained.	0	SoE
CP3	Conduct regular monitoring of the beach and the dune systems of priority high risk sites.	0	SoE
CP4	Conduct regular monitoring of infrastructure and recreational facilities along the beach.		SoE
CP5	Development of land adjoining the ocean, within the Shire of Esperance, to retain the complete primary dune system as a coastal foreshore setback.	0	SoE
CP6	Review Shire of Esperance Town Planning Scheme to incorporate guidelines for coastal foreshore setbacks for land abutting the ocean.	0	SoE
CP7	Advocate for a coastal vulnerability assessment of high risk priority areas.	M	SoE
ENVIRONMENTAL MANAGEMENT			
E1	New buildings overlooking Twilight Beach Road to retain, where possible, coastal landforms, natural skylines and remnant vegetation.	0	SoE
E2	Encourage the design of coastal car parks, roads and buildings that minimise the visual impact on the surrounding environment.	0	SoE

E3	Encourage access to the coast along formal tracks and pathways through the use of fencing and signage.	0	SoE
E4	Monitor dunes located around campsites and higher-use sites for signs of disturbance and close and revegetate informal tracks as they occur.	0	SoE
E5	Liaise and work with DPaW across Shire and DPaW reserve boundaries.	0	SoE, DPaW
E6	Carry out long-term rehabilitation techniques such as ongoing weed control, access control and monitoring for disturbance.	0	SoE
E7	Support efforts by the local community to conduct rehabilitation efforts within Shire coastal reserves.	0	SoE, community groups
E8	Encourage local nurseries to grow coastal plants suitable for dune rehabilitation.	0	SoE
E9	Liaise and work with the DPaW to carry out fire management including prescribed burning, hazard reduction techniques and emergency procedures.	0	SoE, DPaW
E10	Develop and implement a Bushfire Hazard Reduction Plan in consultation with local Volunteer Brigades, FESA and the DPaW.	0	SoE, FESA, Volunteer Brigades, DPaW
E11	Establish a regular dieback monitoring program to monitor and manage areas susceptible to the spread of dieback for signs of infection and monitor sites known to be affected for signs of spread.	S	SoE, DPaW
E12	Follow the <i>Management of Pythophthora Dieback Guidelines for Local Government</i> by the Dieback Working Group (2009) in the event that dieback is detected.	0	SoE
E13	Encourage Shire field officers to maintain weed identification and management skills to conduct ongoing weed control.	0	SoE, EWAG
E14	Continue identification and eradication of weeds on coastal reserves (refer to the Esperance Environmental Weed Strategy 2009-2018 for further information).	0	SoE, EWAG
E15	Undertake an education program to encourage Esperance residents to properly dispose of their garden waste in provided bins or at the Wylie Bay tip site.	S	SoE

E16	Seek assistance from the Department of Agriculture WA for the eradication of feral rabbits, foxes and cats from coastal reserves.	0	SoE, DAFWA
E17	Encourage the eradication of rabbits, foxes and feral cats by private landholders.	0	SoE
E18	Inform drivers to avoid driving between the high water mark and low water mark to protect shorebird nesting and erect educational signage in beach area	0	SoE
E19	Undertake survey of Hooded Plover nesting sites and distribution in priority coastal reserves.	M-L	SoE, BA, EBOG
E20	Assist the Esperance Ports Sea and Land agency with regular on-going monitoring of the Esperance port area and associated infrastructure for the presence of exotic marine organisms.	S	AQIS, EPSL
E21	Encourage and support the implementation of the Recherche Archipelago Marine Conservation Reserve in consultation with the community and associated industry groups.	S	SoE, DPaW, RAG
ACCESS			
A1	Maintain coastal roads such as Daniels Road to Membinup Beach, Alexander Bay Road to Alexander Bay, Exchange Road to Kennedys Beach and Fisheries Road to Israelite Bay.	0	SoE
A2	Maintain formal pedestrian walkways throughout the Shire's coastal reserves and close informal tracks to discourage their use.	0	SoE
A3	Consider seasonal closures of some coastal access roads due to weather and subsequent road conditions and for dieback control.		
A4	Give due regard to SPP 2.6 which provides for public access to foreshore areas and apply these when considering future options for the development of dual use pathways and recreational trails within the Shire's coastal reserves.	0	SoE
A5	Investigate opportunities for more formal disabled access.	0	SoE

A6	Ensure disabled access is considered when designing and implementing the actions recommended in this plan and that the Shire's Disability Access and Inclusion Plan is referred to.	O	SoE
A7	Seek funding to implement the dual use path from Twilight Beach to Observatory Point and the walk trail at Dempster Head.	M-L	SoE
A8	Investigate and assign areas as suitable for off-road vehicles.	S	SoE
A9	Investigate the comparative use of the <i>Control of Vehicles (Off-Road Areas) Act 1978</i> and local laws as a means to control and manage vehicles in priority areas and apply for the <i>Control of Vehicles (Off-Road Areas) Act 1978</i> to apply to the Shire if considered beneficial.	S	SoE
A10	Adopt a local law for the management of Road Registered Vehicles and Off-Road Vehicles in Shire coastal reserves which outlines conditions under which these vehicles can operate in these reserves. This local law should also identify those coastal areas and reserves where vehicle access is not acceptable.	S	SoE, DPaW
A11	Support a driver education program for vehicle use on the Shire's beaches where access/use is appropriate (refer to the South Coast NRM code of conduct manual and any other user group codes i.e. Trail Bike Riders).	M	SoE
A12	Educate vehicle drivers on the <i>Control of Vehicles (Off-Road Areas) Act 1978</i> and the Shire's local laws and how they are applicable to the coastal areas of the Shire.	M	SoE
A13	Include off-road vehicle safety education in the Coastal Education Program.	S-M	SoE
A14	Retain the vehicle exclusion area from Twilight Beach to Bandy Creek and implement an exclusion area at Little Wharton Beach during 2 weeks of the January school holidays.	O	SoE
A15	Encourage cooperation with user groups and key stakeholders such as Roadwise and Road Safety Council regarding off-road vehicle use.	O	SoE
A16	Review boat launching facilities every two years to manage beach access, safety and potential conflict between beach users.	O	SoE

A17	Continue to monitor and regulate boat launching activities, especially during peak holiday periods.	O	SoE
A18	Implement signage directing people to the existing and future boat-launching ramps.	O	SoE
A19	List boat ramps on Esperance tourist maps.	S	SoE
A20	Seek funding and implement interpretive signage about the coastline along the dual use path from Dempster Head to Twilight Beach.	M	SoE
A21	Consider the implementation of a Visitor Risk Assessment to investigate the safety and risk management of all the Shire's coastal reserves which would form the basis of a Visitor Risk Management Strategy.	S	SoE
A22	Contract a geologist to identify coastal limestone hazards along the entire length of the Shire of Esperance coastline.	S	SoE
A23	Include visitor safety education in the Coastal Education Program.	O	SoE, DPaW
A24	Ensure that risk hazard information is included on the standard coastal signs car park and formal access track.	O-S	SoE, DPaW
A25	Ensure that the Coastal Education Program and resources (such as tourist brochures and maps with warnings about coastal hazards) are available and accessible to the public.	S	SoE, DPaW
A26	Develop a brochure specifically about coastal hazards and how to keep safe.	S	SoE, DPaW
A27	Make brochures available at popular tourist locations, shops, information centres, accommodation and businesses (such as tackle supply shops and fishing supply shops).	O	SoE, DPaW
A28	Support Surf Lifesaving and Rec Fishing WA to conduct a state wide campaign warning the public about the hazards associated with rock fishing, climbing rocks and sightseeing from rocks.	O	SoE, Surf Lifesaving, Rec Fishing WA

A29	Monitor equestrian use within the Shire's coastal reserves and the condition of horse riding trails and appropriately manage for future use and demand.	0	SoE
A30	The development of horse riding trails should aim to meet the needs and activities of horse riders/trailers and group meets, whilst minimising environmental and social impacts.	0	SoE
LAND USE AND FACILITIES			
F1	Continue to enforce a no camping rule within all the Shire's coastal reserves unless it is carried out within designated camping and caravan areas with assistance of Shire rangers.	0	SoE
F2	Information on campsites, roads and tracks across the Shire be made available to the public, and include ways in which campers can minimise coastal degradation and maintain campsites for future users. General information should be provided on a flyer and a website and phone app can be regularly updated with road closures and camp availabilities.	0	SoE
F3	Enact the <i>State Squatter Policy (1989)</i> if deemed necessary.	0	SoE
F4	Amalgamate professional fishermen's camping lease Reserve 38086 at Israelite Bay with the surrounding Reserve 3805 and Reserve 36979 at Nares Island with the surrounding reserve.	M	SoE
F5	Ensure coastal sites are adequately serviced with rubbish bins, amenities, seating, shelters etc. according to the level of use and priority.	0	SoE
F6	Maintain the amenities at all coastal locations (public amenities, picnic areas, seating, shelters, etc.), and complement or improve where necessary.	0	SoE
F7	Adopt a consistent design style for all furniture established within their coastal reserves.	0	SoE
F8	Provide facilities for tourism operators such as toilets, barbecues and shade shelters in exchange for annual licensing fees.	S	SoE
F9	Replace low capacity or functioning toilets where required with alternative systems which cope with capacity and maintain fans to ensure they are operational at all times.	M-L	SoE
F10	A long term plan be drawn up to provide for RV use in some camping grounds (such as Alexander Bay and Thomas River) and provide dump points for black water disposal.	M	SoE

F11	Provide, or continue to provide, rubbish receptacles and a regular collection service at Munglinup Beach, Quagi Beach, Little Wharton Beach, Wharton Beach, Nares Island Beach, Duke of Orleans Bay, Table Island Beach, Alexander Bay and Thomas River and dispose in registered landfill site.	0	SoE
F12	Encourage people to take their rubbish with them by not providing bins at Membinup Beach and Kennedys Beach, and erect signage to reflect this at Membinup Beach.	0	SoE
F13	Undertake occasional rubbish clean-ups at all coastal reserves.	0	SoE, DPaW
F14	Continue to enforce the boat launching and vehicle prohibited areas to help reduce land use conflicts. Implement a clear zoning of recreational activities to ensure safety and minimise risk for users.	0	SoE
F15	Monitor the Shire's designated Dog Exercise Areas for signs of land use conflict.	0	SoE
F16	Develop guidelines for land-based aquaculture development.	M	SoE
F17	Ensure impacts of aquaculture developments on environmental and recreational values are minimised when assessing aquaculture proposals.	0	SoE
F18	Community consultation be undertaken when aquaculture development sites are identified that may impact on the communities recreational and environmental values and access to the coast.	0	SoE
F19	Liaise with mining companies to ensure the environmental impacts of the mining process will be minimised and a best practice rehabilitation plan is in place prior to mining commencing.	0	SoE
F20	Implement a public education program to reduce contamination to stormwater in the catchments where the drains flow to the ocean.	0	SoE
F21	Investigate engineering and funding options for sump retention of stormwater on land, in those catchments where there is direct ocean disposal.	M	SoE
F22	Make resources available to the public on the appropriate use of coastal reserves.	S	SoE

F23	Consider a strategy for the compatible use of reserves.	S	SoE
HERITAGE			
H1	Continue to liaise with local Indigenous representatives to ensure a culturally sensitive approach to recreational activities and the provision of visitor amenities in coastal reserves.	O	SoE, Indigenous groups
H2	Encourage involvement of indigenous persons in coastal management.	O	SoE, Indigenous groups
H3	Consider the implementation of interpretative signage which describes the Indigenous heritage of the area (if requested by local traditional landowners).	O	SoE, Indigenous groups
H4	Consult with Indigenous representatives during any future biodiversity surveys to develop a better understanding of the Noongar traditional values and uses of biodiversity of coastal reserves.	O	SoE, Indigenous groups
H5	Encourage and provide support to the Department of Indigenous Affairs to conduct a cultural landscape study across the Shire's coastal reserves.	O	SoE
H6	Continue to manage and recognise European historic places.	O	SoE
H7	Establish interpretative signage at historically significant sites.	O	SoE
COMMUNITY INVOLVEMENT			
CI1	Support programs that actively engage the local community in managing the Shire's coastal reserves e.g. school education programs, beach clean-up days.	O	SoE
CI2	Provide opportunities for the community to be involved in rehabilitation, monitoring, flora and fauna surveys, facility and access management etc.	O	SoE
CI3	Assist and encourage the community with forming "Friends of Coastal Reserves" groups.	O	SoE
CI4	Investigate the possibility of forming community groups for Alexander Bay.	S	
CI5	Undertake ongoing public education and engagement programs to encourage the conservation and care for coastal biodiversity and bird nesting sites e.g. Hooded Plover nesting sites.	O	SoE, BA, EBOG
CI6	Include coastal safety in any coastal education and awareness program developed for the Shire of Esperance.	O	SoE

CI7	Formulate and implement a Coastal Education Program to foster awareness and educate the general public and school children about coastal issues and the part they can play in minimising impacts on the coast.	M	SoE
CI8	Establish a Coastal Community Support Program to encourage community groups to run coastal awareness and education programs on issues that directly affect the Esperance coastline.	M	SoE
CI9	Facilitate the running of short courses on coastal management and related issues in association with the SCMG.	O	SoE
CI10	Encourage research organisations and community groups to obtain funding to investigate marine and terrestrial flora, fauna and coastal issues in the Esperance region.	O	SoE
CI11	Continue to survey number of visitors to reserves and to survey their experiences and expectations.	O	SoE, DPaW

A summary of the recommended actions for each coastal reserve is provided in the table below. The below recommendations are also presented on the Action Plans for each coastal site.

SUMMARY OF ACTIONS FOR COASTAL RESERVES

Action	Description	Priority	Responsibility	Cost
MUNGLINUP BEACH				
MG1	Establish an Information Bay with general information on safety, location and interpretative information.	S	SoE	\$1,000
MG2	Upgrade old compost toilets.	M	SoE	\$7,000
MG3	Regularly inspect and maintain fans in the toilets to ensure they are working properly.	O	SoE N/A	
MG4	Move the two shelters and benches which are getting covered by the dunes onto the gravel area.	S	SoE	\$10,000
MG5	Ensure camping ground doesn't extend beyond the existing area.	O	SoE	N/A
MG6	Install bollards around the car park and camp bays.	S	SoE	\$5,000
MG7	Install bay allocation signs within the camp bays.	S	SoE	\$500
MG8	Identify a boat launching location at the Inlet (for recreational, non-powered crafts such as canoes and small boats).	M	SoE	N/A

MG9	Continue with weed control, particularly removal of Pyp Grass.	O	SoE, community	TBD
QUAGI BEACH				
QB1	Formalise pedestrian access and provide steps at the first car park area and further south along the beach.	S	SoE	\$35,000
QB2	Close duplicate pedestrian tracks and rehabilitate.	S	SoE	\$15,000
QB3	Restrict pedestrian access along duplicate paths on the beach side by brushing the dunes and placing low key signage saying 'dunes under repair'.	S	SoE	Included above
QB4	Install signage at first car park to advise cars to beware of pedestrians sharing the path.	S	SoE	\$500
QB5	Close vehicle access to the car parks south of the campsite to reduce erosion and informal camping.	M	SoE	N/A
QB6	Keep vehicle access open further south of the campsite along the headland.	O	SoE	N/A
QB7	Install entry signage.	M	SoE	\$500
QB8	Place bollards around the perimeter of all camp bays.	M	SoE	\$6,000
QB9	Provide a gas BBQ.	M	SoE	TBD
QB10	Expand the capacity of the camping area by providing more camp bays.	S	SoE	N/A
QB11	Place a sign on the South Coast Highway turnoff to indicate when the camping area is full.	S	SoE	\$500
QB12	Install signs at the entrance to the campsite to indicate that the road is one way.	S	SoE	\$500
QB13	Keep a camp host on site during peak periods to help with management and to assist visitors.	M	SoE	N/A
QB14	Consider allowing a permanent caretaker to remain at the camp full time.	L	SoE	N/A
ELEVEN MILE BEACH				
EM1	Formalise the 4WD tracks to the beach and lookout spot.	S	SoE	N/A

EM2	Erect a sign on the road before the first track to advise that this is a lookout only and that there's no beach access.	S	SoE	\$500
EM3	Erect a sign on the road before the second track to advise that beach access is available on either side.	S	SoE	\$500
EM4	Erect standard beach signage in the car park where it will not affect views.	S	SoE	\$500
EM5	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
EM6	Monitor vehicle use on the eastern side of the car park for possible conflict with other beach users.	O	SoE	N/A
EM7	Close vehicle access to the east of the car park if conflict with other beach users becomes an issue	L	SoE	TBD
TEN MILE BEACH				
TM1	Expand car park if necessary.	M	SoE	\$1,500
TM2	Upgrade pedestrian access to timber steps.	S	SoE	\$35,000
TM3	Erect standard beach signage in the car park (including warning of unstable cliffs) in a location which won't affect views.	S	SoE	\$500
TM4	Conduct a risk assessment of this location.	S	SoE	TBD
TM5	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
TM6	Revegetate area in front of existing lookout and prevent access to this area.	M	SoE	\$3,000
TM7	Close vehicle access from Twilight Beach Road east of the car park.	S	SoE	\$5,000
NINE MILE BEACH				
NM1	Erect standard beach signage in the car park (including warning of unstable cliffs) in a location which won't affect views.	S	SoE	\$500
NM2	Conduct a risk assessment of this location.	S	SoE	TBD
NM3	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
NM4	Close and rehabilitate old pedestrian access to the beach.	M	SoE	\$3,000
OBSERVATORY BEACH				

OB1	Erect standard beach signage in the car park (in a location which won't affect views).	S	SoE	\$500
OB2	Erect signage on Twilight Beach Road facing west so that vehicles travelling east can see the signage.	S	SoE	\$500
OB3	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
OB4	Replace vandalised toilet block.	S	SoE	\$10,000
OB5	Monitor level of use for long term planning and upgrade facilities if required.	L	SoE	N/A
OBSERVATORY POINT				
OP1	Erect standard beach safety signage at the top of the steps leading to the east down the cliff to the beach.	S	SoE	\$500
OP2	Erect standard beach safety signage at the beach at the end of the steps (particularly regarding the dangers of rock fishing and ocean swells).	S	SoE	\$500
OP3	Erect a shelter and interpretative signage in the car park.	M	SoE	\$2,000
OP4	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
TWILIGHT BEACH AND PICNIC COVE				
PT1	Install a timber boardwalk along the front of the Twilight Beach car park.	M	SoE	\$21,500
PT2	Install a timber boardwalk between the Twilight Beach and Picnic Cove (behind the headland).	M	SoE	\$36,000
PT3	Install a disabled access ramp at Twilight Beach.	S	SoE	\$36,500
PT4	Replace pedestrian access on the southern side of the Twilight Beach car park.	M	SoE	\$10,700
PT5	Repair or relocate the timber steps leading to the beach at Picnic Cove/Dolphin Cove.	S	SoE	\$7,000
PT6	Close and rehabilitate informal tracks over the dunes.	S	SoE, community groups	\$4,000
PT7	Install viewing platforms.	M	SoE	\$20,000
PT8	Install interpretative signage.	M	SoE	\$600
PT9	Rehabilitate near toilets and shelters.	S-M	SoE, community groups	\$18,000

PT10	Maintain and upgrade facilities when necessary.	O	SoE	N/A
PT11	Erect safety signage about the risks associated with the limestone cliffs and the dangers of rock fishing.	S	SoE	\$500
PT12	Install a dedicated, well-defined walk trail over the headland and markers for the high water mark.	S	SoE	\$2,000
PT13	Manage the dune blowout on the Twilight Beach headland.	M	SoE, community groups	\$10,000
PT14	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
FOURTH BEACH				
FB1	Install standard coastal signage at car park 1, including information on vehicle restrictions and dog exercise.	S	SoE	\$500
FB2	Install locational signage on Twilight Beach Road near car park 1.	S	SoE	\$500
FB3	Install timber steps at car park 2 and remove buried bollards.	S	SoE	\$18,000
FB4	Keep the second access path at car park 2 closed and continue to brush and rehabilitate.	O	SoE	\$5,000
FB5	Erect standard coastal signage at car park 2 (without interrupting views).	S	SoE	\$500
FB6	Replace bollards at car park 2.	M	SoE	\$5,000
FB7	Install timber steps at the eastern access path at car park 3.	M	SoE	\$18,000
FB8	Close and rehabilitate the central access path at car park 4.	S	SoE	\$3,000
FB9	Install timber steps at car park 5 (eastern track).	M	SoE	\$26,000
FB10	Close and rehabilitate the western track at car park 5.	M	SoE	\$3,000
FB11	Place bollards around the lookout at car park 5.	M	SoE	\$5,000
SALMON BEACH AND BLUE HAVEN				
SB1	Expand the Salmon Beach eastern car park.	S	SoE	\$2,000

SB2	Establish toilets at Salmon Beach car park.	L	SoE	\$10,000 - \$20,000
SB3	Place bollards around the perimeter of the Blue Haven car park.	L	SoE	\$6,000
SB4	Conduct a risk assessment at the Blue Haven car park 3.	S	SoE	TBD
SB5	Either close the informal access track or formalise with timber steps at Blue Haven car park 3.	M	SoE	\$5,000 - \$13,000
SB6	Install a lookout at the intersection with the dual use path at Blue Haven car park 3.	M	SoE	\$10,000
CHAPMANS POINT				
CP1	Formalise the lookout, place bollards around the perimeter.	M	SoE	\$10,000
CP2	Close informal access tracks leading from the lookout and the main track.	M	SoE	\$5,000
CP3	Erect locational/directional signage on Twilight Beach Road.	S	SoE	\$500
CP4	Install slow down signs on the dual use path before it intersects with the access road.	S	SoE	\$500
WEST BEACH				
WB1	Monitor use of the informal access track extending from the dual use path to the west of the first West Beach car park and formalise if necessary.	L	SoE	N/A
WB2	Discourage the creation of informal tracks along the dual use path and close and rehabilitate as soon as tracks appear.	O	SoE	N/A
WB3	Close and rehabilitate informal tracks which have been created in the dunes to the east of the second West Beach car park.	M	SoE	\$20,000
WB4	Monitor the use of the informal access tracks and formalise if necessary.	M	SoE	N/A
WB5	Formalise access over the dunes with timber steps to reduce erosion.	L	SoE	\$35,000
DEMPSTER HEAD				

DH1	Refer to the Dempster Head Management Plan 2003 for recommendations and actions relating to Dempster Head and Lovers Cove.	O	SoE	N/A
ESPERANCE BAY				
EB1	Refer to the Esperance Bay Management Plan 2003 for recommendations and actions relating to the foreshore from Dempster Head to Bandy Creek.	O	SoE	N/A
EB2	Seek Management Order of the Unallocated Crown Land on the foreshore between Castletown Quays and Bandy Creek.	S	SoE, Landgate	N/A
WYLIE HEAD				
WH1	Close the second access track to the south of Wylie Head.	S	SoE	\$5,000
WH2	Create a car park and day use area on the closed track.	S	SoE	\$5,000
WH3	Expand the northern car park.	S	SoE	\$3,000
WH4	Conduct a risk assessment on the off road vehicle track which extends across the headland.	S	SoE	TBD
WH5	Conduct a risk assessment on the vehicle tracks south of Whyllie Bay Road.	S	SoE	TBD
WHARTON BEACH				
WT1	Erect signage at the vehicle access entrance to advise of shared use zone for licenced vehicles only, the speed limit and to be careful of other beach users.	S	SoE	\$500
WT2	Formalise the track from the second car park to the headland.	M	SoE	\$500
WT3	Widen the track from the car park to allow Shire maintenance vehicles to access the toilets (place a locked gate at the entrance).	S	SoE	\$5,000
WT4	Replace toilets with a compost or sealed vault system.	M	SoE	\$20,000
LITTLE WHARTON BEACH				
LW1	Expand the car park.	S	SoE	\$5,000
LW2	Provide formal pedestrian to the beach from the car park.	S	SoE	\$18,000

LW3	Restrict vehicles on the beach during the January school holiday swimming lessons period.	S	SoE	N/A
LW4	Erect sign regarding the restricted vehicle period along the beach.	S	SoE	\$500
LW5	Relocate the coastal sign to the top of the access track, closest to the car park.	S SoE \$500		
MOUNT BELCHES				
MB1	Provide directional signage for the walk trail leading to Mt Belches from the Duke of Orleans Bay Caravan Park. Wharton Beach Road and Nares Island Track.	M	SoE	\$500 - \$1,000
NARES ISLAND BEACH				
NI1	Keep this location as a low-key use site.	O	SoE	N/A
NI2	Monitor use over time and note any increase in use.	O	SoE	N/A
NI3	Block vehicle tracks which divert off the main road.	S	SoE	\$2,000
NI4	Increase the size of the parking area to accommodate a few more vehicles.	M	SoE	\$2,000
NI5	Install safety risk signage about rock fishing and ocean swells at the car park and at the rocks to the east of the car park.	S	SoE	\$500
NI6	Amalgamate the fisherman lease Reserve 36979 with the surrounding reserve.	M	SoE, Landgate	N/A
DUKE OF ORLEANS BAY				
DO1	Maintain the existing toilets, shelter, information signage and car park.	O	SoE	N/A
DO2	Replace and upgrade facilities is required.	O	SoE TBD	
DO3	Monitor the use of vehicles on the beach and create a vehicle exclusion area if the use of vehicles opposite the caravan park is an issue.	O	SoE, Duke of Orleans bay Caravan Park	N/A
TABLE ISLAND BEACH				
TI1	Formalise access track to the Dailey River from the car park.	M	SoE	\$2,000

TI2	Formalise the lookout at the Dailey River.	M	SoE	\$5,000
TI3	Close and rehabilitate the informal track leading from the lookout to the river.	M	SoE	\$2,000
MEMBINUP BEACH				
MB1	Continue to monitor both camping areas for signs of increased use and management issues.	O	SoE	N/A
MB2	Formalise camping areas if use increases or encroachment becomes an issue. Define camp bays with bollards and clearly define access tracks.	L	SoE	TBD
MB3	Rationalise 4WD tracks by closing duplicate tracks.	L	SoE	\$5,000 - \$10,000
ALEXANDER BAY				
AB1	Expand the formal camping area to accommodate more campers during peak periods.	S	SoE	\$10,000
AB2	Restrict camping in the Melaleucas to the east of the formal camp site and turn into a day-use area with picnic tables, shelters and a BBQ.	S/O	SoE	\$5,000 - \$10,000
AB3	Install signage to discourage camping in the Melaleucas.	S	SoE	\$500
AB4	Remove the fisherman's shack.	S	SoE	\$2,000
AB5	Place boulders on dunes to discourage access and camping in the dunes.	S	SoE	\$5,000
AB6	Install a sealed vault toilet which uses bacteria granules (E-zyme) to process waste and with working fans for odour control.	S	SoE	\$10,000
AB7	Install dump points for black water disposal.	M	SoE	\$5,000
AB8	Install signs in the camping and day use area to advise visitors of the fire emergency procedures.	S	SoE	\$500
AB9	Consider installing a camp kitchen.	L	SoE	\$70,000
AB10	Place a sign on the Alexander Bay Road turnoff to indicate when the camping area is full.	O	SoE	\$500

AB11	Keep a camp host on site during peak periods to help with management and to assist visitors.	0	SoE	TBD
AB12	Consider allowing a permanent caretaker to remain at the camp full time.	L	SoE	N/A
KENNEDY'S BEACH				
KB1	Continue to monitor camping area for signs of increased use and management issues.	0	SoE	N/A
KB2	Formalise camping area if use increases or encroachment becomes an issue. Define camp bays with bollards and clearly define access tracks.	L	SoE	TBD
KB3	Rationalise 4WD tracks by closing duplicate tracks.	L	SoE	\$5,000
KB4	Upgrade shelter and remove water tank.	M	SoE	\$5,000
THOMAS RIVER				
TR1	Consider handing over Management Order of the reserve with the DPaW.	M-L	SoE, DPaW	N/A
TR2	Widen the track leading to the beach to provide a separate section for pedestrian access.	S SoE	\$10,000	
TR3	Consider installing a kitchen shelter similar to the one in the DPaW camp site with a picnic table, benches, sink and a BBQ.	M-L	SoE	\$70,000
TR4	Replace rotaloo toilets with a sealed vault toilet which uses bacteria granules (E-zyme) to process waste and with working fans for odour control.	M	SoE	\$10,000
TR5	Install signage at the vehicle track leading to the beach to warn drivers to look out for pedestrians.	S	SoE	\$500
TR6	Install signage at the beginning of the pedestrian access track to warn pedestrians to look out for vehicles.	S	SoE	\$500
TR7	Install signage about the dangers of rock fishing and ocean swells.	S	SoE	\$500
ISRAELITE BAY				

IB1	Consider handing over the Management Order of Reserve 3805 with the DPaW.	M-L	SoE, DPaW	N/A
IB2	Rationalise tracks and close duplicate tracks with boulders.	M	SoE, NTA	\$5,000
IB3	Investigate options for the operation of tours to Israelite Bay.	M-L	SoE, NTA, Tour operators	N/A
IB4	Erect directional signage, interpretative signage, coastal risk signage and information signage.	S-M	SoE, NTA	\$1,000
IB5	Define the existing camp site if encroachment and vegetation destruction becomes an issue.	S	SoE	TBD
IB6	Define an informal camp site at the beach.	S	SoE	\$1,000
IB7	Amalgamate the fisherman lease Reserve 38086 with the surrounding reserve.	S	SoE, Landgate	N/A

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acknowledgements

The preparation of this report was a collaborative process which included input from the Shire of Esperance and State Government. It was prepared with valuable assistance from the following people:

- Rod Hilton – Director Community Services – Shire of Esperance
- Cr Paul Griffiths – Presiding Member
- Cr Roger Mansell – Deputy Presiding Member
- Cr Lara McIntyre – Councillor
- Heather Beswick – Senior Shire Ranger
- Paul Clifton – Manager Health & Environment – Shire of Esperance
- Trish Gardner – Environmental Officer – Shire of Esperance
- Melissa Ammon – Shire of Esperance
- Dylan Gleave – South Coast Natural Resource Management Group
- Robert Blok – District Manager – DPaW
- Ian Hughes – Esperance Parks & Visitors Coordinator – DPaW

The recommendations and background information contained within this report was highly based on the information in the *Esperance Coastal Management Plan 2002* (field, 2002) as well as other valuable resources prepared by the shire of esperance and the department of parks and wildlife.

definitions & abbreviations

DEFINITIONS

Amenity – those factors which combine to form the present character and likely future character of an area.

Biodiversity – the variety of life: the different plants, animals and microorganisms and the ecosystems of which they are a part.

Coastal foreshore reserve – the area of land on the coast set aside in public ownership to allow for coastal processes and provide protection of ecological values, landscape, visual landscape, indigenous and cultural heritage, and public access, recreation and safety.

Conservation – the protection, management, sustainable use and enhancement of the natural environment.

Development – any change to land use, including housing, any demolition, erection, construction, alteration or addition to any building or structure on the land and any excavation or other works.

Dieback – the common name given to the pathogen *Phytophthora cinnamomi* which is a soil borne water mould that invades and destroys the root systems of many native flora species in Western Australia.

Environmentally sustainable development – development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.

Ecological linkage – a series of (both contiguous and non-contiguous) natural areas that, within a landscape context, connect larger natural areas by forming stepping stones of habitat that allow the movement of organisms and genetic material between these larger natural areas.

Ecology – study of the relationships of animals and plants, particularly of animal and plant communities, to their surroundings, living and non-living.

Ecosystem – a term used to describe a specific environment to include all the biological, chemical and physical resources and the inter-relationships and dependencies that occur between those resources.

Landscape values – natural and/or cultural landscape features that are highly valued, as defined by documented research.

Off-road vehicle – an un-registered vehicle that has the ability to be used off road (e.g. quad bike, dune buggy, trail bike).

Remnant vegetation – stands of remaining native vegetation indigenous to a locality.

Reserves – may be either land classified in local planning schemes for public purposes or areas of Crown land reserved for public purposes as determined by the *Land Act 1933* and the *Land Administration Act 1997*.

Road Registered Vehicle – A licensed, road registered vehicle that has the ability to be used off road (e.g. 4WD, motor bike, licensed quad bike).

Sustainability – meeting the needs of current and future generations through the integration of environmental protection, social advancement and economic prosperity.

Threatened Ecological Community – communities which consist of native vegetation which are poorly represented and in danger of extinction.

Threatened Flora – Rare and priority flora protected under the *Environmental Protection Act 1986*.

Threatened Fauna – Fauna protected under the *Wildlife Conservation Act 1950*.

Vehicle – A vehicle is propelled by an engine or other mechanical source of power.

Wetlands – areas of marsh, fen, peat land or water; whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish, or salt including areas of marine water the depth of which at low tide does not exceed six metres.

ABBREVIATIONS

2WD Two Wheel Drive

4WD Four Wheel Drive

CMP Coastal Management Plan

DAFWA Department of Agriculture and Food Western Australia

DEC Department of Environment and Conservation

DPaW Department of Parks and Wildlife

DSEWPC Department of Sustainability, Environment, Water, Population and Communities

DAA Department of Aboriginal Affairs

DOP Department of Planning

DOW Department of Water

ORV Off Road Vehicle

RRV Road Registered Vehicle

SCMG South Coast Management Group

SoE Shire of Esperance

SPP State Planning Policy

TPS Town Planning Scheme

WAPC Western Australian Planning Commission

1. INTRODUCTION



introduction

1.1 BACKGROUND

The Shire of Esperance is located in the south-east of Western Australia on the southern coastline, over 700km from Perth. The coastline extends for over 500km along the Southern Ocean and comprises a variety of landforms and features such as beaches, rocky headlands, small bays, steep cliffs and stunning scenery. A majority of the Shire's coastline is contained within reserves managed by the Department of Parks and Wildlife (DPaW) (previously the Department of Environment and Conservation) with some areas managed by the Shire.

The Shire of Esperance Coastal Management Plan 2013 is predominantly based on the work in the Coastal Management Plan 2002 and contains revised recommendations to address new issues and changing social and environmental factors. The process involved an audit of the actions in the 2002 plan and a new assessment of each coastal location to determine actions for the next 10 years.

The purpose of the Coastal Management Plan is to provide information on the following:

- The characteristics and features of the Shire's coastal reserves
- Management recommendations for environmental protection and rehabilitation
- Management recommendations for appropriate and future land uses of coastal reserves
- Priorities and costs for each recommendation over the next 10 years
- Detailed plans that provide an indication of the location of the management recommendations.

1.2 STUDY AREA

The Shire of Esperance is located over 700km from Perth along the south coast of Western Australia. It stretches from the mouth of the Oldfield Inlet (west) to the beginning of the Great Australian Bight (beyond Israelite Bay) – a distance of over 500km. The Esperance townsite is located approximately midway along the coastline.

The Coastal Management Plan addresses land managed by the Shire of Esperance. It does not include land managed by the DPaW (previously DEC) such as Stokes National Park, Lake Warden Nature Reserve, Cape Le Grand National Park, Cape Arid National Park, Nuytsland Nature Reserve, Woody Island Nature Reserve or the Recherche Archipelago.

The CMP focusses on the following coastal reserves managed by the Shire:

- Munghlinup Beach
- Quagi Beach
- Coastal sites between Butty Head and Dempster Head
- Wylie Head
- Wharton's Beach and Little Wharton's Beach
- Nares Island Beach and Duke of Orleans Bay
- Table Island Beach

- Membinup Beach
- Alexander Bay
- Kennedy's Beach
- Thomas River
- Israelite Bay.

Please note that this plan doesn't consider the Esperance Bay and foreshore areas in detail as these are currently subject to separate planning. The location of Shire-managed coastal reserves is shown on Figures 2.1-2.4. It should also be noted that Butty Head Unvested Crown Reserve 24486, in part (2,191.5ha) is proposed to be added to the Lake Mortijinup Nature Reserve.

1.3 DOCUMENT SCOPE

This document presents the Coastal Management Plan (CMP) for the Shire of Esperance coastal reserves. The purpose of the CMP is to identify the current land uses, values and issues at the Shire's coastal reserves and to make recommendations for the future management for the next 10 years. The report was prepared with the view that natural environments have limited capacity to absorb land use pressures before they start to degrade and their capacity for regeneration is reduced.

The following broad steps were taken during the preparation of this document:

- Review of the Esperance Coastal Management Plan 2002 and other foreshore management plans and determine the actions undertaken (audit)
- Detailed site assessment of each of the Shire's coastal reserves/sites
- Integration of relevant recommendations from the previous Coastal Management Plan
- Consultation with the Working Group
- Identification of new issues and development of strategies and actions to address them.

1.4 AIMS

The aims of the Coastal Management Plan are to provide a framework for:

- Management and protection of the Shire's coastal reserves in a sustainable manner so that they can be enjoyed by future generations
- Protection and enhancement of the Esperance coastal and marine environment
- Equitable, safe and sustainable recreational uses
- Increasing community awareness of coastal and marine management issues and encourage a sense of ownership
- Encouraging successful relationships between the community and the Shire to continue in the future to allow for better coastal

management.

- Planning for future coastal industry, urban growth and tourism.

1.5 DOCUMENT STRUCTURE

The document consists of two parts – Part A contains strategies and actions for management of the Shire’s coastal reserves and Part B contains background information relating to policies, environmental features and social characteristics.

The coastal management strategies provide an over-arching management framework can be applied to any of the coastal sites. Further to this, each coastal reserve has a suite of recommendations which are specific to that site. A plan is provided to show diagrammatically where the actions relate.

1.6 PROJECT MANAGEMENT

The preparation of the CMP was managed by the Shire of Esperance.

- Rod Hilton – Officer – Shire of Esperance
- Sharee Rasmussen – Land Insights
- Michael Taylforth – Land Insights.

PART A. STRATEGIES AND ACTION PLAN

2. COASTAL MANAGEMENT STRATEGIES



coastal management strategies

2.1 BACKGROUND

This chapter considers a range of coastal management issues and provides strategies to address these issues. The purpose of the strategies is to establish an over-arching management framework that can be applied to any of the coastal sites within the Shire. Coastal management topics considered include coastal tenure, coastal processes, environmental management, facilities, signage, undesirable activities, access, heritage and community education.

Each topic is explained to describe the features and any issues and how this relates to coastal management. Objectives are provided for each coastal management topic to help guide the Shire with their ongoing management of the coast. The strategies are over-arching recommendations which can relate to any coastal area in the Shire and aren't specific to one site.

2.2 COASTAL TENURE

ISSUES

Most coastal areas throughout the State are contained within reserves which usually allows public access and enjoyment of these areas. Within the Shire of Esperance, management orders for coastal reserves sit predominantly with either the Shire or DPaW. Some areas are unallocated. Reserves with a management order with the Shire are the responsibility of the Shire to manage. Coastal tenure is summarised in the table below and shown on Figures 2.1-2.4.

Reserve	Location	Management Order	Purpose
32337	Munglinup Beach	Shire of Esperance	Recreation
40943	Quagi Beach	Shire of Esperance	Camping and recreation
24486	Esperance beaches	None	Flora protection
4180	Fourth Beach	Shire of Esperance	Common
15042	Fourth Beach	West Australian Rifle Association Inc.	Rifle Range
25891	Salmon Beach and Blue Haven	Shire of Esperance	Recreation
31540	Chapmans Point	Shire of Esperance	Public recreation
41141	West Beach and Dempster Head	Shire of Esperance	Park and recreation
41097	Wharton's Beach, Duke of Orleans Bay and Table Island Beach	Shire of Esperance	Parklands and recreation
	Membinup Beach	Shire of Esperance	
39409	Alexander Bay	Shire of Esperance	Recreation and camping
40772	Kennedy's Beach	Shire of Esperance	Recreation and camping
518	Thomas River	Shire of Esperance	Recreation and camping
3805	Israelite Bay	Shire of Esperance	Recreation

Reserve 24486 near the town is currently unallocated and thus not officially managed by the Shire, even though Shire facilities exist at these coastal locations. This section of coast comprises some popular coastal recreation nodes as well as Shire-installed/managed infrastructure. It is recommended that the Shire seek a Management Order for this reserve. Please refer to Chapters 3.4 - 3.9 for further reference to this reserve.

This Plan recommends that the Shire consider handing over management of Thomas River Reserve (R518) and Israelite Bay Reserve (R 3805 and 38085) to the DPaW for future management of these sites. Please refer to Chapters 3.26 and 3.27 for further discussion on this topic.

The Shire of Esperance manages two professional fishermen's camping leases at Israelite Bay (Reserve 38086, Area: 1.08ha) and the Duke of Orleans Bay Regional Park near Nares Island Beach (Reserve 36979, Area: 1.11 ha). The purpose of these reserves is Professional Fishermen's Camping. Neither reserve is currently leased to fishermen. Nares Island Reserve 36979 is the only area that has been leased by professional fishermen for camping. No professional fishermen's camping leases have ever been issued at Israelite Bay. It is considered that these reserves are no longer needed by professional fishermen due to the availability of other living arrangements. The Shire of Esperance should consider amalgamating Reserve 38086 at Israelite Bay with the surrounding reserve and Reserve 36979 at Nares Island with the surrounding reserve. Please refer to Chapters 3.20 and 3.27 for further discussion on fisherman's leases.

Car parks 3-5 at Fourth Beach are located on Reserve 15042 which is managed by the West Australian Rifle Association Inc. for the purpose of a 'rifle range'. This management order and purpose should be changed to the Shire for the purpose of 'recreation'. Please refer to Chapter 3.10 for information on Fourth Beach.

OBJECTIVES

To retain the focus of coastal reserve management on recreation and conservation of natural values.

STRATEGIES

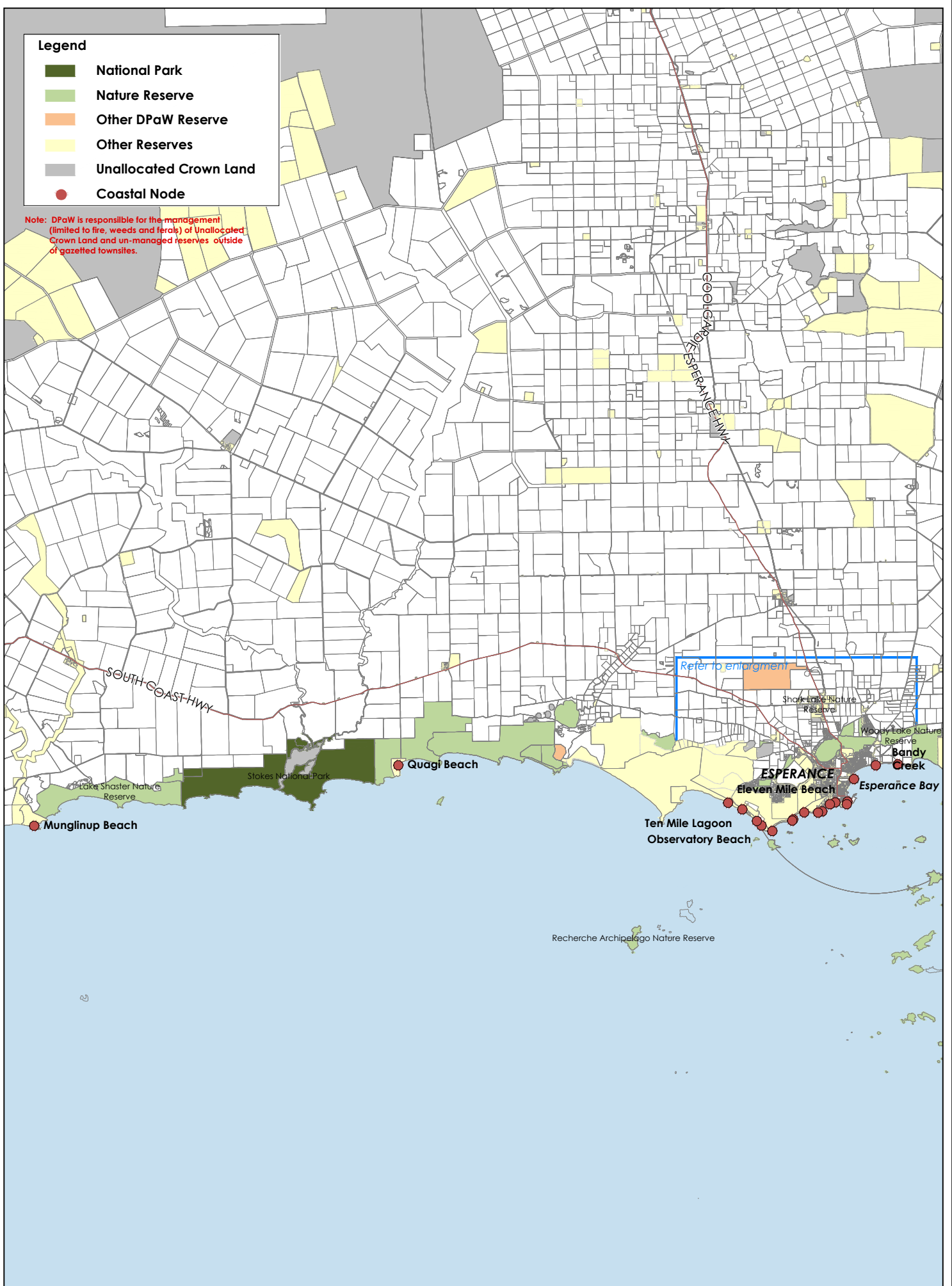
The recommended strategies are as follows:

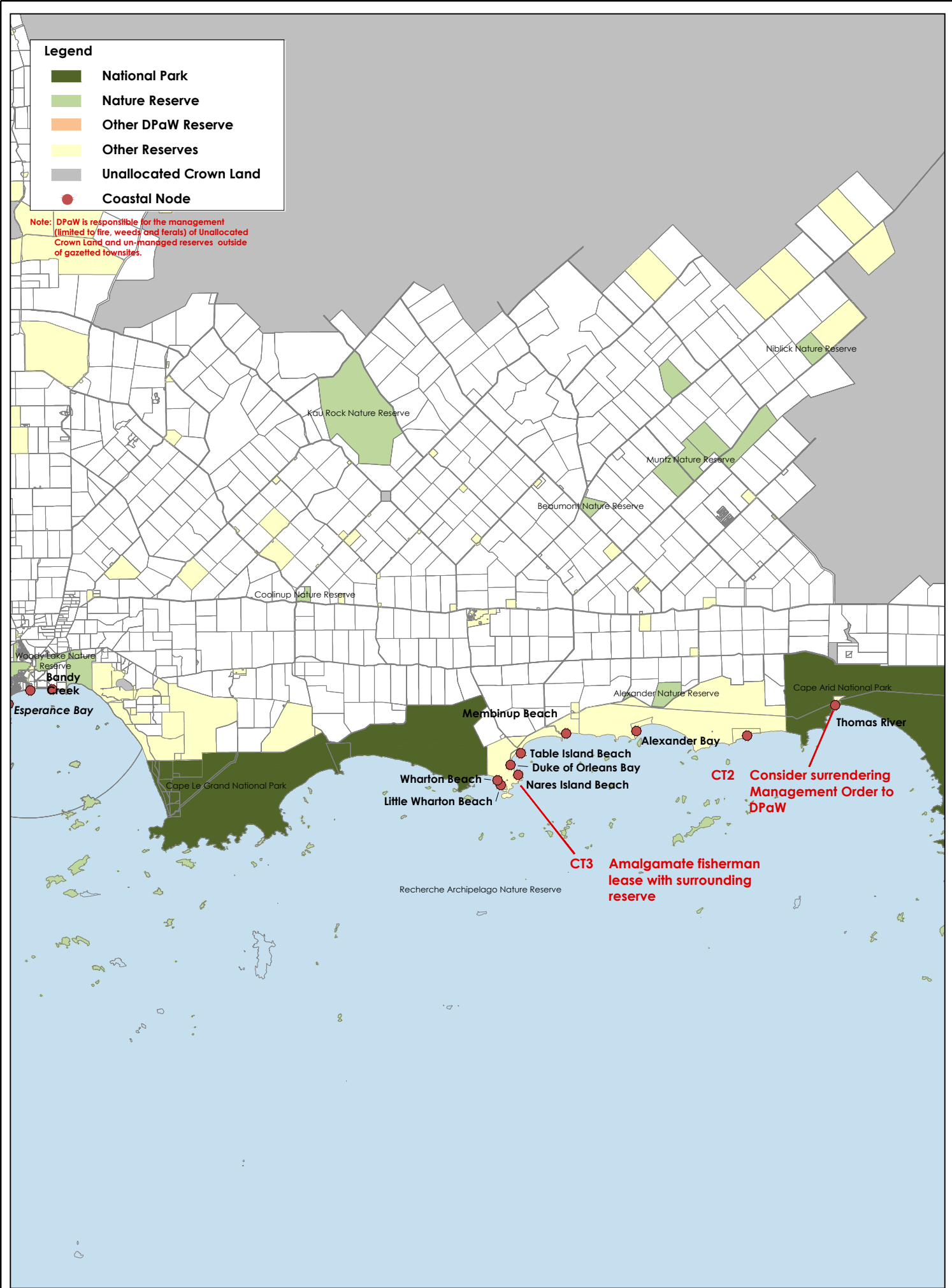
Strategy	Description	Priority	Responsibility
CT1	Seek management of unallocated reserves (e.g. Reserve 24486 and 15042).	S	SoE, Landgate
CT2	Consider handing over the Management Order of Reserves 518, 3805 and 38085 (Thomas River and Israelite Bay) with DPaW.	M-L	SoE, DPaW
CT3	Amalgamate fisherman leases with surrounding reserves (e.g. Reserve 38086 at Israelite Bay and Reserve 36979 at Nares Island).	M	SoE, Landgate

Legend







- National Park
- Nature Reserve
- Other DPaW Reserve
- Other Reserves
- Unallocated Crown Land
- Coastal Node

Note: DPaW is responsible for the management (limited to fire, weeds and ferals) of Unallocated Crown Land and un-managed reserves outside of gazetted townsites.

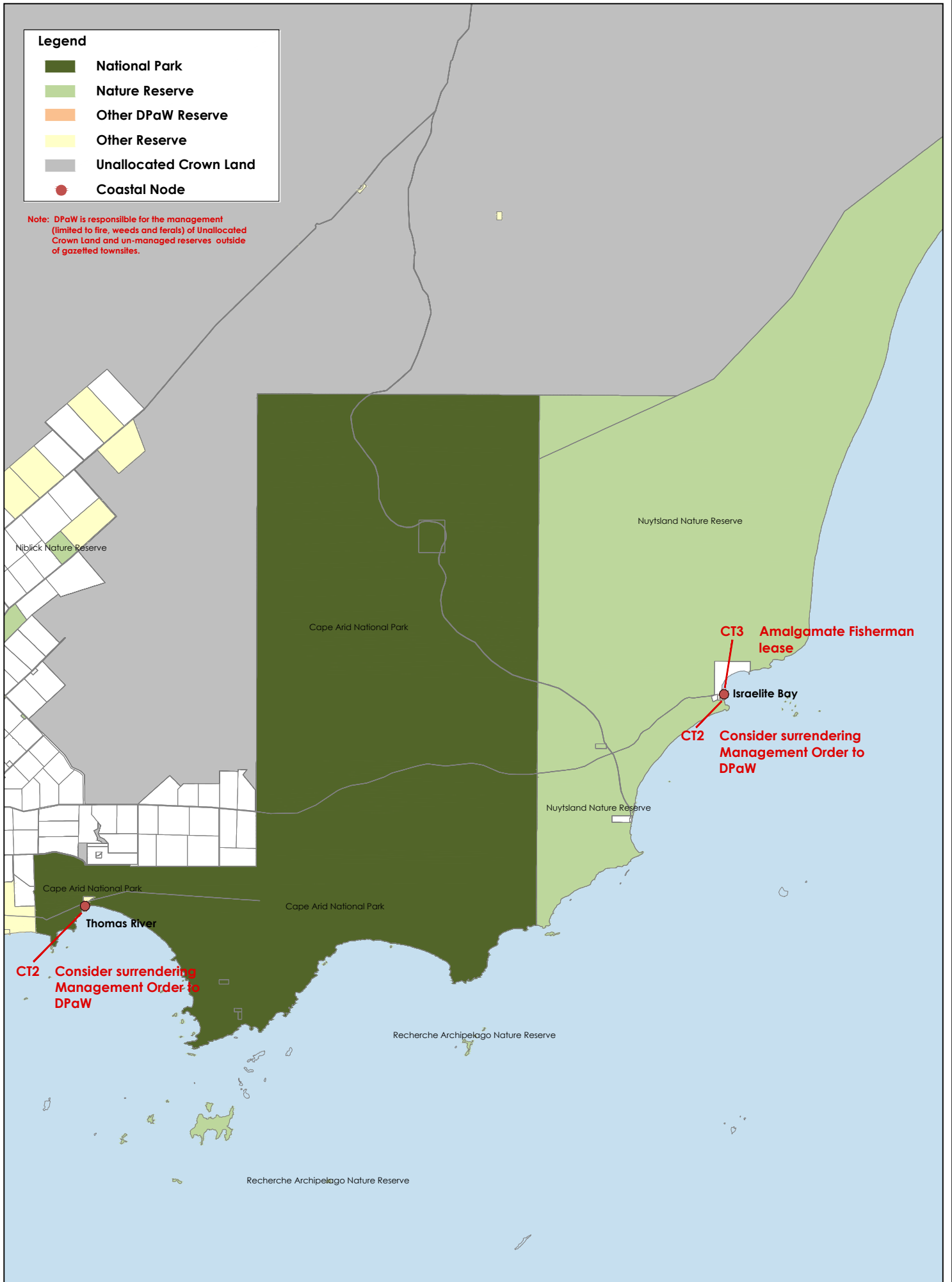


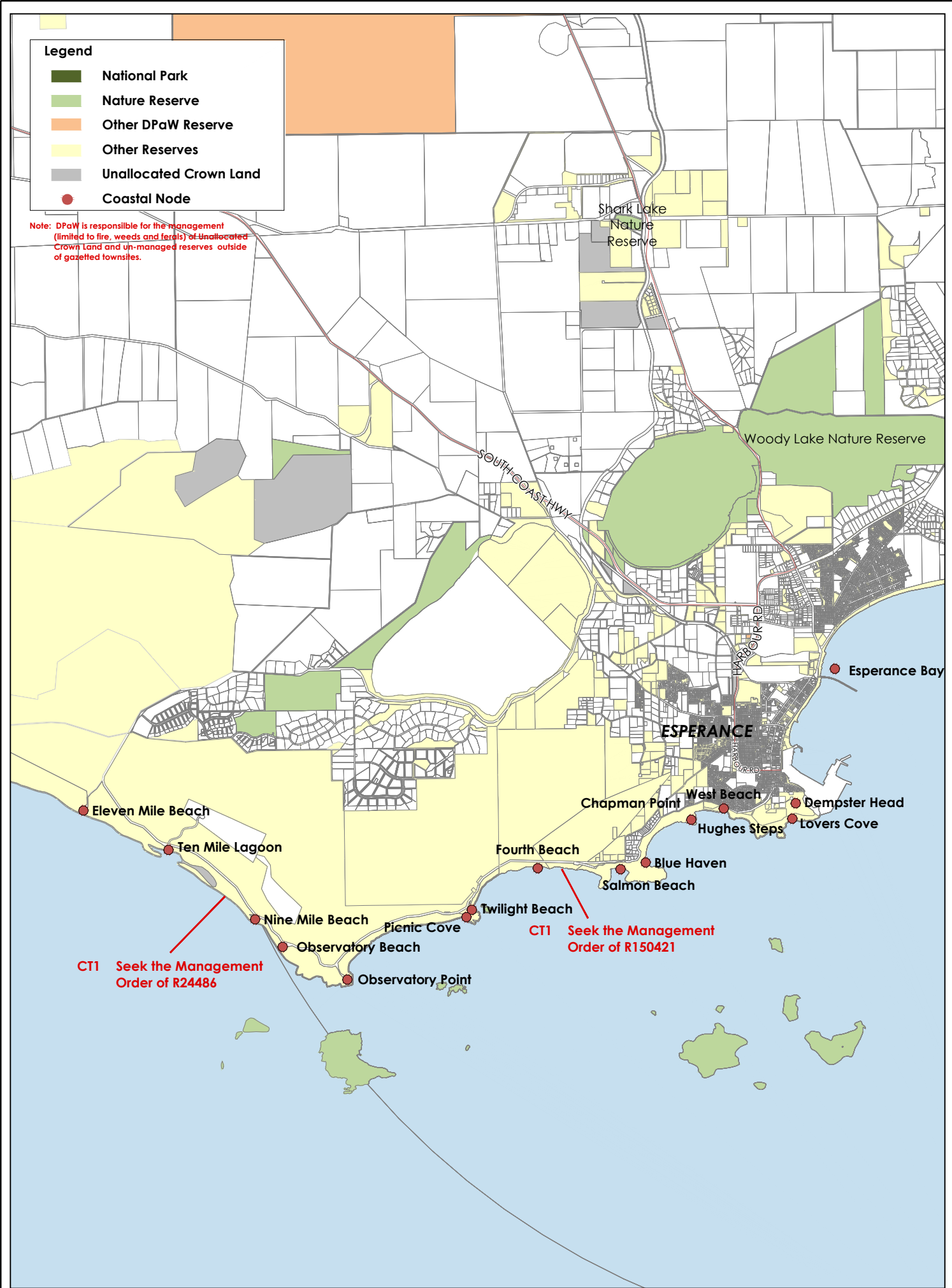


Legend

-  National Park
-  Nature Reserve
-  Other DPaW Reserve
-  Other Reserve
-  Unallocated Crown Land
-  Coastal Node

Note: DPaW is responsible for the management (limited to fire, weeds and ferals) of Unallocated Crown Land and un-managed reserves outside of gazetted townsites.





SCALE: 1 : 100 000 (A4)

2.3 COASTAL PROCESSES AND CLIMATE CHANGE

ISSUES

The coastline is constantly changing due to the effects of winds, waves and storms. Waves constantly change the shape of the coastline as part of a natural cycle of beach erosion and accretion. Winds act on dune areas and impact on the severity of wave energy.

Coastal Setbacks

A majority of the development along Shire's coastline is elevated on high cliffs (car parks, camping areas etc.) however, some areas are more low-lying such as Munglinup Beach, Alexander Bay and Esperance Bay. In low-lying areas, an increase in mean sea level resulting from climate change and global temperature rises could result in the reduction of foreshore width and an increased frequency of coastal flooding (Damara and Shore Coastal, 2008). Therefore, it is important that coastal setbacks are considered when constructing infrastructure or allocating recreation areas.

It is important to focus effort in coastal areas which have a current erosion trend, a narrow foreshore reserve, low relief and inadequate coastal protection works as they tend to have a low capacity to accommodate the potential impacts of climate change (Damara and Shore Coastal, 2008). The coastal area of most concern in the Shire which has a narrow foreshore and low relief is Esperance Bay. It is recommended that the Shire conduct coastal vulnerability assessments at high risk locations. The Shire should refer to *Climate Change: Whole of Landscape Analysis of the Impacts and Options for the South Coast Region* by Coffey Environments (2009) for further information on risk assessment and adaptation to climate change.

Future development such as the construction of parking areas and facilities should be setback appropriately from the coastline using State Planning Policy 2.6 as a guide.

OBJECTIVES

Ensure the Shire is well-equipped to deal with issues associated with coastal processes which might arise from the potential impacts associated with climate change.

STRATEGIES

The recommended strategies are as follows:

Strategy	Description	Priority	Responsibility
CP1	Implement and review an Asset Management Plan focussing on existing infrastructure and recreational facilities in Shiremanaged reserves and consider how they can be protected from coastal process such as storm events.	S-M	SoE
CP2	Give due regard to SPP 2.6 to ensure that the location of coastal facilities and development takes into account coastal processes and that appropriate coastal setbacks are implemented and maintained.	0	SoE
CP3	Conduct regular monitoring of the beach and the dune systems of priority high risk sites.	0	SoE
CP4	Conduct regular monitoring of infrastructure and recreational facilities along the beach.	0	SoE
CP5	Development of land adjoining the ocean, within the Shire of Esperance, to retain the complete primary dune system as a coastal foreshore setback.	0	SoE
CP6	Review Shire of Esperance Town Planning Scheme to incorporate guidelines for coastal foreshore setbacks for land abutting the ocean.	0	SoE
CP7	Advocate for a coastal vulnerability assessment of high risk priority areas.	M	SoE

2.4 ENVIRONMENTAL MANAGEMENT

ISSUES

Aesthetics and Landscape

The Shire's coastal reserves provide spectacular views from almost every location. A key characteristic of the landscape is the undeveloped coastline and wildness of the adjoining natural areas. The environmental quality of the Shire's coast greatly contributes to the region's popularity as both a holiday destination and attraction for permanent resident accommodation. Aesthetic appeal can be degraded through environmental degradation and development.

The stretch of coastline along Twilight Beach Road has high visual appeal due to its proximity to the ocean, spectacular views and steep rugged terrain. Development of buildings and structures along this road should not disturb views or become highly obvious features in the landscape. Expansion of the Esperance township along the coast in a westerly direction should be carried out in a manner to minimise the impact of buildings on the aesthetic appeal of the beaches along Twilight Beach Road.

It is recommended that *Visual Landscape Planning in WA: A manual for evaluation, assessment, siting and design*, (WAPC 2007) is referred to during visual assessments and planning.

Vegetation Degradation

The Shire of Esperance lies within the Eyre Botanical District of the South-West Botanical Province. It covers two vegetation systems – the Esperance and Fanny Cove systems. Issues associated with human use along the coast includes removal of vegetation (by trampling or removal for camping spots or firewood), dumping of rubbish (including garden rubbish), spread of dieback and spread of weeds.

Destruction and degradation of vegetation at coastal locations reduces visual appeal and aesthetics. Degradation can occur through human impact such as driving and walking through vegetation and pulling up trees for firewood. This is particularly prevalent and destructive at Quagi Beach and Alexander Bay. Management of coastal sites can assist in reducing impact by designating areas for pedestrian and vehicle traffic and for recreational uses.

A majority of the Shire's coastal sites are well managed in terms of vegetation degradation. Some sites, such as Quagi Beach, have issues to do with vegetation degradation and specific recommendations have been included for these sites such as track rationalisation and rehabilitation. Some sites have weed growth, particularly where areas have been previously disturbed. Further rehabilitation, weed control and management will help reduce the occurrence of weeds.

Dune Erosion

Dunes can be extremely mobile and are stabilised by coastal vegetation. Without this vegetation holding them together, they become unstable which can result in the formation of dune blowouts.

Dunes can be stabilised using a number of different coastal rehabilitation techniques including:

- Brushing – laying branches of native coastal vegetation on dunes which will bury seed on the branches and encourage germination of plants
- Matting – placing fibre matting over dunes like a carpet to suppress weeds and to stabilise dunes from wind erosion
- Replanting Coastal Species – planting seedlings or transplanting cuttings of native coastal species rapidly aids in dune stabilization
- Removing the source of disturbance such as pedestrians and vehicles.

Areas in need of dune stabilisation should be rehabilitated using an appropriate technique as defined by best practice management. The *Coastal Planning and Management Manual* by the WAPC should be referred to for methods on dune rehabilitation. Dune brushing has been carried out at a number of sites in the Shire to assist with dune stabilisation and track closure. This practice should be continued. Some erosion issues are caused due to human disturbance on the dunes (driving vehicles, walking over dunes and camping in dunes). Recommendations for management at each site are addressed in the Action Plan.



Dune brushing and rehabilitation along West Beach.

Fire

Fire is a natural phenomenon in the South Coast Region which is largely caused or influenced by summer droughts and lightning storms. It was used deliberately by Aboriginal people prior to European settlement, mainly to assist in hunting practises and for sanitation purposes.

Fire management is important to prevent significant destruction to native vegetation and for safety. Fire is always a threat to coastal reserves. A majority occur during the summer period and can be started by lightning strikes, campfires or are deliberately lit. Fire management procedures include:

- Prescribed burning
- Strategic firebreaks
- Use of barbeques rather than open campfires
- Prohibited burning period
- Adequate signage at coastal sites
- Fire risk assessments
- Fire Management Plans

The Shire of Esperance undertakes fire management within coastal areas such as implementation of strategic firebreaks, identification of muster points and evacuation plans, signage and reduction of fuel loads. Reducing fuel loads is particularly relevant to large tracts of coastal reserves, with potentially high fuel loads such as Quagi Beach, Munglinup Beach, Duke of Orleans Bay and Israelite Bay.

The prohibited burning period in the Shire is from the 1st November to the 30th April each year and it is an offence under the *Bushfires Act 1954* to light ground fires during this season. It is important that the general public are aware of this exclusion period, especially campers.

Fires on Shire of Esperance reserves are the responsibility of local volunteer fire brigades who receive on-ground assistance from Fire and Emergency Services Authority (FESA) and DPaW (where it controls adjoining lands that are under threat).

The Shire have emergency procedures in the event of a fire for popular campsites such as Quagi Beach and Alexander Bay. Each site has a different procedure due to the variation in conditions and environment.

Muster points have been identified for people to run to for safety. It is important that the emergency procedures are communicated to visitors on signs at these sites and provided in brochures, flyers and online information.

Plant Diseases

Dieback is the name given to a fungal disease that affects over 2300 native plant species. *Phytophthora cinnamomi* is the most common form of dieback, known to occur in the Esperance region particularly in coastal vegetation communities. Vehicles, pedestrians and animals are the main transporters that spread the dieback fungi spores. Certain plant families such as Proteaceae and Epacridaceae are particularly susceptible.

The extent or presence of dieback in Shire of Esperance managed reserves is unknown, even though it occurs in some adjoining DPaW managed lands. A *Dieback Interpretation Report* was prepared by the DEC in 2009 for Cape Arid National Park, Alexander Reserve, Kennedy Reserve and Daniels Road Reserve. It contains general recommendations to help prevent the spread of dieback from these areas.

The Shire of Esperance Policy on the Control of Phytophthora Dieback states that Council will take all feasible measures to minimise the spread of dieback. This policy is inadequate as it does not address the identification or monitoring of dieback in the first place. This inadequacy is therefore addressed in the strategies below.

Managing Phytophthora Dieback Guidelines for Local Government 2009 by the Dieback Working Group and *Managing Phytophthora cinnamoni for Biodiversity Conservation in the South Coast NRM Region of Australia* by the South Coast NRM (2010) should also be used as a guide.

Weeds

A weed is a plant growing where it is not wanted (Hussey et al, 1997). Weeds will compete with local native vegetation for light, nutrients, space and water. Often weeds are naturalised into the coastal environment from gardens. Disposal of garden waste on our coastal dunes, close to the township of Esperance, is adding to the weed burden. This issue should be included in the Coastal Education Program to educate local residents about dumping garden clippings in coastal dunes. In the past, plants such as Pyp Grass were purposely introduced as a rehabilitation species and have ended up becoming a weed.

The Esperance Weeds Action Group (EWAG) is active in the identification and eradication of weeds in the Esperance region. The Shire of Esperance needs to continue to work with EWAG in the management and eradication of particular coastal weeds. DAFWA can also provide technical support for weed management and eradication. The Esperance Environmental Weeds Strategy 2009-2018 (Shire of Esperance, 2009) should be referred to for information on priority weeds, priority areas for eradication and procedures for weed control. Other important weed resources include *Western Weeds: A Guide to the Weeds of Western Australia* (Hussey, et al., 2007) and *Southern Weeds and Their Control: Bulletin 4744* (DAFWA, 2008).

The following Priority Environmental Weeds were identified in the Strategy:

- Spiny Rush
- Geraldton Carnation Weed
- Pyp Grass (*Ehrharta villosa*)
- Victorian Tea Tree (*Leptospermum laevigatum*)
- African Boxthorn (*Lycium ferocissimum*)
- Watsonia Species
- African Lovegrass
- Cumbungi
- Caltrop (*Tribulus terrestris*)
- *Acacia pycnantha*.

Other coastal weeds include:

- Marram Grass (*Ammophila arenaria*)
- Sea Spurge (*Euphorbia paralias*)
- Rose Pelagonium (*Pelagonium capitatum*)
- Bridal Creeper (*Asparagus asparagoides*)
- Dune Daisy (*Arctotheca populifolia*)
- Fleabane (*Conysois bonariensis*)
- Brassicas – raddish, turnip, mustard.

The priority reserves for weed control are Munglinup Beach and West Beach to Twilight Beach. Munglinup Beach reserve is infested with Pyp Grass and the area between West Beach and Twilight Beach includes Pyp Grass, Pelagonium, Marram Grass, Dune Onion Weed, Sea Spurge, Geraldton Carnation Weed, Victorian Tea Tree and African Boxthorn.

Feral Animals

Feral animals such as rabbits, foxes, goats and cats can cause general disturbance to coastal areas including dune erosion, destruction of native vegetation and the spread of weeds. They also compete with native fauna for habitat and resources. Control of rabbits, foxes and feral cats can be achieved through baiting, trapping and poisoning.

Shorebirds and Beach Nesting and Habitat

Shorebirds often nest in dunes and rely on native grasses and bushes for protection. A shorebird of particular note in the Esperance area is the threatened Hooded Plover (*Thinornis rubricollis*). The protection of the Hooded Plover and other shorebirds' habitat is important to maintain faunal diversity.

This ground nesting shorebird is under threat due to its nesting sites being trampled or destroyed by 4WD vehicles, motorbikes, horses, dogs and people. The Hooded Plover is known to nest on Esperance beaches, usually in single pairs. These habitat areas are extremely vulnerable to human disturbance.

Bird Life Australia (BLA) and the Esperance Bird Observers Group (EBOG) are targeting the protection of shore and beach nesting bird habitat. Annual beach surveys are undertaken by EBOG and BLA under the Shorebirds 2020 program.



Hooded Plover on an Esperance beach. PHOTO TRISH GARDNER.

Macro Corridors

The Western Australian South Coast Macro Corridor Network was prepared in 2006 by the Department of Conservation and Land Management and South Coast NRM to identify macro corridors along the southern coast of WA. Macro corridors are lineal areas through the landscape which provide vegetated linkages along expansive areas of land which are important for the movement of fauna and for the conservation of biological values.

The report identified 21 macro corridors, two of which are located along the Shire's coastal areas: the Fitzgerald River Corridor and the Coastal Corridor. These corridors are mostly vegetated and provide linkages and connectivity across the landscape. It is important that these linkages are protected in continuity. Appropriate management of Shire coastal reserves will ensure that vegetation is protected and that the macro corridors will be able to serve their functions long into the future.

Marine Pollution

In February 1991, the "Sanko Harvest" bulk carrier ran aground on a reef 12km off Cape Le Grand east of Esperance spilling 30,000 tonnes of superphosphate and 700 tonnes of oil into the ocean. This event demonstrated the potential for spillages to affect marine animal and plant life off the Esperance coast.

The Esperance Port, offshore islands and rocks are the main areas where fuel or oil spillages would most likely occur. The Esperance Port Authority have adopted the "National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances" as their spillage contingency plan.

Exotic Marine Pests

Ballast water is water that's been taken on board of ships and discharged in ports. This water can contain marine organisms which can have the potential to become marine pests.

Ballast water dumped from ships in Esperance waters has the potential to introduce exotic marine organisms from other countries. Introduction of exotic marine organisms could impact on water quality, commercial and recreational fishing industry, marine tourism

industry, potential for sea based aquaculture and other marine recreational pursuits (LeProvost Environmental Consultants, 1993).

The discharge of ballast water from ships is guided by the International Maritime Organisation (IMO) Ballast Water Protocols, although these requirements are not binding. The Australian Quarantine Inspection Service (AQIS) also has ballast water guidelines. AQIS has an officer, based at the Esperance Port, who is responsible for random inspections of ballast water for exotic marine organisms particularly those from high-risk countries.

The Community Benthic Underwater Marine Survey Group (CBUMS) have previously undertaken surveys of seagrass meadows in the Esperance Port area. There is potential for CBUMS to undertake regular monitoring of the Port area to assist the Esperance Port Authority in detection of any exotic marine organisms.

Marine Conservation Reserve

The Recherche Archipelago off Esperance is a unique marine ecosystem that contains some extraordinary flora and fauna. In 1994, a report titled *A Representative Marine Reserve System for Western Australia* was released by the Marine Parks and Reserves Selection Working Group (commonly referred to as the Wilson Report). In this report, a marine conservation park was recommended for the Recherche Archipelago.

"The waters of the Recherche Archipelago between Butty Head in the west and Israelite Bay in the east, extending to the limit of the State Territorial Sea, including the areas of State waters surrounding the outer islands but excluding the Port of Esperance, should be considered for reservation as a marine reserve for multiple purposes including conservation of flora and fauna and public recreation."

A conservation reserve established over this area, whilst aimed at protecting flora and fauna, also allows for appropriate recreation activities and commercial fishing. Community interest in the proposal is high due to the added benefits for tourism and protection of the Recherche Archipelago marine environment. The local Recherche Advisory Group (RAG) is one such organisation interested in seeing the Recherche Archipelago Marine Conservation Reserve become a reality.

OBJECTIVES

Protect the landform, dune systems, vegetation, fauna and marine environment from future disturbances caused by human impacts and to restore degraded areas through rehabilitation, access control, management and monitoring.

STRATEGIES

The recommended strategies are as follows:

Strategy	Description	Priority	Responsibility
E1	New buildings overlooking Twilight Beach Road to retain, where possible, coastal landforms, natural skylines and remnant vegetation.	0	SoE
E2	Encourage the design of coastal car parks, roads and buildings that minimise the visual impact on the surrounding environment.	0	SoE
E3	Encourage access to the coast along formal tracks and pathways through the use of fencing and signage.	0	SoE
E4	Monitor dunes located around campsites and higher-use sites for signs of disturbance and close and revegetate informal tracks as they occur.	0	SoE
E5	Liaise and work with DPaW across Shire and DPaW reserve boundaries.	0	SoE, DPaW
E6	Carry out long-term rehabilitation techniques such as ongoing weed control, access control and monitoring for disturbance.	0	SoE
E7	Support efforts by the local community to conduct rehabilitation efforts within Shire coastal reserves.	0	SoE, community groups
E8	Encourage local nurseries to grow coastal plants suitable for dune rehabilitation.	0	SoE
E9	Liaise and work with the DPaW to carry out fire management including prescribed burning, hazard reduction techniques and emergency procedures.	0	SoE, DPaW
E10	Develop and implement a Bushfire Hazard Reduction Plan in consultation with local Volunteer Brigades, FESA and the DPaW.	0	SoE, FESA, Volunteer Brigades, DPaW
E11	Establish a regular dieback monitoring program to monitor and manage areas susceptible to the spread of dieback for signs of infection and monitor sites known to be affected for signs of spread.	S	SoE, DPaW
E12	Follow the <i>Management of Pythophthora Dieback Guidelines for Local Government</i> by the Dieback Working Group (2009) in the event that dieback is detected.	0	SoE
E13	Encourage Shire field officers to maintain weed identification and management skills to conduct ongoing weed control.	0	SoE, EWAG

E14	Continue identification and eradication of weeds on coastal reserves (refer to the Esperance Environmental Weed Strategy 2009-2018 for further information).	0	SoE, EWAG
E15	Undertake an education program to encourage Esperance residents to properly dispose of their garden waste in provided bins or at the Wylie Bay tip site.	S	SoE
E16	Seek assistance from the Department of Agriculture WA for the eradication of feral rabbits, foxes and cats from coastal reserves.	0	SoE, DAFWA
E17	Encourage the eradication of rabbits, foxes and feral cats by private landholders.	0	SoE
E18	Inform drivers to avoid driving between the high water mark and low water mark to protect shorebird nesting and erect educational signage in beach area	0	SoE
E19	Undertake survey of Hooded Plover nesting sites and distribution in priority coastal reserves.	M-L	SoE, BA, EBOG
E20	Assist the Esperance Ports Sea and Land agency with regular on-going monitoring of the Esperance port area and associated infrastructure for the presence of exotic marine organisms.	S	AQIS, EPSL
E21	Encourage and support the implementation of the Recherche Archipelago Marine Conservation Reserve in consultation with the community and associated industry groups.	S	SoE, DPaW, RAG

2.5 ACCESS

ISSUES

Vehicle Access

Vehicular access to and within reserves varies along the coast. Many locations along around the Esperance town and some regional sites such as Munglinup Beach, Wharton's Beach, Little Wharton's Beach, Duke of Orleans Bay and Table Island Beach, are accessible with a 2WD. Other coastal reserves and campsites are only accessible with a 4WD such as Alexander Bay, Membinup Beach, Kennedy's Beach and Israelite Bay. Road conditions to some sites such as Kennedy's Beach and Israelite Bay is poor.

Keeping the public informed of the condition of coastal roads is important. The Shire have recently erected a sign east of town on Fisheries Road advising drivers of road closures.

Upgrading and maintenance of coastal roads such as Daniels Road to Membinup Beach, Alexander Bay Road to Alexander Bay, Exchange Road to Kennedys Beach and Fisheries Road to Israelite Bay should be ongoing. Consideration needs to be given to any dieback risk and include management proposals to minimise its spread.

Parking

Most coastal locations in the Shire are well catered for in terms of car parking. Many of the popular sites near town are well formed bitumen or gravel car parks located at the top of the cliff. This CMP contains recommendations for expansion of some car parks to cater for increased demand such as Salmon Beach and Ten Mile Lagoon.

Low key sites such as Kennedy's Beach, Membinup Beach and Israelite Bay do not have specific day-use car park areas. However, the low use of these sites does not necessitate the need for formal parking areas. Areas for day use car parking is provided at Munglinup Beach, Quagi Beach, Wharton's and Little Wharton's Beach, Table Island Beach, Thomas River and Alexander Bay.



Examples of gravel and bitumen coastal car parks.



Examples of gravel and bitumen coastal car parks.

Pedestrian Access

Formal pedestrian access in the form of steps, stairs and paths exist at coastal locations to provide pedestrian access to the beach. They are essential in order to protect fragile foredunes from erosion by foot traffic and to provide a safe way to the beach.

Pedestrian access across the Shire is generally in good condition. Most sites have been upgraded in the last 10 years to timber steps. This is a preferable option where access down cliffs and steep dunes is dangerous, plus it allows for natural dune movement under the steps. Providing formal pedestrian access also discourages the creation of additional tracks over dunes and reduces environmental impact. The initial investment in timber steps will help save on time and money in environmental and access management in the long term.

Some beaches do not have formal access and the tracks to the beach can be very steep and eroded. These locations should be upgraded to timber steps and these have been identified in the Action Plan. Improvements are required in some instances to improve safety and to protect the fragile vegetation and dunes.

Hazards also exist when access to the beach for pedestrians and vehicles is via the same track (e.g. Tomas River). The potential for accidents in these cases can be high. Recommendations have been included where appropriate in the Action Plan to provide separate access where necessary.

Some areas experience severe erosion during winter and, as a result, the dunes become so eroded that a large drop is created from the end of the steps to the beach. This occurs at West Beach and results in closure of the steps until the dune has been rebuilt by natural accretion. Some dunes eventually cover the end of timber steps (West Beach) or becomes eroded and start to fall away (Picnic Cove). The *Coastal Management Specification Manual* (Greenskills, 2010) contains further information sacrificial sections of timber steps to allow for some damage and replacement due to erosion and should be referred to for future management of timber steps.



Informal access and dune degradation at Quagi Beach.



Formal access at Observation Beach.

Disabled Access

The Disability Services Act (1993) Part 5 requires state and local governments to develop and implement a Disability Service Plan. The Shire of Esperance Disability Services Plan Advisory Committee was formed to advise Council, ensure that the Disability and Inclusion Plan is implemented.

Results of the Esperance Coastal Survey in 2002 found that 7% of people had a disability. A majority of people with a disability in the survey were either parents with prams or senior people that found it difficult to negotiate steep dunes or paths.

Coastal locations with vehicle access onto the beach can accommodate those people with a disability who own a 4WD vehicle. Some coastal areas are unavoidably difficult to access for people with disabilities, such as areas with steep slopes and cliffs. For example, the beaches west of Esperance between West Beach and Eleven Mile Beach are very inaccessible for people with a disability mostly due to the very high, steep foredunes along the coast. Disabled access is available at many car parks along Twilight Beach Road (such as West Beach) to the dual use path which extends along the coast. A ramp is provided at Twilight Beach, although it is not to disabled access standards. It is recommended that formal disabled access is provided at this beach.

Paths/Trails

Dual use pathways and trails offer a coastal experience to walkers and cyclists by linking different coastal sites with a formal pathway. They also minimise environmental impacts by confining users to a set path. Recreational trails are highly valued by the community, with many participants in the Esperance Coastal Survey applauding the trail system around Esperance.

A dual use path has been developed between Castletown Quays to the Esperance Port. Another dual use path has been established along Twilight Beach Road and stretches from Dempster Head to Fourth Beach. The path offers spectacular views of the ocean and coastal landscape and links the car parks and coastal locations.

These dual use paths were recommended in the 1999 Esperance Trails Master Plan. The 2007 Trails Master Plan recommends the following:

- A series of trails at Duke of Orleans Bay, particularly for use of quad bikes. A separate trails master plan is recommended.
- The dual use path is extended to Twilight Beach
- A dual use path from Twilight Beach to Observatory Beach
- A dual use path from Observatory Point to Eleven Mile Beach.

The trail from Rotary Lookout is heavily utilised by tourists and locals. Sections of the trail need to be upgraded to make access safer and to discourage the creation of duplicate tracks.

Vehicles on the Beach and within Coastal Reserves

Vehicle access is available at many of the regional beach locations and some of the beaches close to town such as Eleven Mile Beach and Wylie Head. Use of vehicles on beaches is a popular way to explore the coast and access is required for fishing, surfing and boat launching.

There are two types of vehicles that drive on the beach, Road Registered Vehicles (RRV) and Off Road Vehicles (ORV). RRVs are licenced vehicles which have the ability to be used off road. ORVs are unlicensed vehicles which can be used off road (such as quad bikes, dune buggies etc.). Environmental damage occurs when vehicles are driven over the dunes and through vegetation which causes severe erosion and dune blowouts. This process is exacerbated when multiple tracks are created and drivers leave their tyres at full pressure. The damage caused eventually reduces the environmental quality of the area. It is a significant challenge managing vehicles use within coastal areas, particularly when some drivers do the right thing while others can cause damage.

Issues associated with vehicles on the beach are environmental degradation (destruction of shorebird habitat in dunes, vegetation disturbance, dune erosion etc.), the spread of dieback and safety risks. It is important that vehicles are discouraged from driving on beaches which are popular for swimming and recreational use and where there will be a high likelihood of an accident or a dangerous situation. Public education on the use of vehicles on reserves and beaches will most likely be beneficial in this regard.

The *Control of Vehicles (Off Road Areas) Act 1978* applies to land owned by the State of WA and areas designated by Local Government by-laws for off road vehicles (unregistered) only, however does not apply to the Shire. Registered Road Vehicles are managed under the *Road Traffic Act 1978* and Local Government by-laws. The South Coast Natural Resource Management Group is currently preparing a code of conduct for the use and control of vehicles in coastal reserves.

The Shire's Local Government Property Local Law includes a section specifying the activities prohibited on local government property (Part 2). It prohibits vehicles on the beach between Twilight Beach and Bandy Creek Boat Harbour (Clause 2.3 (1)). The only exception is the vehicle access at the Surf Lifesaving Club at Twilight Beach (for training and emergency purposes) and the vehicle access at Fourth Beach car park 1 which is also for emergency vehicles and surf lifesaving training purposes only.

It is also recommended that the Shire monitor vehicle use at some areas such as Eleven Mile Beach and to restrict vehicle

access if there is conflict with other beach users. The CMP also recommends that the beach at Little Wharton's is closed to vehicles during the January school holiday period. The Shire's Property Local Law should be updated to reflect this and signs implemented at the car park.



Vehicle access onto the beach.



Vehicle access onto the beach.

Boat Launching

Boat-launching ramps are an excellent recreational asset for an area. Within the Shire of Esperance there are boat ramps in the Esperance Bay at Bow Park and at Bandy Creek Boat Harbour. A beach launching site is also available at the Duke of Orleans Bay. Boat launching also occurs at other locations which are popular for fishing such as Little Wharton's Beach and Nares Island Beach.

The boat launching area at Duke of Orleans Bay is well facilitated with a large gravel car park for leaving vehicles, toilets, shelter and picnic area and a fish cleaning station.

It is recommended that the car park areas at Little Wharton's Beach and Narns Island Beach are expanded to accommodate more vehicles so that they are not parked on the beach.

Signage

Signs provide a way to inform people about the location they're in and its interesting features. They also provide a means of informing people about dangers, rules and regulations and directions. The types of signs can be categorised as follows:

- Name – many beaches do not have their names displayed at the location
- Risk – signs describing dangers at the beach eg. rips, swells, cliff hazards, sharks
- Directional – to point directions to a beach, direction to toilets, camp areas, barbeques etc.
- Rules – particularly for camp areas eg. ground fires, camp fees, dogs, rubbish etc.
- Facilities – what facilities are provided at the site eg. toilets, barbeques, campsites
- Recreational – what can this beach offer eg. good for surfing, swimming, walking dogs etc.
- Interpretative – signage describing certain aspects of the area eg. environmental, historical.

A majority of the Shire's coastal sites have standard coastal signage indicating the name of the place, features, hazards and prohibited activities. Using standard signage means that the way this information is displayed is consistent with other coastal locations in WA and makes it easier for visitors to read and interpret. The symbols on these signs also means that it can be interpreted by those that cannot read English.

Information bays and signage have recently been installed at Alexander Bay and Thomas River which provide a one-stop location for all information associated with the site. An information bay is proposed for Munglinup Beach.

Interpretative signage could be installed along the dual use path from Dempster Head to Twilight Beach with information about the environment, history and social values of the area. Signs are also recommended at Twilight Beach.

The Shire is encouraged to keep signage consistent across all coastal sites and erect standard coastal risk signage in locations where it doesn't already exist. They are also encouraged to use multipurpose signage (which includes all information relating to the site) to make sure that each site is not overcrowded with different signs.

Safety and emergency signs are important for communicating hazards, risks and emergency procedures. It is important that warning signs about the dangers of rock fishing, climbing on rocks, king waves and slippery rocks are erected at coastal sites. Emergency evacuation signs are necessary at camping locations with fire risk (such as Quagi Beach and Alexander Bay) which outline the procedures to follow in the case of a fire.

New signs are recommended for popular camping sites such as Quagi Beach and Alexander Bay to notify campers when the camp site is full. The signs should be placed on the main road before the turn off. This notification will encourage campers to search for another camp location and could help reduce the amount of informal over-flow camping which takes place during peak periods.



Standard coastal signage.



Information Bay.

Safety

Risks to visitor safety at the Shire’s beaches include rock falls, slippery rocks, rips, big swells, off-road vehicles and uneven steps or paths. It is important that Council is aware of their obligation to manage coastal hazards and to conduct risk assessments and implement preventative actions where appropriate. Risk assessments have previously been carried out by Surf Lifesaving WA along the tourist loop road (Twilight Beach Road) and Australian standard warning signs have been erected to warn beach users of the likely hazards.

Recreational Fishing WA is currently working with the Shire to prepare a public education program to highlight hazards associated with rock fishing.

Locational codes are provided on coastal signs from Dempster Head to Twilight Beach to assist emergency services when searching for the exact location of an emergency. These are shown on the Action Plans.

Rock Fall Hazards

Following the rock fall at Cowaramup Bay, near Gracetown, that killed a number of people, all coastal local governments have been faced with the issues of liability for coastal limestone cliff hazards. The Coroner’s report for the Gracetown Disaster stated “*coastal Local Governments should concern themselves with providing a level of care and management for limestone cliff hazards within their boundaries*”. This finding has given the Courts power to prosecute a local government even if they do not manage the land.

This visitor safety risk exists within the Shire of Esperance, particularly at beaches west of Esperance where limestone rock cliffs exist. West Beach, Picnic Cove, Nine Mile Beach, Ten Mile Lagoon and Eleven Mile Beach all have limestone cliffs that could be potential cliff hazards.

Rocks, Rips and Swells

Strong swells, rips and rocks along the coast of Esperance has resulted in fatalities. It is difficult to prevent these tragedies except through signage and education. The Esperance Sea Search and Rescue Group are the main organisation that deals with these incidents. Education of locals and visitors should be continued through the use of pamphlets, tourist maps and signage warning of the potential dangers. Recreational Fishing WA is currently working with the Shire to prepare a public education program to highlight hazards associated with rock fishing. Rock bolts have been installed in popular fishing locations for people to secure themselves to and personal flotation devices are available from fishing equipment and bait distributors in Esperance.



Safety signs warning users about the dangers of rock fishing and fire.

The CMP recommends the following to help reduce risks and increase public awareness:

- Signs at coastal locations include information in dangers and risks
- Ensure that tourist brochures include a warning about coastal hazards
- Develop a brochure specifically about coastal hazards and how to keep safe

- Make brochures available at popular tourist locations, shops, information centres, accommodation and businesses.
- Support Surf Lifesaving and Recreational Fishing WA to conduct a state wide campaign warning the public about the hazards associated with rock fishing, climbing rocks and sightseeing from rocks.



Safety signs warning users about the dangers of rock fishing and fire.

Exercising Animals

Domesticated dogs and horses are the main animals that utilise the beaches of the Esperance region. Owners of the animals are restricted to using certain beaches close to the Esperance town at set times.

Dogs are regularly exercised on the majority of beaches managed by the Shire of Esperance, but are prohibited on Twilight Beach from the car park to 200m east of the Surf Lifesaving Club. A dog exercise area exists between Twilight Beach and Dempster Head and between Esperance Port and Bandy Creek Boat Harbour. All dogs are required to be on a lead in the Esperance Bay between the Esperance Port and the end of Castletown Quays. They are able to be off a lead between 5am and 8am. It is important that dogs are under control of owners at all times and are prohibited from running through native vegetation and dunes and from chasing native fauna.

A horse exercise area exists between Castletown Quays and Bandy Creek Boat Harbour. Horses are allowed to be exercised between 4am and 7am. Future urban development of land between the end of Castletown Quays and Bandy Creek Boat Harbour may force horse trainers, riders and the Esperance Bay Turf Club to find an alternative horse exercise area. Negotiations between the Shire of Esperance

and the Esperance Bay Turf Club needs to be carried out prior to development of the land.

The only other alternative section of beach is between Bandy Creek Boat Harbour and Wylie Bay headland, although swimmers (near Wylie Bay headland) and off-road vehicles frequent the area. Existing use of the area by off-road vehicles and swimmers, possible aquacultural industry adjoining Bandy Creek and lack of parking facilities for horse floats would need to be considered prior to relocation of the existing horse exercise area.

The Shire of Esperance by-laws currently have no infringements for people found riding horses or walking dogs outside the designated times between Castletown Quays and Bandy Creek Boat Harbour.

Managing animal faeces is also an issue, particularly for dogs. Faeces can carry disease, wash into stormwater drains and the ocean, spread weed seeds and be unpleasant for pedestrians. Doggie bags and bins are provided in some of the beach car parks west of Esperance.

OBJECTIVES

Implement access control and reduce the level of disturbance to the environment caused by vehicles and pedestrians.

STRATEGIES

The recommended strategies are as follows:

Strategy	Description	Priority	Responsibility
A1	Maintain coastal roads such as Daniels Road to Membinup Beach, Alexander Bay Road to Alexander Bay, Exchange Road to Kennedys Beach and Fisheries Road to Israelite Bay.	0	SoE
A2	Maintain formal pedestrian walkways throughout the Shire's coastal reserves and close informal tracks to discourage their use.	0	SoE
A3	Consider seasonal closures of some coastal access roads due to weather and subsequent road conditions and for dieback control.		
A4	Give due regard to SPP 2.6 which provides for public access to foreshore areas and apply these when considering future options for the development of dual use pathways and recreational trails within the Shire's coastal reserves.	0	SoE
A5	Investigate opportunities for more formal disabled access.	0	SoE

A6	Ensure disabled access is considered when designing and implementing the actions recommended in this plan and that the Shire's Disability Access and Inclusion Plan is referred to.	O	SoE
A7	Seek funding to implement the dual use path from Twilight Beach to Observatory Point and the walk trail at Dempster Head.	M-L	SoE
A8	Investigate and assign areas as suitable for off-road vehicles.	S	SoE
A9	Investigate the comparative use of the <i>Control of Vehicles (Off-Road Areas) Act 1978</i> and local laws as a means to control and manage vehicles in priority areas and apply for the <i>Control of Vehicles (Off-Road Areas) Act 1978</i> to apply to the Shire if considered beneficial.	S	SoE
A10	Adopt a local law for the management of Road Registered Vehicles and Off-Road Vehicles in Shire coastal reserves which outlines conditions under which these vehicles can operate in these reserves. This local law should also identify those coastal areas and reserves where vehicle access is not acceptable.	S	SoE, DPaW
A11	Support a driver education program for vehicle use on the Shire's beaches where access/use is appropriate (refer to the South Coast NRM code of conduct manual and any other user group codes i.e. Trail Bike Riders).	M	SoE
A12	Educate vehicle drivers on the <i>Control of Vehicles (Off-Road Areas) Act 1978</i> and the Shire's local laws and how they are applicable to the coastal areas of the Shire.	M	SoE
A13	Include off-road vehicle safety education in the Coastal Education Program.	S-M	SoE
A14	Retain the vehicle exclusion area from Twilight Beach to Bandy Creek and implement an exclusion area at Little Wharton Beach during 2 weeks of the January school holidays.	O	SoE
A15	Encourage cooperation with user groups and key stakeholders such as Roadwise and Road Safety Council regarding off-road vehicle use.	O	SoE
A16	Review boat launching facilities every two years to manage beach access, safety and potential conflict between beach users.	O	SoE
A17	Continue to monitor and regulate boat launching activities, especially during peak holiday periods.	O	SoE
A18	Implement signage directing people to the existing and future boat-launching ramps.	O	SoE
A19	List boat ramps on Esperance tourist maps.	S	SoE
A20	Seek funding and implement interpretive signage about the coastline along the dual use path from Dempster Head to Twilight Beach.	M	SoE
A21	Consider the implementation of a Visitor Risk Assessment to investigate the safety and risk management of all the Shire's coastal reserves which would form the basis of a Visitor Risk Management Strategy.	S	SoE
A22	Contract a geologist to identify coastal limestone hazards along the entire length of the Shire of Esperance coastline.	S	SoE
A23	Include visitor safety education in the Coastal Education Program.	O	SoE, DPaW
A24	Ensure that risk hazard information is included on the standard coastal signs car park and formal access track.	O-S	SoE, DPaW
A25	Ensure that the Coastal Education Program and resources (such as tourist brochures and maps with warnings about coastal hazards) are available and accessible to the public.	S	SoE, DPaW
A26	Develop a brochure specifically about coastal hazards and how to keep safe.	S	SoE, DPaW
A27	Make brochures available at popular tourist locations, shops, information centres, accommodation and businesses (such as tackle supply shops and fishing supply shops).	O	SoE, DPaW
A28	Support Surf Lifesaving and Rec Fishing WA to conduct a state wide campaign warning the public about the hazards associated with rock fishing, climbing rocks and sightseeing from rocks.	O	SoE, Surf Lifesaving, Rec Fishing WA
A29	Monitor equestrian use within the Shire's coastal reserves and the condition of horse riding trails and appropriately manage for future use and demand.	O	SoE
A30	The development of horse riding trails should aim to meet the needs and activities of horse riders/trailers and group meets, whilst minimising environmental and social impacts.	O	SoE

2.6 LAND USE AND FACILITIES

ISSUES

Recreational Uses

The Shire's coastal areas are extremely popular for a variety of recreational purposes including swimming, walking, sightseeing, exercising animals, water sports, picnicking and camping. Each of these activities are discussed further in the sections below.

Informal Camping

It is common for campers to want the experience of camping in an isolated area where there are no restrictions and other campers do not surround them. Attempting to attain this experience is becoming more common, as increasing numbers of people own four-wheel-drives that can access isolated areas and choose to go camping more regularly. Consequently small isolated camp spots are being informally established across the Esperance coastline. Public and school holidays are peak times when informal camping can be a major problem.

Informal camping takes place at a number of coastal sites along the Shire such as sheltered areas behind dunes and vegetation. Evidence of informal camping has been noted at Eleven Mile Beach and Little Wharton's Beach. Informal camp sites exist at Membinup Beach, Kennedy's Beach and Israelite Bay where no formal facilities are provided and visitors gain more of a bush camping experience. Popular camp sites such as Quagi Beach and Alexander Bay have problems with visitors camping in informal areas such as the foredunes.

Issues associated with informal camping include:

- Vegetation removal and dune degradation – people camping in front or on top of foredunes often remove the vegetation that stabilises the dune and this leads to dune erosion and blowout problems
- Health risks – people disposing of human waste and food waste in sand dunes over a wide area
- Fauna habitat destruction – removal of vegetation destroys habitat and the presence of numerous people scares off some animals including ground nesting birds, small mammals, lizards and insects
- Dieback and weed transportation – dieback and weeds can be transported into an area by vehicles
- Resource costs – trying to maintain numerous camping locations to minimise coastal degradation and provide facilities is costly both in financial and human resources. A limit to the number of sites has to be defined, otherwise resources are spread too thinly and the campgrounds become poorly managed.

The above issues can be reduced or controlled using the following management techniques:

- Closing or prohibiting camping at certain locations and focus camping on a few selected locations or times of the year. This will help reduce the spread of resources
- Mapping the location of camping areas and the location of areas which should be closed and camping not allowed
- Place signs on the main road to advise campers when the camp site is full

- Implement signage to direct campers to camping areas and other facilities and indicate where camping is prohibited. Signage should include the following information:
 - To camp in allocated areas
 - Not to camp in front or on top of foredunes
 - To bury human waste or use toilet facilities (if provided)
 - Not to pull down trees or remove vegetation
 - How to maintain camping areas
 - Fire restrictions
- Provide facilities (such as shade, barbeques, toilets etc.) to avoid the need to destroy the environment
- Where campsites and tracks are unwarranted they need to be closed to minimise coastal degradation and resource costs to the Shire.

Keeping people informed about their options when travelling will most likely assist with management of camp sites. If detailed information on camp sites is available to people, including information on space and facilities available this will help manage the expectations of campers. For example, if campers are aware which camp sites are full before they arrive they are more likely to try another spot. The Shire could educate the public through a detailed flyer or brochure and can provide up-to-date information through a website or application for smart phones. This will allow people to check out their destination before arriving.



Formal camping at Quagi Beach.



Informal/illegal camping at Little Wharton Beach.

Squatter Dwellings

Squatters dwellings are semi-permanent dwellings such as caravans or other structures which are retained in one location for a prolonged period of time (i.e. months or years). Some of these dwellings are used as permanent residences and others are used as holiday or weekend accommodation.

The following issues are associated with squatters dwellings:

- They are usually built without the permission of the land manager
- Have no health, building or town planning approvals from the local government which is a liability issue
- Restricts the right for others to use the area for recreation and camping and reduces equality for all
- Creates a precedent for others to establish squatters dwellings which further exacerbates the problem
- Can lead to legal issues and huge costs to the local government in the future if the dwelling is sold by the owner and the government has to go through the legal and physical process of removing the buildings.

Squatters dwellings are commonly established by professional fishermen who need a place in which to live during the fishing season. If people who own these dwellings have a professional fishing licence and are engaged in commercial fishing, they can apply to the Shire for a professional fisherman's lease which would legalise the situation. Illegal squatters situated on land managed by the Shire can be removed under powers delegated by the *Local Government (Miscellaneous Provisions) Act 1960*.

Professional Fisherman's Camping Leases

The Shire of Esperance has two professional fishermen's camping leases at Israelite Bay (Reserve 38086, Area: 1.08ha) and the Duke of Orleans Bay Regional Park near Nares Island Beach (Reserve 36979, Area: 1.11 ha). They are managed for the purpose of Professional Fishermen's Camping. Neither reserves are currently leased to fishermen.

The Israelite Bay reserve has its management orders with the Shire of Esperance since 1986 with power to lease for 10 years. The Nares Island reserve has its management orders with the Shire of Esperance since 1984 with the power to lease for 21 years.

Nares Island Reserve 36979 is the only area that has been leased by professional fishermen for camping. After the leases expired, the fishermen left the area and all structures were removed. The last professional fishermen's camping lease was granted in 1987 for a two year period. Many of the professional fishermen now camp in the Duke of Orleans Caravan Park a short distance away. The reserve doesn't have any existing structures and only a few small cleared areas exist.

Reserve 38086 at Israelite Bay has its management orders with the Shire for the purpose of a Fishermen's Camp Site. No professional fishermen's camping leases have ever been issued even though fishermen have used the reserve. A number of these semi-permanent shacks are still there but are no longer used by professional fishermen but rather by recreational campers. Many of the professional fishermen use Spurr's shack on Reserve 36002 (management orders with the National Trust).

It is considered that these reserves are no longer needed by professional fishermen due to the availability of other living arrangements. The Shire of Esperance should consider amalgamating Reserve 38086 at Israelite Bay with the surrounding reserve and Reserve 36979 at Nares Island with the surrounding reserve.

If professional fisherman leases are granted in the future, the following conditions should be imposed to protect the coastal environment:

- No planting of exotic plants or grasses
- No livestock to be kept
- Public access to the coast not be impeded
- Buildings to be placed greater than 100m from established vegetation line on coast
- Site to be rehabilitated when leases cease.

Tour and Adventure Operators

The Esperance region has been experiencing increased growth in tourism including eco- and nature-based tourism. As the Esperance tourism industry grows, the Shire needs to be pro-active in managing eco- and nature-based tourism activities that utilise Shire of Esperance reserves.

Shire Policy Corp 005 *Recreational Activities on Council Foreshore* contains guidelines for consideration of land-based and water-based activities. Under this policy the Shire can licence some businesses and charge an annual fee if their activity requires exclusive use of part of the Shire reserve.

Public Toilets

The standard of toilet facilities at Shire of Esperance has substantially improved in recent years with upgrading and provision of new toilets at beach locations. The long-drop toilets have been removed and some replaced with compost toilets. The Shire's Coastal Reserves Public Toilet Strategy was prepared in 2011 and contains a review of the different types of toilets available and where toilets need to be upgraded, replaced and installed.

The options for toilet facilities include:

- Long drop toilet – basically a long hole in the ground. Not popular with visitors due to smell and perceived hygiene issues.
- Sealed vault toilet – similar in design to a long-drop toilet, but with a tank which is treated with a mix of bacteria (E-Zyme) which helps to break down waste. Use of fans on the toilet building helps to eliminate odour. This system can deal with high usage providing the tank is large enough. Cost of installation is approximately \$10,000.
- Composting toilet (Clivis multrum) – a self-contained, waterless toilet treatment system and based on natural decomposition of waste. This system doesn't cope with demand at high use rates. Cost of installation is approximately \$22,000.
- Composting toilet (Rota-loo) – another type of composting toilet which uses a number of compartments which rotate as they become full which reduces odour. A few of the systems installed in the Shire do not have the capacity for the level of use (although some have been upgraded) and they are not able to take black water. Cost of installation is approximately \$25,000.

- Hybrid toilet – these toilets have been installed by the DPaW and Main Roads WA at a few sites (such as Stokes Inlet and Thomas River). The system operates by the bacterial breakdown of waste through two storage tanks with semi processed water existing via a short leach drain. They are expensive to install, however do not require regular pump-outs which saves money of annual maintenance. The success of hybrid toilets cannot be accurately determined as they have only been in operation for a few years. Cost of installation is approximately \$80,000.
- Septic toilets – this type of toilet system requires a water supply. They are comparatively clean and odourless compared with other systems. Cost of installation is approximately \$60,000 to \$90,000.

Existing toilets include:

- Composting toilets at Munglinup Beach and Thomas River.
- Rota-loo toilets at Alexander Bay (not in use), Thomas River (not in use), Munglinup Beach, Wharton Beach, Little Wharton's Beach, Table Island Beach
- Septic flushing toilets at Quagi Beach, Duke of Orleans Bay boat ramp, Twilight Beach, Thomas River and West Beach
- Long drop toilet at Alexander Bay.

The standard of public toilets is still one of the most significant issues to be addressed in coastal areas. It is important that good quality facilities are provided so that visitors are dissuaded from going into the bush, which is unhygienic and damages the environment.

Issues associated with the existing toilet facilities include:

- Some of the rota-loo toilets which have been installed do not have capacity to cope with the number of people using these facilities. The Alexander Bay rota-loo toilet has been closed as a result. Some rota-loos have been upgraded. The rota-loo at Thomas River was not large enough to cope with use and was too close to the water table and was subsequently closed. Alternatives to these systems need to be considered.
- Water is not available at Alexander Bay which makes a flushing toilet and hybrid toilet unfeasible. Alternative toilets need to be provided. It also needs to be large enough to cope with demand due to the high use of the area.
- Odour is undesirable as it dissuades people from using the toilets. Having operational fans is essential for reducing odour. Regular maintenance of fans should occur to make sure they are operational and having the desired effect of reducing odour.
- Black water is the waste water from caravans and RVs. It is common for campers to dump black water into the public toilets at camp sites as a way of disposing this material. This results in filling up toilets systems at a faster rate and some toilets (such as rotaloos) are not capable of processing this type of waste.

It is recommended that some of the existing systems are upgraded and replaced before new facilities are provided at new sites. The following work is required:

- Replace rota-loo toilets at Thomas River and Alexander Bay (with the sealed vault toilet).

- Move the toilets at Wharton's Beach to a location closer to the car park to allow better access for maintenance vehicles and replace with sealed vault toilets.
- Install flushing toilets where water is available (similar to Quagi Beach).
- Provide facilities for the disposal of black water where needed and educate visitors through signage and assistance.

The sealed vault toilet is essentially a long drop toilet which uses a bacterial additive to break down and digest waste. The Department of Parks and Wildlife (DPaW) currently use a product known as E-zyme which is a bacterial granule which is designed to speed up the breakdown of waste. These toilets are used by DPaW at a number of their remote camping locations and are considered suitable for areas which are difficult to access for regular maintenance and which experience an influx of visitors during peak periods. The Shire will need to consider the appropriate size of the tank for the toilet to ensure that it is large enough to cater for use during peak periods and the remainder of the year. It may not be possible for large maintenance trucks to drive to the site down access tracks so this is another factor that may determine the size of the tank.



Toilets at coastal sites – compost toilet.



Septic toilet.



Small rota-loo.

Picnic Facilities, BBQs, Camp Kitchens

Picnic facilities, such as BBQs, picnic benches and shelters, are provided at a number of coastal locations. Providing these facilities is beneficial as visitors are less likely to have an environmental impact. For example, stripping of coastal vegetation to fuel open campfires is common. Vegetation is often stripped faster than it grows and this results in an eventual reduction in vegetation and shade.

The provision of free gas barbecues in other campgrounds tends to reduce the amount of vegetation that is stripped for fuel. Gas BBQs are particularly important at remote campgrounds, as people tend to forget to bring fuel with them. Gas BBQs are currently only provided at Thomas River.

Shade and picnic tables are provided at many coastal locations including Munglinup Beach, Table Island Beach, Duke of Orleans Bay, and Thomas River.

Suitable areas for gas BBQs would be:

- Twilight Beach (car park)
- Quagi Beach (camp area)
- Wharton Beach
- Duke of Orleans Bay (car park).

The Esperance coastal vegetation is often very low, shrub-like and does not always provide adequate shade for people who are camping or relaxing on the beach. People will often knock down vegetation to get under shady trees. If suitable shade trees are strategically planted around car parks, camp grounds and picnic tables they will be more inclined to use the facilities and not destroy existing vegetation.

The DPaW camp sites at Stokes Inlet and Thomas River have camp kitchens which provide an area for cooking food, socialising and shade. These facilities are expensive to construct and it is not considered that enough revenue can be collected from camp fees to cover the cost of building the kitchen. Camp kitchens could be considered as long term options for popular camp sites such as Quagi Beach and Alexander Bay, however the Shire will need to consider the costs.

Rubbish and Waste

In the past, many of the Shire's coastal reserves contained small rubbish tips (including Munglinup Beach, Quagi Beach, Membinup Beach, Alexander Bay and Israelite Bay). These have since been closed for safety and health reasons. Rubbish bins are provided at many of the Shire's campsites and visitors are also encouraged to take their rubbish home. Many sites are already well provided with bins.

Where rubbish bins are provided, the majority of people will put litter in a bin. This increases the volume of rubbish to be disposed of, the cost and frequency of rubbish collection. Where no bins are provided, people tend to take the rubbish home with them and a small number of people litter the area. Further provision of bins in the Shire should consider resources relating to collection of waste.

Land Use Conflicts

Land use conflicts occur when different land uses take place in close proximity and can cause dangers and safety issues, such as vehicles on beaches which are also popular for swimming and walking. In these situations it is best practise to separate conflicting activities to reduce safety risks. The Action Plan makes recommendations for separation of pedestrian access and vehicle access (such as at Little Wharton's Beach and Thomas River) and creating vehicle exclusion areas at popular swimming beaches such as Wharton's Beach and little Wharton's Beach. These exclusion areas will assist in reducing safety conflicts.

Aquaculture

Aquaculture is a rapidly expanding industry in both Western Australia and around the world due to the declining wild stocks. Aquaculture can be either a land or sea-based operation. Proponents of aquaculture development are required to comply with the *Fish Resources Management Act 1994* and the *Fish resources Management Regulations 1995*. A licence is required from the Department of Fisheries. The Shire of Esperance Town Planning Scheme No 23 includes aquaculture under the definition of agriculture – intensive.

A report by FWA "An Aquaculture Plan for the Recherche Archipelago" suggests a number of sites for land and sea-based aquaculture. Suggested sites for land-based aquaculture include Bandy Creek Boat Harbour (DPI land), industrial land in Esperance, rural land east of Esperance, unallocated land between Duke of Orleans Bay and Cape Arid, crown and freehold land at Wharton or Duke of Orleans Bay and Condingup (FWA, 2000).

No aquaculture developments have been approved to date. Prior to aquaculture development in the region it is recommended that guidelines are prepared to protect the environmental and recreational aspects of the Esperance coast. Issues that need to be addressed include clearing foredunes, rehabilitation after clearing, public access onto beaches, visibility of buildings and pipelines and threatened flora and fauna.

Jetty and Groyne Structures

Jetties and groynes are important facilities from where people can meet and access the ocean, without owning a boat. Taylor

Street Groyne, James Street Groyne, Tanker Jetty, Newtown Jetty (Castletown) ruins and Israelite Bay Jetty ruins are important as recreational and tourism nodes have historical value and, in the Esperance Bay, assist in combating the foreshore erosion problems. The Esperance Tanker Jetty is only one of a handful of old jetties left in Western Australia. The Newtown Jetty, at the end of Chaplin Street in Castletown, is no longer a functioning jetty but has significant historical and aesthetic value.

The future development and management of the Esperance Bay foreshore area is addressed in a separate detailed management plan (Esperance Waterfront Project and Esperance Waterfront Concept Plan), which also includes a number of the Shire's jetties and groynes.

The Israelite Bay Jetty is deteriorating and in poor condition, yet it has important historic significance.

Stormwater Disposal

The Shire of Esperance stormwater drainage network disposes some of the collected town stormwater into the ocean. The Esperance Port Authority also has a drainage system from the iron ore stockpile that is directed into soakage pits that leach into the ocean.

The problems arising from stormwater disposal to the ocean are the materials that enter the water including:

- Rubbish (particularly plastic bags and packing)
- Organic matter (leaves, lawn clippings, sediment, animal faeces)
- Excess nutrients (lawn fertilizers, car washing water)
- Inorganic matter (garden chemicals, sump oil, cooking fat, iron ore sediment).

These added materials can lead to algal growths in the water, waterborne diseases, death of marine organisms and an unattractive beach.

There are seventeen (17) stormwater drainage outlets to the ocean between the end of Castletown Quays (Ormonde Street) and John Street and two drains are located at West Beach/Hughes Steps.

The options for managing stormwater ocean disposal are:

- To educate the public about dumping unwanted substances into the drainage system
- To upgrade the drainage network to include more land based retention basins
- To fit pollution traps to the drains before they enter the ocean
- Other innovative design techniques.

Altering the existing stormwater drainage network is an option that would ultimately reduce the amount of raw pollutants entering the ocean. A number of stormwater drains (mostly on the coastal roads) lead straight to the ocean and have no retention structure to filter off debris, rubbish and organic matter.

OBJECTIVES

- To encourage sustainable land uses along the Shire's coast with minimal environmental impact to ensure enjoyment by future generations
- To ensure that existing and potential land use conflicts are identified and that the management actions address these conflicts
- To ensure that facilities provided are adequate to provide for future permanent and visitor populations over the next 10 years and the different recreational activities along the coast
- To ensure that the provision of facilities and the resolution of land use conflicts can also assist in environmental management.

STRATEGIES

The recommended strategies in relation to facilities are as follows:

Strategy	Description	Priority	Responsibility
F1	Continue to enforce a no camping rule within all the Shire's coastal reserves unless it is carried out within designated camping and caravan areas with assistance of Shire rangers.	0	SoE
F2	Information on campsites, roads and tracks across the Shire be made available to the public, and include ways in which campers can minimise coastal degradation and maintain campsites for future users. General information should be provided on a flyer and a website and phone app can be regularly updated with road closures and camp availabilities.	0	SoE
F3	Enact the <i>State Squatter Policy (1989)</i> if deemed necessary.	0	SoE
F4	Amalgamate professional fishermen's camping lease Reserve 38086 at Israelite Bay with the surrounding Reserve 3805 and Reserve 36979 at Nares Island with the surrounding reserve.	M	SoE
F5	Ensure coastal sites are adequately serviced with rubbish bins, amenities, seating, shelters etc. according to the level of use and priority.	0	SoE

F6	Maintain the amenities at all coastal locations (public amenities, picnic areas, seating, shelters, etc.), and complement or improve where necessary.	O	SoE
F7	Adopt a consistent design style for all furniture established within their coastal reserves.	O	SoE
F8	Provide facilities for tourism operators such as toilets, barbecues and shade shelters in exchange for annual licensing fees.	S	SoE
F9	Replace low capacity or functioning toilets where required with alternative systems which cope with capacity and maintain fans to ensure they are operational at all times.	M-L	SoE
F10	A long term plan be drawn up to provide for RV use in some camping grounds (such as Alexander Bay and Thomas River) and provide dump points for black water disposal.	M	SoE
F11	Provide, or continue to provide, rubbish receptacles and a regular collection service at Munmlinup Beach, Quagi Beach, Little Wharton Beach, Wharton Beach, Nares Island Beach, Duke of Orleans Bay, Table Island Beach, Alexander Bay and Thomas River and dispose in registered landfill site.	O	SoE
F12	Encourage people to take their rubbish with them by not providing bins at Membinup Beach and Kennedys Beach, and erect signage to reflect this at Membinup Beach.	O	SoE
F13	Undertake occasional rubbish clean-ups at all coastal reserves.	O	SoE, DPaW
F14	Continue to enforce the boat launching and vehicle prohibited areas to help reduce land use conflicts. Implement a clear zoning of recreational activities to ensure safety and minimise risk for users.	O	SoE
F15	Monitor the Shire's designated Dog Exercise Areas for signs of land use conflict.	O	SoE
F16	Develop guidelines for land-based aquaculture development.	M	SoE
F17	Ensure impacts of aquaculture developments on environmental and recreational values are minimised when assessing aquaculture proposals.	O	SoE

F18	Community consultation be undertaken when aquaculture development sites are identified that may impact on the communities recreational and environmental values and access to the coast.	O	SoE
F19	Liaise with mining companies to ensure the environmental impacts of the mining process will be minimised and a best practice rehabilitation plan is in place prior to mining commencing.	O	SoE
F20	Implement a public education program to reduce contamination to stormwater in the catchments where the drains flow to the ocean.	O	SoE
F21	Investigate engineering and funding options for sump retention of stormwater on land, in those catchments where there is direct ocean disposal.	M	SoE
F22	Make resources available to the public on the appropriate use of coastal reserves.	S	SoE
F23	Consider a strategy for the compatible use of reserves.	S	SoE

2.7 HERITAGE

ISSUES

Aboriginal Interests and Heritage

The Bullenbuk Claimants have a native title claim over a wide region that includes the coastal areas from Munmlinup Beach to Cape Arid National Park. A Ngadjunngarra claim also exists over the Israelite Bay area.

A search of the Aboriginal Heritage Inquiry System indicates that a number of registered Aboriginal heritage sites are located within the Shire's coastal reserves. A copy of the search is provided at Appendix A.

- Artefacts/Scatter – Wharton
- Artefacts/Scatter – Mt Belches
- Quarry, Artefacts/Scatter – Duke of Orleans Bay
- Quarry – Mt Belches South Quarry
- Quarry – Nare's Beach Quarry
- Artefacts/Scatter – Mt Belches West/Bandi Cave
- Artefacts/Scatter, Camp – Mt Belches South
- Quarry – Munmlinup Beach blowout
- Artefacts/Scatter – Alexander Bay West
- Quarry, Artefacts/Scatter – Alexander Bay Ridge

- Artefacts/Scatter – Sand Hill, Kennedy’s Beach
- Artefacts/Scatter – Yokinup Bay Headland
- Artefacts/Scatter – Thomas River Headland
- Artefacts/Scatter – Targon Harbour Road
- Artefacts/Scatter – Belinup Hill
- Artefacts/Scatter – Thomas River Bank.

Native title does not require physical occupation but can often be a communal arrangement between indigenous and non-indigenous people. All private freehold titles granted before 1 January 1994 extinguishes native title (under Native Title Act 1993) because it includes the right to exclude others from private property. Native title, however, may exist over vacant crown land, recreation reserves, water reserves, foreshore reserves, beaches reserves, seas, rivers, lakes or any other public place.

The Esperance Nuyungar Aboriginal Corporation is a principle stakeholder in Aboriginal interests and heritage related to the Esperance region. All Native Title issued are now referred to the Goldfields Land and Sea Council (GLSC).

The GLSC is the regional body in Kalgoorlie that deals with native title issues, historical sites surveys and other issues relevant to the wider indigenous community. There is potential for the Shire of Esperance to work with these groups in the management of coastal areas particularly in attracting funds and implementing on-ground coastal works.

European Heritage

The State Heritage Office lists the following sites as having significance:

- Israelite Bay Jetty – Heritage Place No 4223
- Israelite Bay Post and Telegraph Station – Heritage Place No. 836
- Castleton Jetty – Heritage Place No. 4224
- Tanker Jetty – Heritage Place No. 831

The Israelite Bay Post and Telegraph Station are listed in the Shire’s Municipal Heritage Inventory (LGA Place No. 30). It states that the *social value of the place lies in its capacity to remind present and future generations of the ability of people to build and operate essential services in extremely difficult circumstances.* Newtown Jetty and Tanker Jetty are also listed in the Shire’s Municipal Heritage Inventory (LGA Place No. 38 and 53).

Observatory Point is also a recognised place of European Heritage significance and this site is marked with interpretative signage explaining the history of the area. A monument is also established on the headland. This provides a good example as to how historically significant sites can be recognised.

OBJECTIVES

To further recognise and promote areas of Indigenous and European significance and aim to educate the public of the value and importance of certain sites.

STRATEGIES

The recommended strategies are as follows:

Strategy	Description	Priority	Responsibility
H1	Continue to liaise with local Indigenous representatives to ensure a culturally sensitive approach to recreational activities and the provision of visitor amenities in coastal reserves.	0	SoE, Indigenous groups
H2	Encourage involvement of indigenous persons in coastal management.	0	SoE, Indigenous groups
H3	Consider the implementation of interpretative signage which describes the Indigenous heritage of the area (if requested by local traditional landowners).	0	SoE, Indigenous groups
H4	Consult with Indigenous representatives during any future biodiversity surveys to develop a better understanding of the Noongar traditional values and uses of biodiversity of coastal reserves.	0	SoE, Indigenous groups
H5	Encourage and provide support to the Department of Indigenous Affairs to conduct a cultural landscape study across the Shire’s coastal reserves.	0	SoE
H6	Continue to manage and recognise European historic places.	0	SoE
H7	Establish interpretative signage at historically significant sites.	0	SoE

2.8 COMMUNITY INVOLVEMENT

ISSUES

Coastal Education and Awareness

Community involvement in coastal issues and management is beneficial as it creates a sense of ownership and helps to achieve better management outcomes. The Shire should work with and encourage coastal community groups where possible. This can also help to increase community knowledge of the coastal environment, including harmful activities and how to care for the environment.

Future strategies that may assist in raising public awareness of coastal issues include:

- Coastal Education Program – aimed at increasing public awareness of coastal issues through media articles, forums or guest speakers, talking to primary and high school aged children about rules for the beach, camping, riding motorbikes on the dunes and environmental protection of the coast, publishing promotional brochures on camping locations and ways in which campers can minimise their impact on the Esperance coast

- Coastal Community Support Program - encourage and support voluntary groups to undertake coastal education programs eg. Esperance Coastcare Group, Esperance Weeds Action Group, Esperance Bird Observers Group
- Coastal Training Programs – run short courses on coastal management through training organisations such as Curtin University (Esperance campus), TAFE and the SCMG to educate a number of interested people on coastal issues and management.

Coastal Research

Increasing the information base on the coastal environment will be beneficial in determining the scale of impact and what should be done to protect the coast. More information will be determined over time as more studies are conducted and research is undertaken.

The demographics of people visiting coastal reserves is important in order to determine the scale of use and how much management is required to reduce impacts. The Shire has recently surveyed the number of visitors to Alexander Bay and Quagi Beach over the summer period from November 2012 to April 2013. It will be beneficial to continue to get numbers of visitors to campsites and reserves and to survey users to determine their expectations, positive experiences and negative experiences. This will also help the Shire to plan for expected visitor numbers, to provide the appropriate facilities and to determine whether new camp sites need to be formalised (such as Kennedy's Beach near Alexander Bay).

OBJECTIVES

To provide opportunities for local residents and visitors to learn about and be involved in the protection and management of the Shire's coastal reserves.

STRATEGIES

The recommended strategies are as follows:

Strategy	Description	Priority	Responsibility
CI1	Support programs that actively engage the local community in managing the Shire's coastal reserves e.g. school education programs, beach clean-up days.	0	SoE
CI2	Provide opportunities for the community to be involved in rehabilitation, monitoring, flora and fauna surveys, facility and access management etc.	0	SoE
CI3	Assist and encourage the community with forming "Friends of Coastal Reserves" groups.	0	SoE
CI4	Investigate the possibility of forming community groups for Alexander Bay.	S	
CI5	Undertake ongoing public education and engagement programs to encourage the conservation and care for coastal biodiversity and bird nesting sites e.g. Hooded Plover nesting sites.	0	SoE, BA, EBOG
CI6	Include coastal safety in any coastal education and awareness program developed for the Shire of Esperance.	0	SoE
CI7	Formulate and implement a Coastal Education Program to foster awareness and educate the general public and school children about coastal issues and the part they can play in minimising impacts on the coast.	M	SoE
CI8	Establish a Coastal Community Support Program to encourage community groups to run coastal awareness and education programs on issues that directly affect the Esperance coastline.	M	SoE
CI9	Facilitate the running of short courses on coastal management and related issues in association with the SCMG.	0	SoE
CI10	Encourage research organisations and community groups to obtain funding to investigate marine and terrestrial flora, fauna and coastal issues in the Esperance region.	0	SoE
CI11	Continue to survey number of visitors to reserves and to survey their experiences and expectations.	0	SoE, DPaW

3. COASTAL RESERVE ACTION PLANS



coastal reserve action plans

3.1 INTRODUCTION

This section contains the Action Plan for the Shire's coastal sites. A separate Action Plan has been provided for each coastal site and contains specific recommendations for management of these areas. A plan is provided for each site showing the aerial photo and features. The actions are labelled on the plan to show diagrammatically where management is required.

munglinup beach



3.2 MUNGLINUP BEACH

BACKGROUND

Munglinup Beach is located on Reserve 32337 and is managed by the Shire of Esperance for the purpose of 'Recreation'. It adjoins the Lake Shaster Nature Reserve to the east (managed by the DPaW) and the Oldfield Inlet to the west. Munglinup Beach is located at the western extent of the Shire of Esperance, 105 kilometres west of Esperance.

The campsite at Munglinup Beach has existed for approximately 40 years and is a traditional summer holiday campsite for the Munglinup community. Summer school holiday swimming lessons are also held at the beach.

One of the recommendations from the 2002 CMP was to prepare a detailed site plan for the beach. The Munglinup Beach Campsite Management Plan was subsequently prepared in 2004. A majority of the management actions from this plan have been implemented.

Also of importance is the management agreement between the Shire and the Munglinup Beach Caravan Park (located 3kms to the north of the campsite). Given the caravan park's proximity to the campsite, the agreement stipulates that the caravan park will manage the campsite. The camping fees collected at the campsite are to cover the costs of the management agreement.

NATURAL ENVIRONMENT

A small offshore reef buffers the shoreline of Munglinup Beach from high swell, making it an ideal swimming spot. The campsite is located behind the primary dune systems, which provides some protection from strong winds.

Appropriate management of the campsite requires a good understanding of the landscape and geology. Four distinctive land capability units were previously described for the area (DCE, 1984) according to their geomorphology, vegetation, soil and landscape features. These were:

- Beach and Drift Sands Unit
- Holocene Sand Dune Unit
- Deep Pleistocene Deposits Unit
- Shallow Pleistocene Deposits Unit.

The Beach and Drift Sands Unit is comprised of unstable sand dunes hence their use should be discouraged (DCE, 1984). The surrounding Holocene Sand Dune Unit is also unsuitable for recreation and development due to potential erosion problems. The current camping area and car park is located on these fragile dune systems and dune erosion and blowouts are occurring. Added pressure from camping, people, animals and motorbikes on dunes will continue to make the problem worse in the future and should be managed accordingly. It should be kept in mind that the current location of the campsite at Munglinup is not capable of sustaining continued use for camping without causing significant degradation of the surrounding dune system and vegetation.

The Oldfield Inlet (also known as the Munglinup Inlet) is part of the Munglinup Beach reserve. Fed by the Oldfield River, the Estuary is a 3km long basin up to 500m across and 5m deep. The long bar adjoining the ocean only breaks open every 3 to 4 years after heavy rainfalls. It has significant environmental, recreation, cultural and historical values (Craig, 1999).



Vegetation

Areas of the sand dunes have historically been stabilised using Pyp grass. Whilst the plant is providing valuable stability to the dunes it is an invasive weed and needs to be removed and replaced with a native, local plant species eg. Hairy Spinifex (*Spinifex hirsutus*).

The incipient dunes at Munglinup Beach are dominated by Hairy Spinifex (*Spinifex hirsutus*) and introduced Sea Spurge (*Euphorbia paralias*). The mobile sand dunes support a mixed community of low shrubs including Coastal Daisy Bush (*Olearia axillaris*), Cushion Bush (*Calocephalus brownii*),

Wedding Bush (*Pimelea ferruginea*) and *Leucopogon parviflorus*. Rottnest Tea Tree (*Melaleuca lanceolata*) dominates the hind dunes and swales with Berry Saltbush (*Rhagodia baccata*) and *Tetragonia implexicoma*s sparse undergrowth (Craig, 1999).

Further inland the vegetation consists of Red-eyed Wattle (*Acacia cyclops*), Coastal Moort (*Eucalyptus utilis*), Thick-leaved Fan Flower (*Scavaevola crassifolia*), One-sided Bottlebrush (*Calothamnus quadrifidus*), Cockies Tongue (*Templotonia retusa*), Coastal Daisy Bush (*Olearia axillaris*) and Basket Bush (*Spyridium globulosum*). Dense thickets of Showy Banksia (*Banksia speciosa*) dominate the deep sand dune crests (Craig, 1999; DCE, 1984).

There was no evidence of dieback (*Phytophthora species*) or of aerial cankers in the coastal vegetation when surveyed by Craig in 1999. Known weeds of the area include Iceplant (*Mesembryanthemum aitonian*), Pyp Grass (*Ehrharta villosa*) and Sea Spurge (*Euphorbia paralias*).

RECREATION AND SOCIAL ENVIRONMENT

Munglinup Beach attracts both campers and day visitors. This node is also used to access other beaches further east and west of that point. Swimming lessons are conducted for two weeks every January at Munglinup Beach. The Oldfield Estuary is used for boating, camping and walking. It has the potential to become an area for nature-based tourism and appropriate recreation in the future.

The local Munglinup community utilise Munglinup Beach and Oldfield Estuary mostly during the summer months of December and January. Camping has been occurring at Munglinup Beach and in spots along the Oldfield Estuary for approximately 40 years and there is a strong sense of ownership of the area. Munglinup community members have been involved in improving the site facilities as well as being paid to remove rubbish. Members of the Munglinup community are ratepayers of either the Shire of Esperance or Shire of Ravensthorpe.

FACILITIES AND ACCESS

The Munglinup campsite is well-catered for as a low key camping and day use area. It consists of 15 camping bays, two composting toilets, a shower, a rainwater tank, a non-potable groundwater supply, shade shelters, picnic tables and a day-use car park area.

MANAGEMENT ISSUES

Management of the Campsite

Munglinup Beach and Oldfield Inlet are under increasing pressure resulting from increased use. Issues include overcrowding, removal of surrounding vegetation and vandalism of existing infrastructure. The campsite, at present, is restricted by size of the area available between dunes for camping and water. Increasing the size of the site is not an option due to the fragility of the dune system, and any increase in the numbers of people would mean a greater demand for drinking water. Furthermore, the Munglinup community would prefer that the campsite does not expand and remains at the current capacity.

The recent agreement between the Shire and the community and between the Shire and the Munglinup Caravan park owners seems to be successful in terms of management of the campsite. Many of the

actions from the management plan have been carried out and fees are collected on a regular basis.

Management can either continue as is or the reserve can be handed to the DPaW. Closing the beach and turning it into a day use area is not considered to be a feasible option due to its popularity as a campsite. The option of handing the reserve to the DPaW to manage has been previously considered and the Shire and the community will prefer to keep the reserve.

The current situation seems to be successful in terms of implementation of actions, revenue raising (although the fees fall slightly short each year) and ongoing management. While some issues remain (e.g. the size of the camp area and lack of drinking water), the existing arrangement can generally help to manage many of the other pressures of the campsite.

Facilities

A few shade shelters and picnic tables are located within the camp site, however some are slowly becoming buried under the sand dunes. It is recommended that the shelters are relocated to a more stable area.

The toilets are adequate to cater for the demand at this camp site (which is restricted due to the number of bays), however it is recommended that the toilets are regularly maintained to ensure that the fans are working properly as these help with reducing odour.

Rubbish Disposal

An unregistered landfill site has recently been closed at Munglinup Beach campsite. Rubbish bins are provided throughout the campsite and collected by rangers and the local caravan park.

Potable Water

Some water is collected from the roof of the brick toilet block. This water is not recommended for drinking but is relatively fresh. Other, more saline water is drawn from an underground bore. This water is available for showers and other activities but is not fit for human consumption. Potable water need not be supplied to the campground to discourage long-term campers. As it is a remote beach people would be expected to bring their own drinking water if they wish to camp for extended periods of time.

Environment

Rehabilitation by the local community (Munglinup Community and Primary School) has recently taken place on dunes leading to the beach and surrounding the campground. Bush surrounding the campground is becoming degraded as people pull it for firewood or to make more room for camping. Barbeques would help alleviate part of this problem and provide a facility for visitors.

Pyp Grass is a major problem on the foredunes and is starting to dominate native local vegetation. An eradication program is needed and the vegetation replaced with alternative native local species.

It is recommended that bollards are placed around the camp bays and car parking areas to reduce vegetation disturbance and removal.

Signage

Signage at the campsite includes locational signage, standard safety/risk signage, and some signage regarding facilities available (fire restrictions). Some additional signage may be needed to advise visitors about the facilities available (drinking water, waste management etc.).

An Information Bay is recommended at the campsite. Bay allocation signs should also be implemented at the camp bays to properly delineate the camp bays and prevent more than one bay to be used by one camper.

Oldfield Estuary

This area has significant environmental and recreational values. Management of the estuary should consider walk trails, interpretative signage, determine suitable recreational activities (canoeing, fishing, swimming), rabbit control, weed management, fire burning regime and road access. A boat launching area is recommended, however this should be restricted to recreational, non-powered crafts such as canoes and small boats and not intended for professional fishermen.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
MG1	Establish an Information Bay with general information on safety, location and interpretative information.	S	SoE	\$1,000
MG2	Upgrade old compost toilets.	M	SoE	\$7,000
MG3	Regularly inspect and maintain fans in the toilets to ensure they are working properly.	O	SoE	N/A
MG4	Move the two shelters and benches which are getting covered by the dunes onto the gravel area.	S	SoE	\$10,000
MG5	Ensure camping ground doesn't extend beyond the existing area.	O	SoE	N/A
MG6	Install bollards around the car park and camp bays.	S	SoE	\$5,000
MG7	Install bay allocation signs within the camp bays.	S	SoE	\$500
MG8	Identify a boat launching location at the Inlet (for recreational, non-powered crafts such as canoes and small boats).	M	SoE	N/A
MG9	Continue with weed control, particularly removal of Pyp Grass.	O	SoE, community	TBD

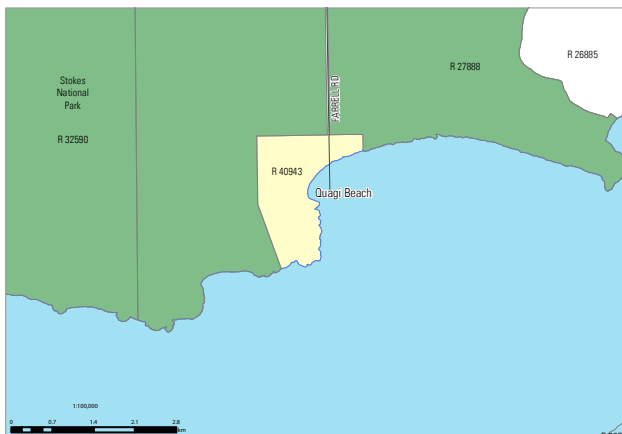
- MG1** Establish an Information Bay at the entrance to the camping area with general information on safety, location and interpretative information.
- MG2** Upgrade toilets.
- MG3** Regularly inspect and maintain fans in the toilets to ensure they are working properly.
- MG4** Move the two shelters and benches which are getting covered by the dunes onto the gravel area.
- MG5** Ensure camping ground doesn't extend beyond the existing area.
- MG6** Install bollards around car park and camping bays.
- MG7** Install signs at the camp bays.
- MG8** Identify a boat launching location at the Inlet.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Shelter
-  Parking



quagi beach



3.3 QUAGI BEACH

BACKGROUND

Quagi Beach (Reserve 40943) is located approximately 70kms west of Esperance off Farrells Road. A sheltered beach, dominated by rocky headlands, it offers a range of recreational pursuits including swimming, fishing and camping. The reserve is surrounded by DPaW managed nature reserves. Quagi access road is also the main access point for beaches east and west of this location including Barker Inlet, Fanny Cove and Shoal Cape.

One of the recommendations in the 2002 CMP was to undertake detailed planning for the site. An assessment of the Quagi Beach picnic and camping areas was undertaken in 2004 and a number of recommendations were made to close duplicate, dangerous and informal tracks to the beach and to formalise some access points. These actions have not been carried out to date.

NATURAL ENVIRONMENT

The camping ground is setback behind the primary dunes. The day use car park and picnic areas and access tracks to the beach are located on unstable primary dunes and significant degradation has occurred. An unnecessary number of tracks are located through the primary dunes, many of which are very steep and unstable. Vegetation has been degraded from human impact which has led to further erosion. Extensive rehabilitation and closure of some areas along the foredunes is needed. Some camping occurs at the top of the dunes which degrades the environment further as vegetation is pulled for firewood and to create space for camping.

RECREATION AND SOCIAL ENVIRONMENT

The Quagi Beach campsite is located back from the foredunes and is well established. There are 12 camping bays which are well marked with bollards and four sites have permanent shelters. Some camping still continues on the foredunes and is causing extensive damage to the surrounding vegetation. Quagi Beach is used for swimming, fishing, sightseeing and walking.

The local Coomalbidgup and Cascade communities use the beach mainly during the summer months. Visitors from interstate and intrastate use the campsite year round.

FACILITIES AND ACCESS

Rubbish bins are provided. A toilet block and shower facilities are provided in the centre of the campsite. The toilets have recently been upgraded to a septic system. It is recommended that a gas BBQ is provided to reduce the need for camp fires.

Signage at Quagi Beach includes locational signage, directional signage (directs visitors to the facilities provided) and safety signage about the use of campfires. However, no signage is provided at the picnic and car park areas. Signage needs to be erected to inform visitors about camping restrictions and fire bans.

Four small sandy car parks are located along the foreshore, linked by a sandy access track. A number of pedestrian tracks lead to the beach from these car parks. The first car park is at the northern end of the beach is used as a picnic and camping area. Dune blowouts, caused by informal pedestrian access, are threatening to cover the area and make it unusable. Formal access such as steps are needed to minimise the erosion and allow native vegetation to re-grow.

A sandy vehicle access track leads south behind the dunes and a number of small parking areas are located along. These vehicle access points should be closed to prevent further erosion. Access points to the beach are located further south where the dunes are more stable. Another small car parking area should be retained at the southern end of the beach and formal pedestrian access steps should be installed to provide an alternative access options for pedestrians.

MANAGEMENT ISSUES

Vegetation degradation and erosion are major issues at this site. Duplicate tracks over the dunes urgently need to be close, brushed and rehabilitated. A small number of the tracks should be formalised by providing stairs and signage to direct visitors to the correct access.

Camping on the primary dunes also causes further environmental degradation and erosion and should be discouraged. Signage is needed in these areas to advise visitors of the restrictions and bollards erected behind the melaleucas to restrict vehicle access.

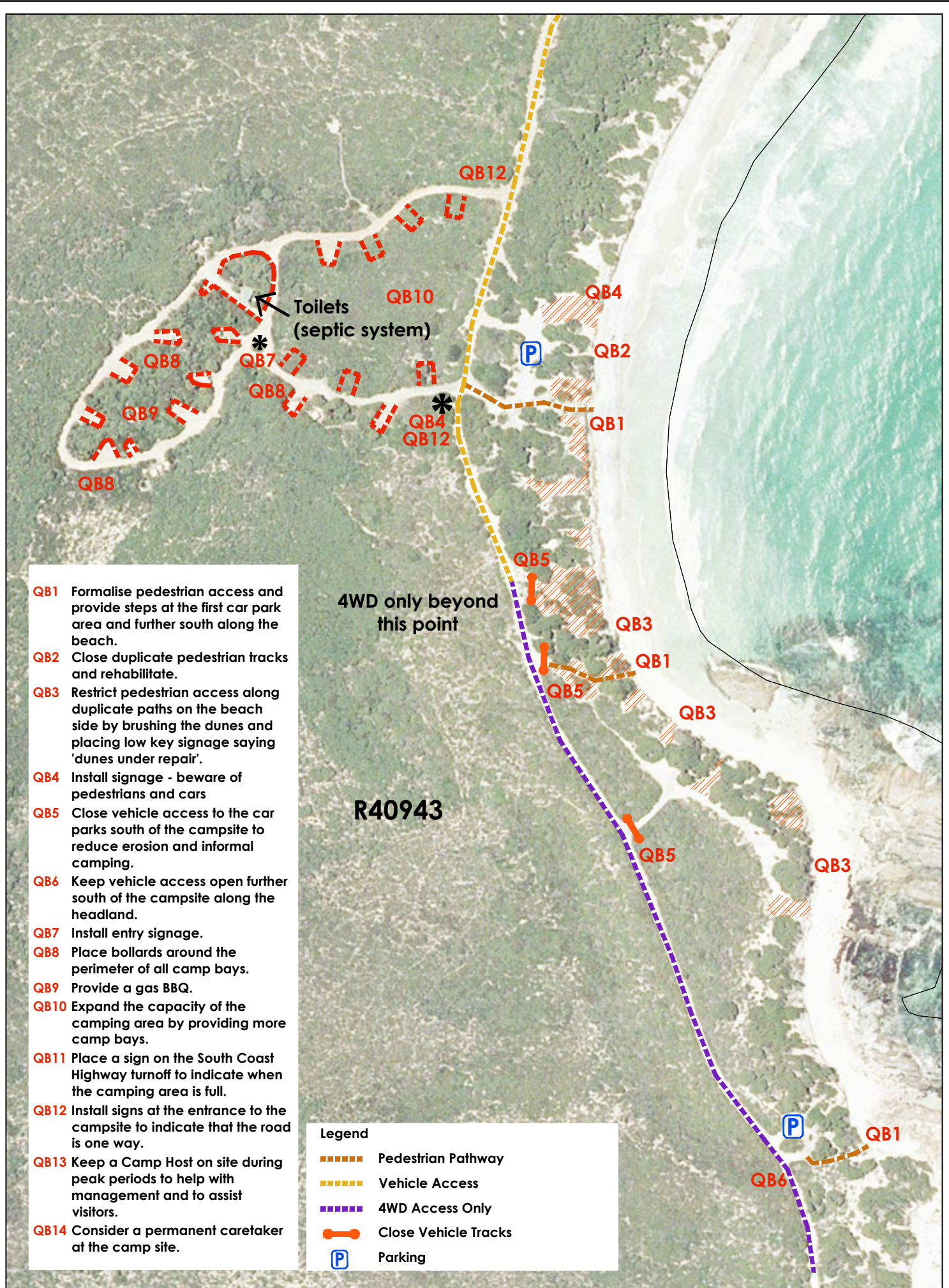
Due to the demand for camping spots and the occurrence of over-flow camping in the dunes, it is recommended that the camping area is expanded to allow for additional camp bays. It is also recommended that a sign is placed on the South Coast highway turn off to advise if the camping area is full. This will advise drivers that the camping area has

reached capacity before they drive down the access track.

It is also recommended that the Shire considers placing a caretaker at Quagi Beach during peak periods to assist with management, to assist campers and to collect camp fees. A permanent caretaker could be considered if required.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
QB1	Formalise pedestrian access and provide steps at the first car park area and further south along the beach.	S	SoE	\$35,000
QB2	Close duplicate pedestrian tracks and rehabilitate.	S	SoE	\$15,000
QB3	Restrict pedestrian access along duplicate paths on the beach side by brushing the dunes and placing low key signage saying 'dunes under repair'.	S	SoE	Included above
QB4	Install signage at first car park to advise cars to beware of pedestrians sharing the path.	S	SoE	\$500
QB5	Close vehicle access to the car parks south of the campsite to reduce erosion and informal camping.	M	SoE	N/A
QB6	Keep vehicle access open further south of the campsite along the headland.	O	SoE	N/A
QB7	Install entry signage.	M	SoE	\$500
QB8	Place bollards around the perimeter of all camp bays.	M	SoE	\$6,000
QB9	Provide a gas BBQ.	M	SoE	TBD
QB10	Expand the capacity of the camping area by providing more camp bays.	S	SoE	N/A
QB11	Place a sign on the South Coast Highway turnoff to indicate when the camping area is full.	S	SoE	\$500
QB12	Install signs at the entrance to the campsite to indicate that the road is one way.	S	SoE	\$500
QB13	Keep a camp host on site during peak periods to help with management and to assist visitors.	M	SoE	N/A
QB14	Consider allowing a permanent caretaker to remain at the camp full time.	L	SoE	N/A



quallilup beach to thirteen mile beach



3.4 QUALLILUP BEACH TO THIRTEEN MILE BEACH

BACKGROUND

Quallilup Beach to Thirteen Mile Beach are low-key sites which have limited access only available to 4WDs. This area stretches to the west of Eleven Mile Beach and is located on Reserve 24486. It is a dedicated 4WD off-road driving area and therefore caters for this coastal recreational activity. There are no significant issues in this area, given the low-key nature of the area.

eleven mile beach



3.5 ELEVEN MILE BEACH

BACKGROUND

Eleven Mile Beach is located on the bend of the Twilight Beach Road loop as it turns inland. Reserve 24486 currently doesn't have its management order with anyone, although Shire roads and infrastructure exist at the location. Activities at this beach include fishing, swimming, walking and sightseeing activities.

Access to the beach is via two stairways from the car park, one east and one west. These stairways are in good condition and provide adequate access to both sides of the beach.

Three four-wheel-drive tracks come off the roads near Eleven Mile Beach. One track extends to the west to a lookout point over the beach and vehicle access has been cut into the dunes. Another track extends to the west to a lookout point/turn around area and does not provide access to the beach. There is also evidence of camping in sheltered areas behind the Melaleucas. Another track extends a considerable distance to the east behind the primary dunes and leads on the beach. It is recommended that signs are placed on the access road to inform drivers of which track provides beach access.

The beach on the eastern side of the car park is more sheltered and therefore favoured for swimming and other beach activities. There could be a conflict between beach users and vehicles accessing the beach at this point. The Shire should monitor this area for signs of danger or trouble and close access to vehicles if there are issues.








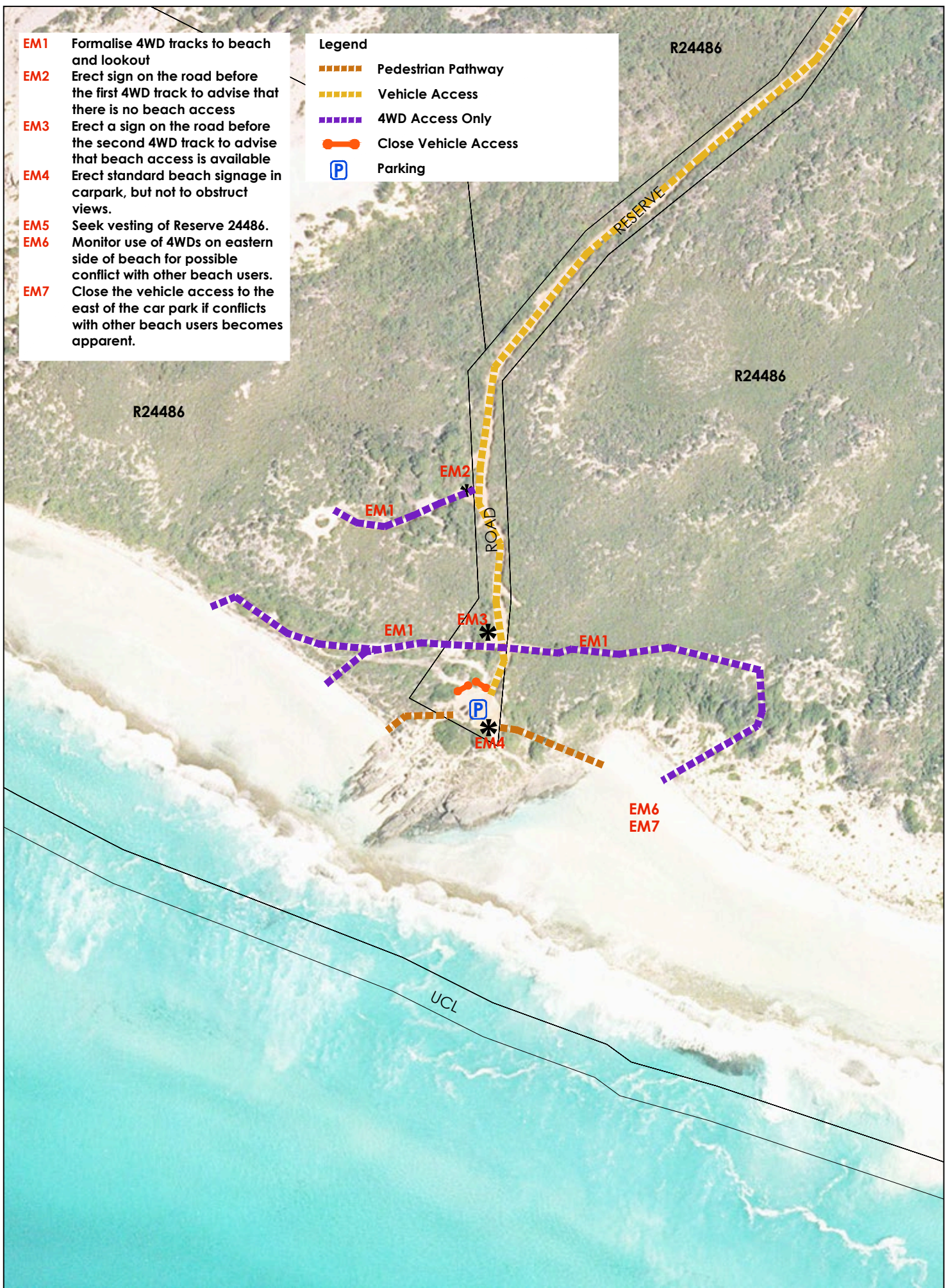
ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
EM1	Formalise the 4WD tracks to the beach and lookout spot.	S	SoE	N/A
EM2	Erect a sign on the road before the first track to advise that this is a lookout only and that there's no beach access.	S	SoE	\$500
EM3	Erect a sign on the road before the second track to advise that beach access is available on either side.	S	SoE	\$500
EM4	Erect standard beach signage in the car park where it will not affect views.	S	SoE	\$500
EM5	Seek Management Orders of Reserve 24486.	S	SoE, Landgate	N/A
EM6	Monitor vehicle use on the eastern side of the car park for possible conflict with other beach users.	O	SoE	N/A
EM7	Close vehicle access to the east of the car park if conflict with other beach users becomes an issue.	L	SoE	TBD

- EM1** Formalise 4WD tracks to beach and lookout
- EM2** Erect sign on the road before the first 4WD track to advise that there is no beach access
- EM3** Erect a sign on the road before the second 4WD track to advise that beach access is available
- EM4** Erect standard beach signage in carpark, but not to obstruct views.
- EM5** Seek vesting of Reserve 24486.
- EM6** Monitor use of 4WDs on eastern side of beach for possible conflict with other beach users.
- EM7** Close the vehicle access to the east of the car park if conflicts with other beach users becomes apparent.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  4WD Access Only
-  Close Vehicle Access
-  Parking



ten mile lagoon or free beach



3.6 TEN MILE LAGOON OR FREE BEACH

BACKGROUND

Ten Mile Lagoon (or Free Beach) is located a short distance to the east of Eleven Mile Beach. An offshore reef exists at the location providing an ideal swimming beach. Nude bathing is permitted at this location. It is also used for surfing, sightseeing, walking, exercising dogs and fishing. Ten Mile Beach is situated in Reserve 24486 (which currently doesn't have its management order with anyone although Shire roads and infrastructure exist at the location).

This location consists of a small gravel car park and pedestrian access to the beach. The access track is made of sand and tyres which are falling apart and dangerous. It is recommended that the access is upgraded to wooden steps. A small lookout is located at the top of the track. The car park size is very small (holds approx. 5 vehicles) and may need upgrading in the near future.

Limited signage is available at this site. Signage is needed to warn people about the cliff hazards at the beach, particularly east of the access point. Standard beach signs could be appropriate.

OFF-ROAD VEHICLE TRACKS

There are five four-wheel-drive tracks between Ten Mile Lagoon and Eleven Mile Beach and one east of Ten Mile Lagoon. These tracks should be closed due to the possibility that the limestone cliffs in the area are unstable. It is impossible to access the beach because of the limestone cliffs, along this stretch of





coastline. Boulders should be placed at the entrances to these tracks and warning signs erected to advise drivers of the dangers of this area and to direct vehicles to other tracks west of Eleven Mile Beach.

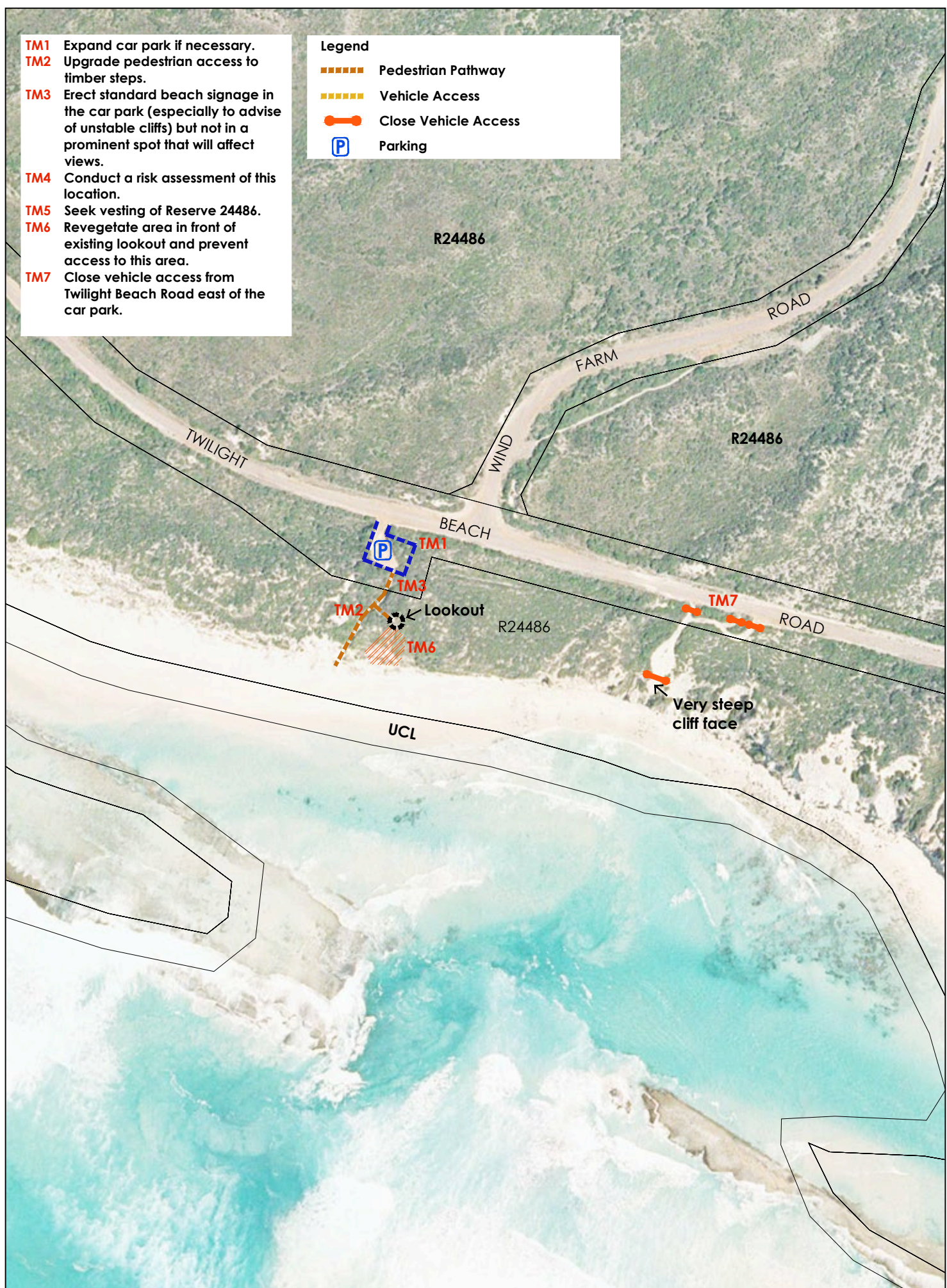
ACTIONS AND RECOMMENDATIONS

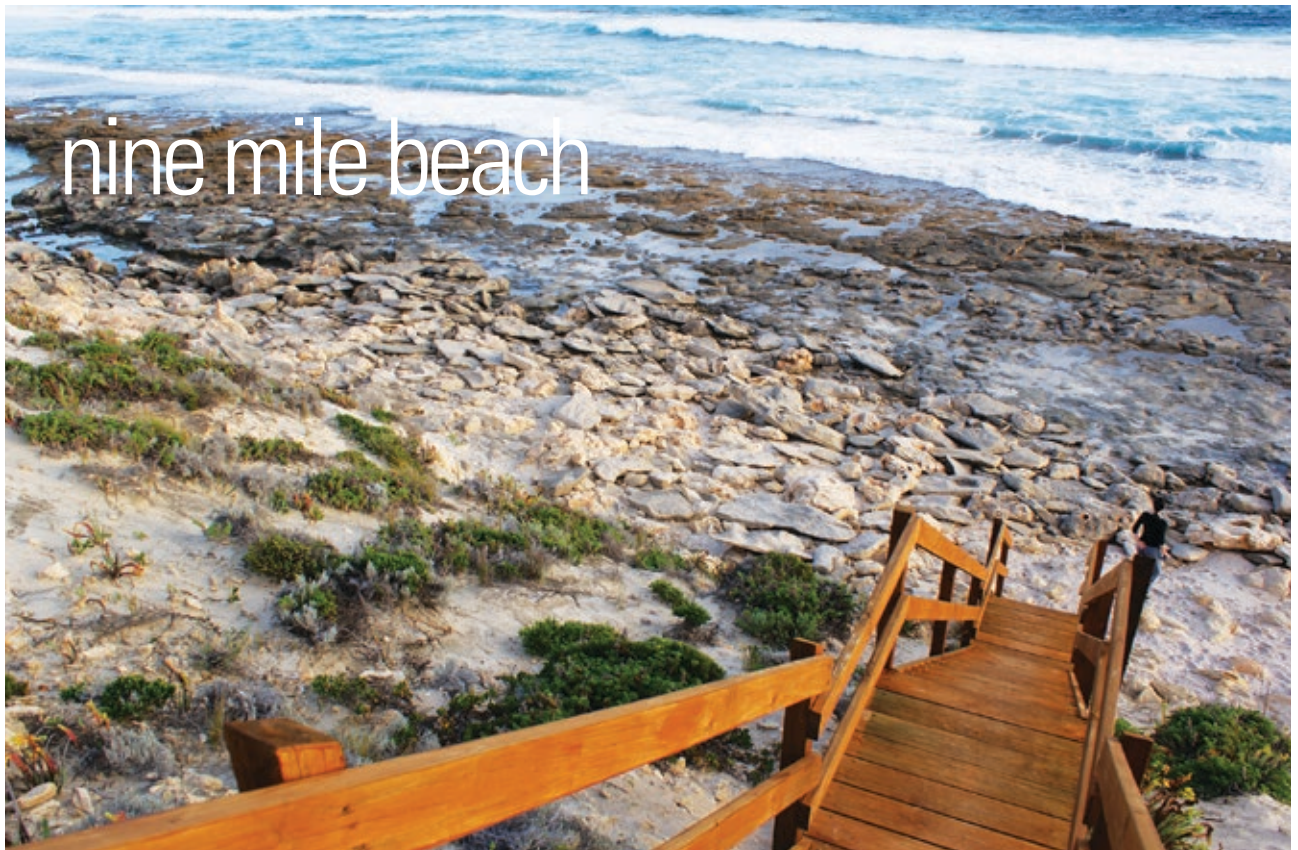
Action	Description	Priority	Responsibility	Cost
TM1	Expand car park if necessary.	M	SoE	\$1,500
TM2	Upgrade pedestrian access to timber steps.	S	SoE	\$35,000
TM3	Erect standard beach signage in the car park (including warning of unstable cliffs) in a location which won't affect views.	S	SoE	\$500
TM4	Conduct a risk assessment of this location.	S	SoE	TBD
TM5	Seek Management Orders of Reserve 24486.	S	SoE, Landgate	N/A
TM6	Revegetate area in front of existing lookout and prevent access to this area.	M	SoE	\$3,000
TM7	Close vehicle access from Twilight Beach Road east of the car park.	S	SoE	\$5,000

- TM1** Expand car park if necessary.
- TM2** Upgrade pedestrian access to timber steps.
- TM3** Erect standard beach signage in the car park (especially to advise of unstable cliffs) but not in a prominent spot that will affect views.
- TM4** Conduct a risk assessment of this location.
- TM5** Seek vesting of Reserve 24486.
- TM6** Revegetate area in front of existing lookout and prevent access to this area.
- TM7** Close vehicle access from Twilight Beach Road east of the car park.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Vehicle Access
-  Parking





3.7 NINE MILE BEACH

BACKGROUND

Nine Mile Beach is located to the east of Ten Mile Lagoon. It consists of a rough, limestone onshore reef with overhanging cliffs and caves and the beach has little-to-no sand. A large gravel car park is located on top of the cliffs. Timber steps provide pedestrian access to the beach. Water-based activities are difficult at this location, therefore it is mostly used for sightseeing and walking.

It is unknown how stable the cliffs are at this location and an assessment of the area is urgently needed. Signage is needed to advise visitors of the safety risk. Standard beach signage should be erected, although not in an area which will affect views.

Nine Mile Beach is located in Reserve 24486 (which currently doesn't have its management order with anyone, although Shire roads and infrastructure exist at the location).

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
NM1	Erect standard beach signage in the car park (including warning of unstable cliffs) in a location which won't affect views.	S	SoE	\$500
NM2	Conduct a risk assessment of this location.	S	SoE	TBD
NM3	Seek Management Orders of Reserve 24486.	S	SoE, Landgate	N/A
NM4	Close and rehabilitate old pedestrian access to the beach.	M	SoE	\$3,000

- NM1** Erect standard beach signage in the car park (especially to advise of unstable cliffs) but not in a prominent spot that will affect views.
- NM2** Conduct a risk assessment of this location.
- NM3** Seek vesting of Reserve 24486.
- NM4** Close and rehabilitation old pedestrian access to beach.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Vehicle Access
-  Parking



observatory beach



3.8 OBSERVATORY BEACH

BACKGROUND

Observatory Beach is located on the western side of the headland from Observatory Point and only about 500m from Nine Mile Beach. This beach is used for activities such as swimming, surfing, windsurfing, walking and exercising dogs. Stages of the Esperance Sailboard Classic have previously been run at this location. Observatory Beach is located on Reserve 24486 (which currently doesn't have its management order with anyone, although Shire roads and infrastructure exist at the location).

This location has a decent-sized gravel car park and timber steps providing pedestrian access to the beach. The composting toilets have recently been demolished, however there are plans to construct new toilets in the immediate future. Standard coastal signage is required at this location, although it should be located in an area so as not to interrupt views. Signage at the car park entrance needs to face both east and west as it can only be seen if travelling in a westerly direction along Twilight Beach Road.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
OB1	Erect standard beach signage in the car park (in a location which won't affect views).	S	SoE	\$500
OB2	Erect signage on Twilight Beach Road facing west so that vehicles travelling east can see the signage.	S	SoE	\$500
OB3	Seek Management Orders of Reserve 24486.	S	SoE, Landgate	N/A
OB4	Replace vandalised toilet block.	S	SoE	\$10,000
OB5	Monitor level of use for long term planning and upgrade facilities if required.	L	SoE	N/A

- OB1** Erect standard beach signage in the car park but not in a prominent spot that will affect views.
- OB2** Erect signage on Twilight Beach Road facing west so that vehicles travelling east can see the signage.
- OB3** Seek vesting of Reserve 24486.
- OB4** Replace vandalised toilets.
- OB5** Monitor the level of use of the site and upgrade facilities if required.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Vehicle Access
-  Parking





observatory point



3.9 OBSERVATORY POINT

BACKGROUND

Observatory Point is located between Observatory Beach and Picnic Cove/Twilight Beach. The coastline between the Twilight Beach headland and Observatory Point is very rugged with high cliffs and the beach is rarely used due to its inaccessibility. A steep road leads from Twilight Beach Road to the car park.

Timber steps on the east side of the car park lead down the high dune to the rocks and beach. A rough track runs from the car park west down the steep slopes onto rocks. Fishing and diving often occurs at this location. A simple path needs to be constructed to minimise erosion on the slopes, and unwanted paths closed. Another timber staircase leads to the lookout to the south of the car park.

Observatory Point has high historical significance, as it was the point at which the French ships Recherche and L'Esperance took shelter in the lee of Observatory Island after they ran off course. Two plaques have been placed at the site. One to commemorate the French ships original visit in 1792 (on top of Observatory Point) and the other to commemorate the re-enactment of the visit in the bicentennial year 1988 (in the car park).

As a highly significant historical site for the town of Esperance, an interpretative shelter in the car park could be installed to explain more about the site and include both monuments rather than have the two at different locations.

ACTIONS AND RECOMMENDATIONS

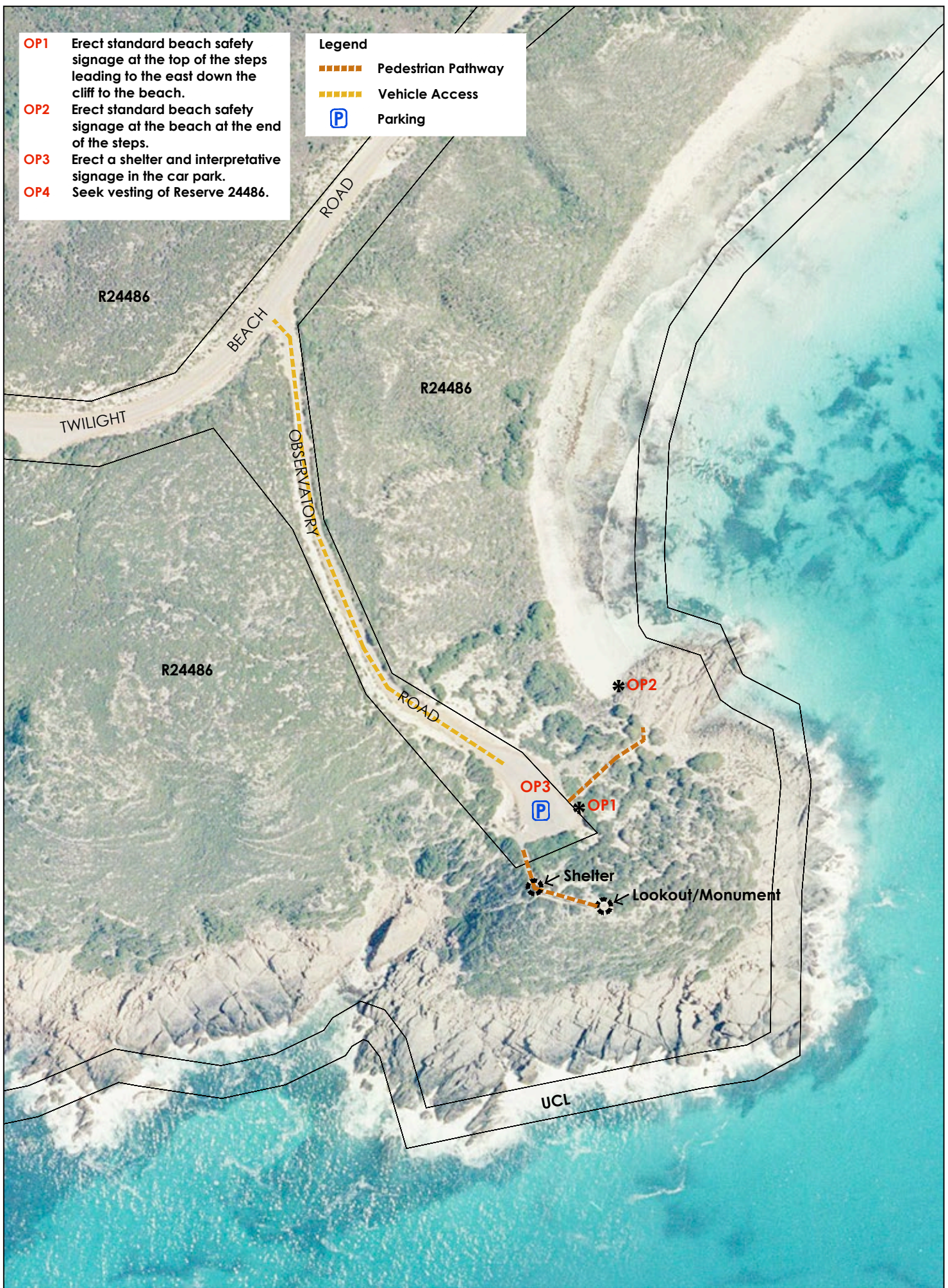
Action	Description	Priority	Responsibility	Cost
OP1	Erect standard beach safety signage at the top of the steps leading to the east down the cliff to the beach.	S	SoE	\$500
OP2	Erect standard beach safety signage at the beach at the end of the steps (particularly regarding the dangers of rock fishing and ocean swells).	S	SoE	\$500
OP3	Erect a shelter and interpretative signage in the car park.	M	SoE	\$2,000
OP4	Seek Management Orders of Reserve 24486.	S	SoE, Landgate	N/A



- OP1** Erect standard beach safety signage at the top of the steps leading to the east down the cliff to the beach.
- OP2** Erect standard beach safety signage at the beach at the end of the steps.
- OP3** Erect a shelter and interpretative signage in the car park.
- OP4** Seek vesting of Reserve 24486.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Parking



twilight beach and picnic cove (dolphin cove)



3.10 TWILIGHT BEACH AND PICNIC COVE (DOLPHIN COVE)

BACKGROUND

Twilight Beach is highly utilised particularly by families and visitors to the region. The main activities that take place are swimming, walking, relaxing, socialising and sightseeing. It has a large bitumen car park, toilets, pedestrian access (including a ramp), picnic benches and shelters. The car park and most facilities are located on Reserve 50765 (management orders with the Shire for the purpose of recreation). The beach access pathways and beach are located on Reserve 24486.

The Goldfields-Esperance Surf Life Saving Club (GESLC) has clubrooms and a private car park at Twilight Beach. The GESLC regularly conducts voluntary patrols at Twilight Beach every Sunday between the first Sunday in December and Easter Sunday. They also hold regular lifesaving training and events at the beach. The buildings and car park are located on reserve 41860 (management orders with the Shire for the purpose of a surf life saving club house).

Picnic Cove (Dolphin Cove) is the small beach on the other side of the Twilight Beach headland. A timber staircase is provided at this location, however the dunes underneath it are unstable and collapsing. Some reinforcements have been placed on the dunes to reduce collapse, but the timber staircase should be replaced or repaired. Informal tracks have been created next to the staircase which people also use for access. This should be discouraged. Along the beach west of the access point are high limestone cliffs. Signage warning people of the potential cliff hazards may be needed close to this access point.

Another smaller car park is located a short distance to the north of the Surf Lifesaving Club. The car park is small and only accommodates a handful of cars. Timber steps provide access to the beach.

A number of recommendations are provided for this location due to its popularity and higher use. The issues and recommendations are listed below:

- Dune erosion – Due to the popularity of this location, the dunes are susceptible to degradation as people walk and climb over them. Formal access pathways, steps and trails provide a way to discourage informal access over the dunes. It is recommended that a timber boardwalk is installed between the Twilight Beach car park and the dunes and another is installed from Twilight Beach to Picnic Cove (Dolphin Cove) around the car park. Beach users should also be encouraged to use the formal access ways to the beach, especially at Picnic Cove where an informal track has been created next to the steps.
- The Twilight Beach headland on the eastern side of Picnic Cove is eroded from people climbing up, running down and sliding down the dunes and from people climbing to go fishing or to see the views. As a result a dune blowout has formed and a limestone ridge is appearing in the sand dune blowout making it a hazard for people walking or sliding down the dune. A dedicated walk trail around the headland should help guide pedestrian traffic and the boardwalk along the dunes on the western side of the headland should discourage people from climbing up the dunes.
- Vegetation degradation – pedestrian access over dunes also leads to vegetation degradation, therefore the recommendations for dune protection will also assist in vegetation protection. Degradation has also occurred around the shelters and toilets and it is recommended that these areas are revegetated.
- Disabled access – no formal disabled access is currently provided. Due to the popularity of Twilight Beach and the relatively low relief of the location, it is recommended that disabled access ramps are installed.
- Access – the steps at Picnic Cove/Dolphin Cove are falling apart as the dune underneath is eroding away. These steps should be repaired or the access moved to another location. It is also recommended that the pedestrian access at Twilight Beach is upgraded.
- Safety – the headland and rocks at this beach have been the location of recent deaths from people slipping and falling into the water. It is recommended that the Shire implement safety and warning measures such as a dedicated/marked walk trail around the headland, warning signs and high water mark indicators.
- Signage – due to the popularity of the location, it is recommended that interpretative signs are installed at Twilight Beach.
- Facilities – the toilets and shower facilities should be regularly maintained and upgraded.



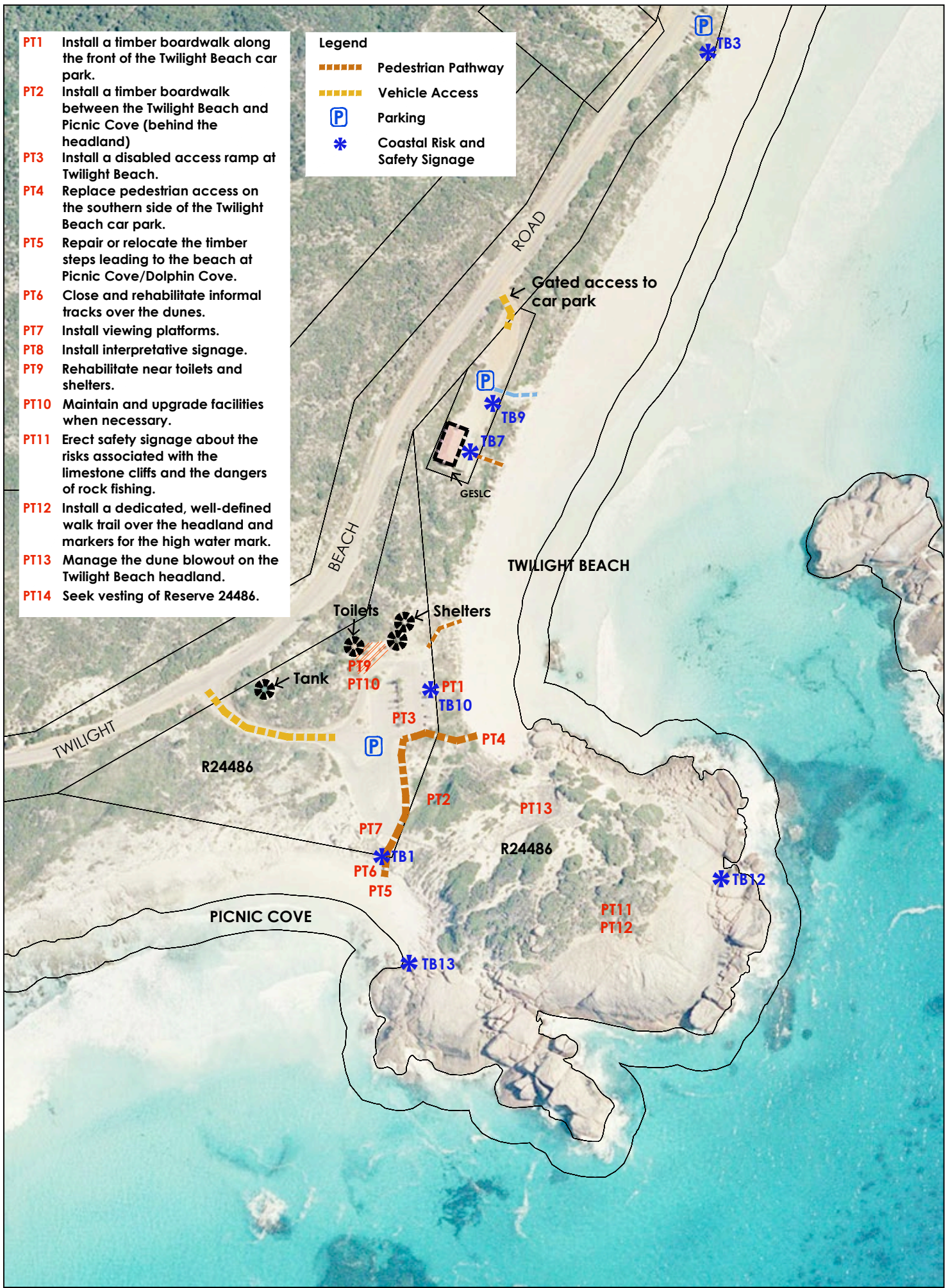
ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
PT1	Install a timber boardwalk along the front of the Twilight Beach car park.	M	SoE	\$21,500
PT2	Install a timber boardwalk between the Twilight Beach and Picnic Cove (behind the headland).	M	SoE	\$36,000
PT3	Install a disabled access ramp at Twilight Beach.	S	SoE	\$36,500
PT4	Replace pedestrian access on the southern side of the Twilight Beach car park.	M	SoE	\$10,700
PT5	Repair or relocate the timber steps leading to the beach at Picnic Cove/Dolphin Cove.	S	SoE	\$7,000
PT6	Close and rehabilitate informal tracks over the dunes.	S	SoE, community groups	\$4,000
PT7	Install viewing platforms.	M	SoE	\$20,000
PT8	Install interpretative signage.	M	SoE	\$600
PT9	Rehabilitate near toilets and shelters.	S-M	SoE, community groups	\$18,000
PT10	Maintain and upgrade facilities when necessary.	O	SoE	N/A
PT11	Erect safety signage about the risks associated with the limestone cliffs and the dangers of rock fishing.	S	SoE	\$500
PT12	Install a dedicated, well-defined walk trail over the headland and markers for the high water mark.	S	SoE	\$2,000
PT13	Manage the dune blowout on the Twilight Beach headland.	M	SoE, community groups	\$10,000
PT14	Seek Management Orders of Reserve 24486.	S	SoE, Landgate	N/A

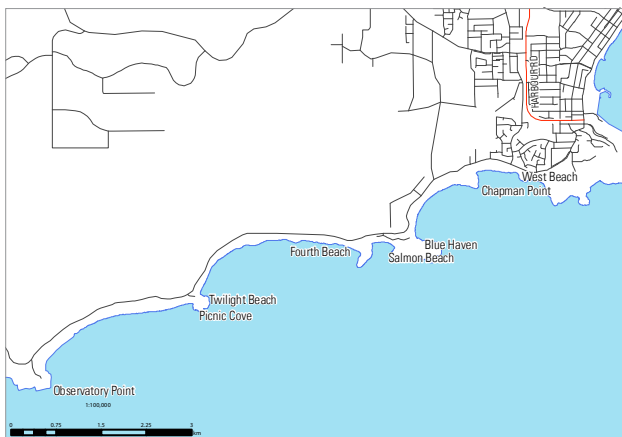
- PT1** Install a timber boardwalk along the front of the Twilight Beach car park.
- PT2** Install a timber boardwalk between the Twilight Beach and Picnic Cove (behind the headland)
- PT3** Install a disabled access ramp at Twilight Beach.
- PT4** Replace pedestrian access on the southern side of the Twilight Beach car park.
- PT5** Repair or relocate the timber steps leading to the beach at Picnic Cove/Dolphin Cove.
- PT6** Close and rehabilitate informal tracks over the dunes.
- PT7** Install viewing platforms.
- PT8** Install interpretative signage.
- PT9** Rehabilitate near toilets and shelters.
- PT10** Maintain and upgrade facilities when necessary.
- PT11** Erect safety signage about the risks associated with the limestone cliffs and the dangers of rock fishing.
- PT12** Install a dedicated, well-defined walk trail over the headland and markers for the high water mark.
- PT13** Manage the dune blowout on the Twilight Beach headland.
- PT14** Seek vesting of Reserve 24486.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Parking
-  Coastal Risk and Safety Signage



fourth beach



3.11 FOURTH BEACH

BACKGROUND

This long beach is open to the strong ocean swells making it prone to erosion and dangerous rips. Activities undertaken at Fourth Beach include walking, surfing, swimming, windsurfing, fishing and exercising dogs. There are five car parks along this beach as follows:

- Car park 1 is located at the western end of Fourth Beach. It is a newly created gravel car park and vehicle access to the beach has been cut through the dune. The access track is well established, however it is continually filled with sand as this section of the coast is exposed to strong winds. There is a risk that the dunes at car park 1 could become destabilised and cause a bigger dune blowout. Vehicles are prohibited from driving on the foreshore on this section of the beach (according to the Shire's Local Government property Local law), however it is generally accepted that this track provides access for emergency vehicles and for surf lifesaving training. This car park is partly located on Reserve 24486 and Reserve 4180.
- Car park 2 is located 700m east of car park 1. The foredune at this location is unstable and is slowly encroaching onto the car park. The dune needs to be stabilised and access controlled to reduce encroachment. The pedestrian access path has been buried in sand. The old bollards should be removed as they are a hazard and steps installed to allow dunes to move underneath. The dunes can be stabilised with brushing and planting of coastal vegetation and ensuring that people stay to the paths. Coastal signage is required at this location, and

should advise people to keep to the paths to protect the fragile dunes. This car park is partially located on the Twilight Beach road reserve and partly located on Reserve 4180 (management orders with the Shire for the purpose of common).

- Car park 3 is located 300m from car park 2. Pedestrian access paths to the beach exist at either end of this car park and consist of wooden guide rails and tyre steps which are eroding and falling apart. It is recommended that pedestrians are encouraged to use the eastern path and that it is upgraded by installing timber steps. This car park is located on the Twilight Beach road reserve and the beach is located on Reserve 15042 (management orders with the West Australian Rifle Association Inc. for the purpose of a rifle range).
- Car park 4 is located 200m east of car park 3 on a high limestone outcrop. This car park provides a good vantage point for people wishing to view the surrounding coastline. Pedestrians walking down the steep dune face have created three separate paths. The central path should be closed and rehabilitated and the remaining two left as sand tracks. This car park is located on Reserve 15042 (management orders with the West Australian Rifle Association Inc. for the purpose of a rifle range).
- Car park 5 is surfaced with bitumen and has a lookout and pedestrian access to the beach. The path is in relatively good condition, but it would be beneficial to install timber steps in some places. An informal sand track also leads to the beach from the lookout. This track is unnecessary because it runs parallel to the formal path. Bollards should be placed around the lookout to discourage use of the track and it should be brushed and rehabilitated. This car park is located on the Twilight Beach road reserve and the beach is located on Reserve 15042 (management orders with the West Australian Rifle Association Inc. for the purpose of a rifle range).

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
FB1	Install standard coastal signage at car park 1, including information on vehicle restrictions and dog exercise.	S	SoE	\$500
FB2	Install locational signage on Twilight Beach Road near car park 1.	S	SoE	\$500
FB3	Install timber steps at car park 2 and remove buried bollards.	S	SoE	\$18,000
FB4	Keep the second access path at car park 2 closed and continue to brush and rehabilitate.	O	SoE	\$5,000
FB5	Erect standard coastal signage at car park 2 (without interrupting views).	S	SoE	\$500
FB6	Replace bollards at car park 2.	M	SoE	\$5,000
FB7	Install timber steps at the eastern access path at car park 3.	M	SoE	\$18,000
FB8	Close and rehabilitate the central access path at car park 4.	S	SoE	\$3,000
FB9	Install timber steps at car park 5 (eastern track).	M	SoE	\$26,000
FB10	Close and rehabilitate the western track at car park 5.	M	SoE	\$3,000
FB11	Place bollards around the lookout at car park 5.	M	SoE	\$5,000



- FB1** Install standard coastal signage include information on vehicle restrictions and dog exercise areas.
- FB2** Install locational signage on Twilight Beach Road.

- Legend**
-  Pedestrian Pathway
 -  Vehicle Access
 -  Parking
 -  Coastal Risk and Safety Signage



- FB3** Install timber steps and remove buried bollards.
- FB4** Keep the second access path at car park 2 closed and continue to brush and rehabilitate.
- FB5** Erect standard coastal signage at car park 2 (without interrupting views).
- FB6** Replace bollards at car park 2.

Legend

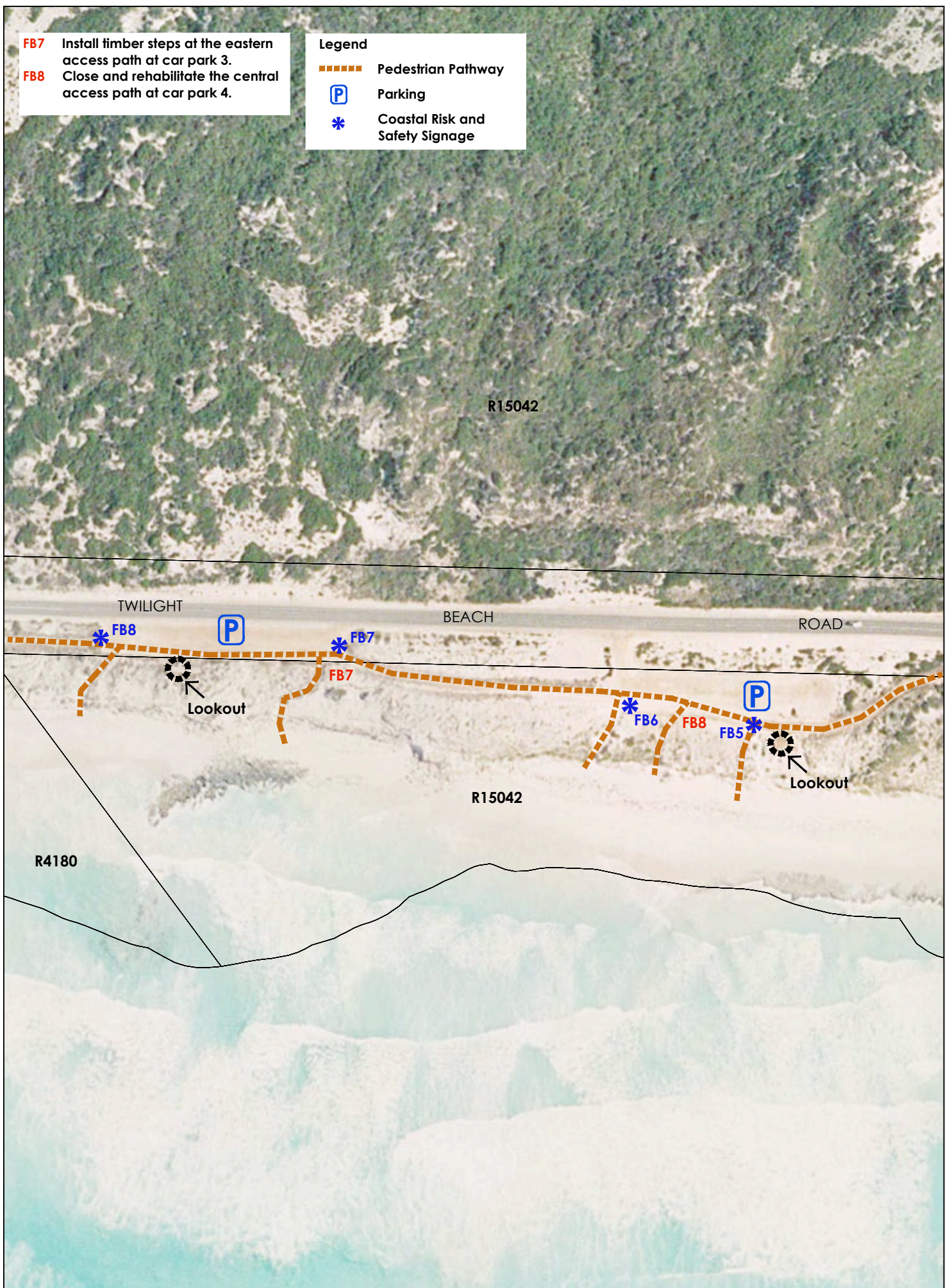
-  Pedestrian Pathway
-  Parking
-  Coastal Risk and Safety Signage






- FB7** Install timber steps at the eastern access path at car park 3.
- FB8** Close and rehabilitate the central access path at car park 4.

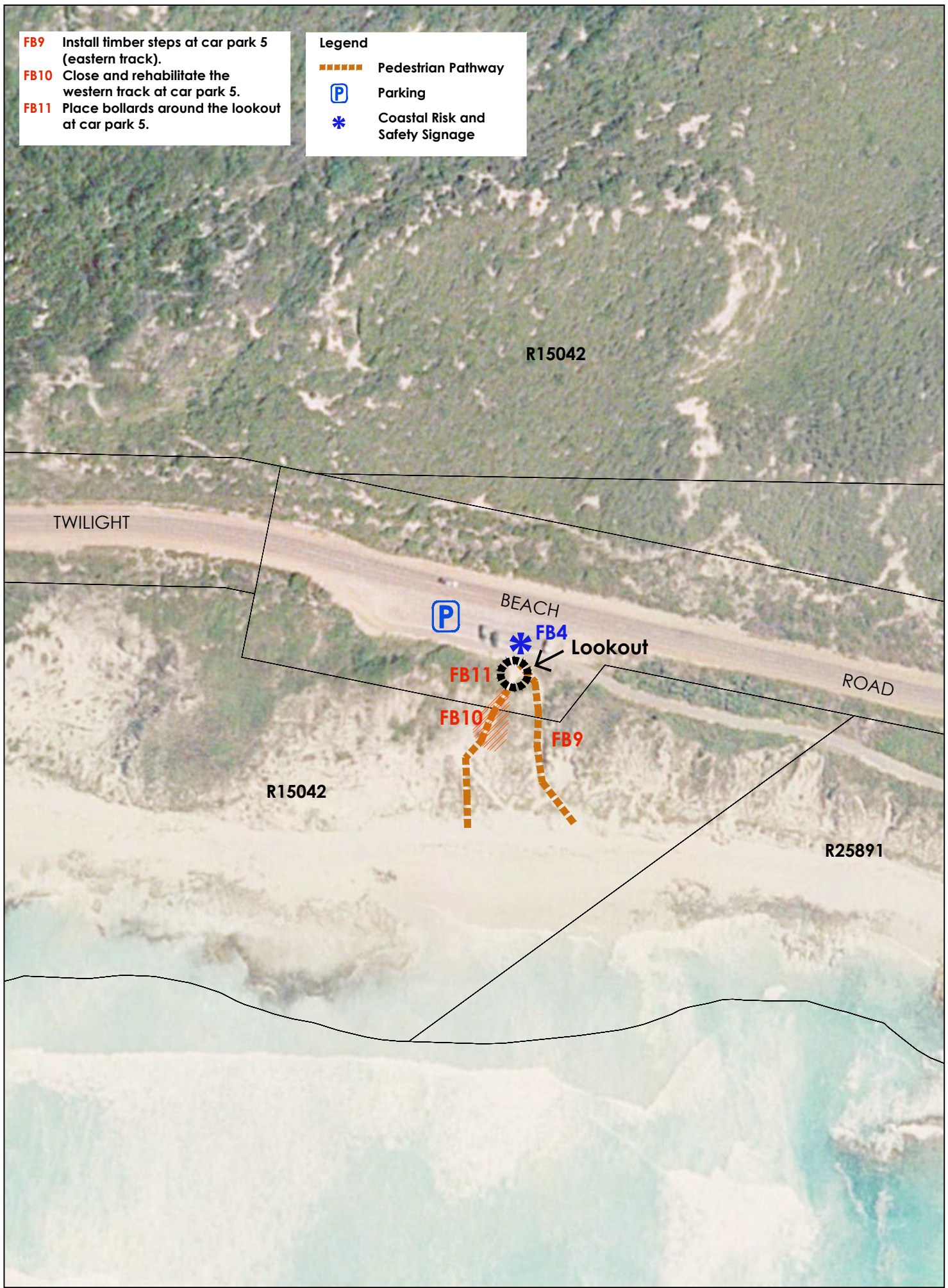
Legend

-  Pedestrian Pathway
-  Parking
-  Coastal Risk and Safety Signage

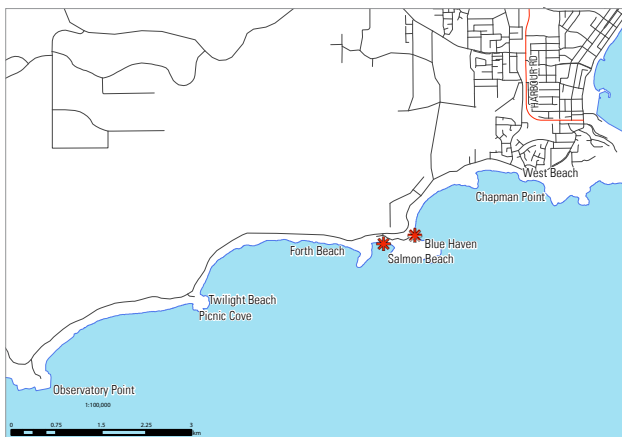


- FB9** Install timber steps at car park 5 (eastern track).
- FB10** Close and rehabilitate the western track at car park 5.
- FB11** Place bollards around the lookout at car park 5.

- Legend**
-  Pedestrian Pathway
 -  Parking
 -  Coastal Risk and Safety Signage



salmon beach and blue haven



3.12 SALMON BEACH AND BLUE HAVEN

BACKGROUND

Salmon Beach is located on Reserve 25891 between two headlands and experiences rough waves and dangerous rips. It is a popular location for fishing, but not suitable for swimming because of the strong waves and rocks in the water. Two bitumen car parks are located at either end of the beach and timber steps provide pedestrian access. The majority of people utilise the eastern end of Salmon Beach, although this car park is a bit smaller and tends to overflow. Expansion of the car park should be considered. It is recommended that a toilet is considered at Salmon Beach in the long term future. A sand track leads from eastern car park across the top of the beach onto the rocky headland.

Blue Haven is a picturesque beach that is surrounded by a very steep and high foredune. The beach itself is littered with limestone outcrops and the majority of swimming occurs in the cove close to the granite headland. It is located on Reserve 25891 (management orders with the Shire for the purpose of recreation).

The majority of people who visit Blue Haven use the dual use trail for walking, cycling, exercising their dogs and sightseeing and occasionally for swimming. A wooden staircase provides access down the steep foredunes to the beach. A lookout platform is located partway down the stair with a bench to allow for rest and to enjoy the scenery. Vegetation is in relatively good condition now that the staircase has been established. A small, but well established car park is located at the top of the cliff. Safety and locational signage is located at the car park. Removal of weeds should occur on an ongoing basis, particularly

African Boxthorn and Victorian Tea Tree. Informal 4WD tracks extending from the access road have been closed.

A small car park is located slightly north of Blue Haven (referred to as Blue Haven car park 2) and a small lookout area is located at this spot. Another car park is located further to the east along Twilight Beach Road (Blue Haven car park 3) and a pedestrian track links to the dual use path. An informal access track has been created over the limestone cliff to the beach. This track is hazardous and dangerous. A risk assessment should be conducted and the track either closed or timber steps installed to provide safer access. A lookout could also be established at the intersection of the dual use path.



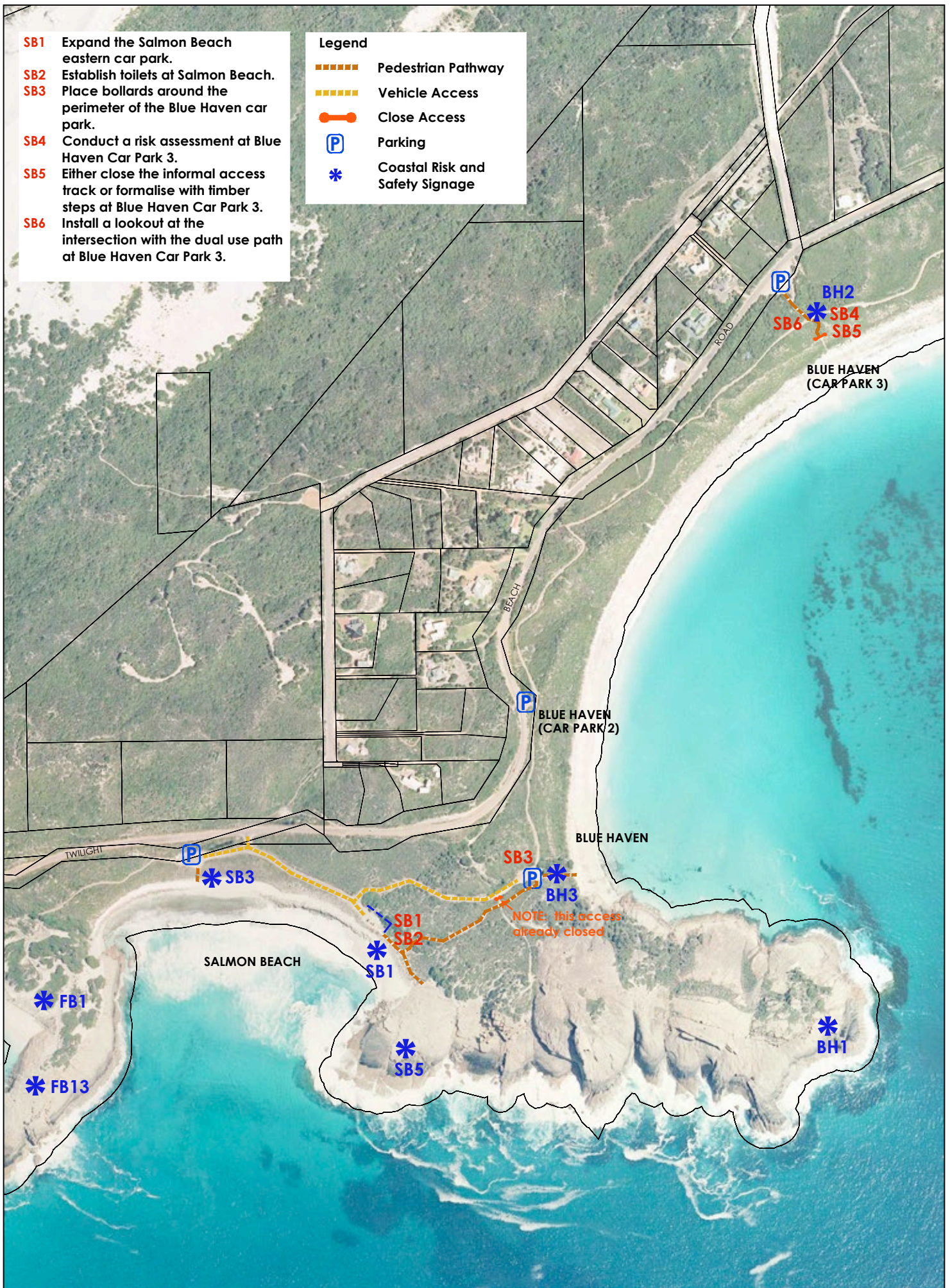
ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
SB1	Expand the Salmon Beach eastern car park.	S	SoE	\$2,000
SB2	Establish toilets at Salmon Beach car park.	L	SoE	\$10,000 - \$20,000
SB3	Place bollards around the perimeter of the Blue Haven car park.	L	SoE	\$6,000
SB4	Conduct a risk assessment at the Blue Haven car park 3.	S	SoE	TBD
SB5	Either close the informal access track or formalise with timber steps at Blue Haven car park 3.	M	SoE	\$5,000 - \$13,000
SB6	Install a lookout at the intersection with the dual use path at Blue Haven car park 3.	M	SoE	\$10,000

- SB1** Expand the Salmon Beach eastern car park.
- SB2** Establish toilets at Salmon Beach.
- SB3** Place bollards around the perimeter of the Blue Haven car park.
- SB4** Conduct a risk assessment at Blue Haven Car Park 3.
- SB5** Either close the informal access track or formalise with timber steps at Blue Haven Car Park 3.
- SB6** Install a lookout at the intersection with the dual use path at Blue Haven Car Park 3.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Access
-  Parking
-  Coastal Risk and Safety Signage



chapmans point



3.13 CHAPMANS POINT

BACKGROUND

A small gravel road off Twilight Beach Road leads to the granite headland of Chapman Point. This is a very low key area but is used for sightseeing and rock fishing. An informal pedestrian access track leads to the rocks. A path to a lookout point has already been created but needs definition with bollards to prevent further encroachment and to discourage use of the numerous tracks which lead from it. The informal tracks should be closed and rehabilitated and the formal track defined with posts/guide rails and timber steps on steep sections.

Chapmans Point has been the site of deaths caused from being swept off the rocks by large waves. Safety signage and a life buoy is located at this site, however it is recommended that further education and safety provisions are employed throughout the Shire. A new flyer is currently being prepared by the Shire and Rec Fishing WA.

Warning signs should be placed on the dual use path to advise people to look out for crossing vehicles. Locational/directional signage should be placed on Twilight Beach Road as the road is difficult to find and the area provides an excellent, natural vantage point.

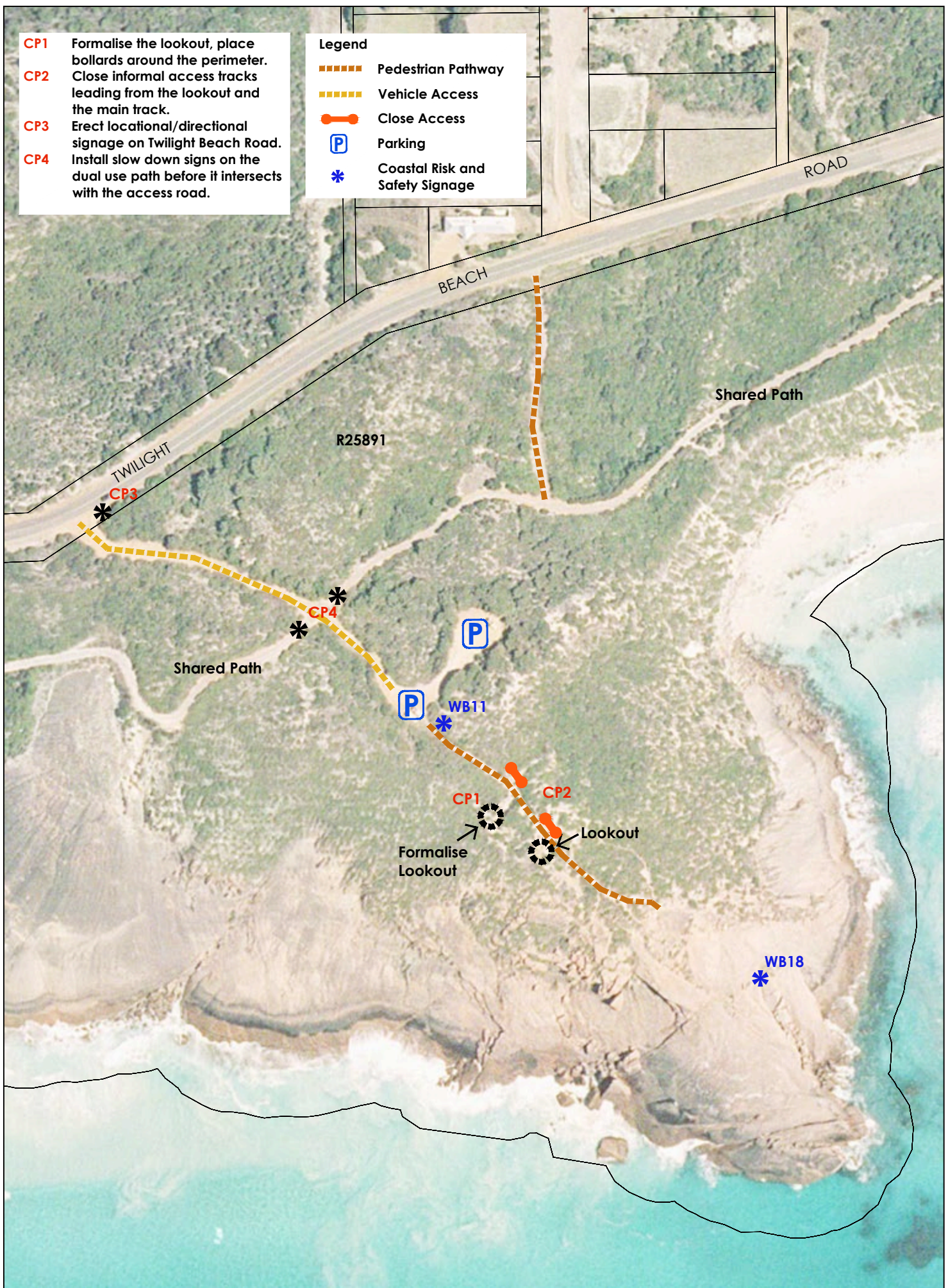
ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
CP1	Formalise the lookout, place bollards around the perimeter.	M	SoE	\$10,000
CP2	Close informal access tracks leading from the lookout and the main track.	M	SoE	\$5,000
CP3	Erect locational/directional signage on Twilight Beach Road.	S	SoE	\$500
CP4	Install slow down signs on the dual use path before it intersects with the access road.	S	SoE	\$500

- CP1** Formalise the lookout, place bollards around the perimeter.
- CP2** Close informal access tracks leading from the lookout and the main track.
- CP3** Erect locational/directional signage on Twilight Beach Road.
- CP4** Install slow down signs on the dual use path before it intersects with the access road.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Access
-  Parking
-  Coastal Risk and Safety Signage



west beach



3.14 WEST BEACH

BACKGROUND

West Beach is located on the southern side of Dempster Head and is one of the most popular beaches in the region. It is used for surfing, bodyboarding, exercising dogs, walking and sightseeing. Two bitumen car parks are located along Twilight Beach Road. They are linked via the dual use path which continues to the east into Dempster Head and to the west towards Chapman Point.

West Beach is primarily located on Reserve 41141 which has its management orders with the Shire for the purpose of 'parks and recreation'. The western car park is located on Reserve 41141 and the western car park is located within the Twilight Beach road reserve (although the pathways are located on Reserve 41141).

Both car parks have timber staircases which provide access down the steep cliff to the beach. A number of old, informal tracks were previously created down the steep cliff from the car parks and dual use path but these have been closed. Well-formed sand tracks have been cut into the dunes to the east of the eastern car park. These tracks come off the dual use path and appear to be a formal path at first, with signage and beginning section consisting of a gravel track. As the track traverses through the dune it widens considerably and is highly eroded. Duplicate tracks have been created which has increased the erosion. The Shire should consider installing timber steps to help prevent further erosion and a dune blowout from forming.

A flushing toilet has recently been established at the western car park. Other facilities in both car parks include rubbish bins, doggie

bags, locational signage, safety/risk signage, and directional signage for the dual use path. Stormwater drains deposit water onto the beach at this location.

A timber boardwalk is provided along the edge of the western car park which allows for enjoyment of views from the top of the dunes. A number of informal tracks have been created in the past from the car park to the beach. These pathways are steep and hazardous. The creation of the boardwalk has restricted use of these pathways and pedestrians are guided to the steps which provide safer access to the beach. The dual use path and boardwalk are accessible by disabled.

The dual use path continues to the west towards Chapmans Point. Some informal tracks have been created from this path towards the beach. The Shire has closed and rehabilitated some tracks as they are dangerous and lead to dune erosion. It is recommended that this area is continually monitored so that new informal tracks are closed and their use discouraged as soon as they form.


West Beach is prone to winter erosion which causes the sand to be washed away from the base of the stairs. Access from the timber steps is sometimes closed where erosion has been so severe as to create a large drop from the base of the steps to the beach. Sand accretion usually occurs after winter.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
WB1	Monitor use of the informal access track extending from the dual use path to the west of the first West Beach car park and formalise if necessary.	L	SoE	N/A
WB2	Discourage the creation of informal tracks along the dual use path and close and rehabilitate as soon as tracks appear.	O	SoE	N/A
WB3	Close and rehabilitate informal tracks which have been created in the dunes to the east of the second West Beach car park.	M	SoE	\$20,000
WB4	Monitor the use of the informal access tracks and formalise if necessary.	M	SoE	N/A
WB5	Formalise access over the dunes with timber steps to reduce erosion.	L	SoE	\$35,000

- WB1** Monitor use of the informal access track extending from the dual use path to the west of the car park and formalise if necessary.
- WB2** Discourage the creation of informal tracks along the shared path and close and rehabilitate as soon as tracks appear.






Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Access
-  Parking
-  Coastal Risk and Safety Signage



- WB3** Close informal duplicate tracks to the east of the beach.
- WB4** Monitor use of the informal access tracks.
- WB5** Formalise access over dunes with timber steps to reduce erosion.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Access
-  Parking
-  Coastal Risk and Safety Signage



in the area need to be qualified and preferably be licensed with the Shire of Esperance (see section 5.7 *Tour and Adventure Operators*).

A proposal for a discovery centre on Dempster Head, called the KapaKurl Discovery Centre, has been previously suggested.

FACILITIES AND ACCESS

A walk trail around Dempster Head has been constructed by the Rotary Club via funding from Trailswest. The trail is well used by locals and tourists visiting the Rotary Lookout. Previously it was hazardous and needed urgent upgrading as noted in the Esperance Trails Master Plan (Maher Brampton Associates, 1999).

LOVERS COVE

Lovers Cove is a small 200m wide beach at the bottom of Dempster Head and down from the Rotary Lookout. People can visit this area by following the trail from Rotary Lookout and by the track leading from McCarthy Street. There has previously been access by 4WD vehicles but this track has been closed and a steel gateway has been erected to limit access. A gazebo and lookout area is located part-way along the track.





MANAGEMENT ISSUES

Management issues include environmental degradation, rubbish, informal pedestrian access and mountain bike riding. Recreational uses such as abseiling off Caravan Rock, bush walking around the reserve and fishing off rocks below Dempster Head need to be managed for safety reasons. Signage should be provided to warn people of dangers (such as rock fishing and large waves) and formal tracks provided for pedestrian access around the site. Pedestrian safety is also an important issue, due to the steepness of the terrain at this site.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
DH1	Refer to the Dempster Head Management Plan 2003 for recommendations and actions relating to Dempster Head and Lovers Cove.	0	SoE	N/A

DH1 Refer to the Dempster Head Management Plan 2003 for recommendations and actions relating to Dempster Head and Lovers Cove.

- Legend**
-  Pedestrian Pathway
 -  Vehicle Access
 -  Close Access
 -  Parking



esperance bay



3.16 ESPERANCE BAY

BACKGROUND

Esperance Bay includes the beaches and foreshore area from Dempster Head to Bandy Creek boat harbour. It includes Reserve 27318 which extends from Esperance Port to Castletown Quays for the purpose of recreation. Reserve 28207 encompasses the Esperance Port and is managed by the Esperance Port Authority. The narrow section of foreshore extending from Castletown Quays to Bandy Creek is on Unallocated Crown Land. This land should be managed by the Shire.

Esperance Bay is a prime location for tourists and local recreation activities. Some of these activities include swimming, boating, jetskiing, water skiing, sailing, fishing, walking, dog exercise and horse exercise. There is also an artificial reef off the Tanker Jetty which is popular for scuba diving. The Esperance Port Authority and Shire of Esperance share responsibility for this stretch of beach.

The Esperance foreshore area is currently undergoing maintenance and is being considered separately. This area is not covered in any detail in this CMP.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
EB1	Refer to the Esperance Bay Management Plan 2003 for recommendations and actions relating to the foreshore from Dempster Head to Bandy Creek.	0	SoE	N/A
EB2	Seek Management Orders of the Unallocated Crown Land on the foreshore between Castletown Quays and Bandy Creek.	S	SoE, Landgate	N/A

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
WH1	Close the second access track to the south of Wylie Head.	S	SoE	\$5,000
WH2	Create a car park and day use area on the closed track.	S	SoE	\$5,000
WH3	Expand the northern car park.	S	SoE	\$3,000
WH4	Conduct a risk assessment on the off road vehicle track which extends across the headland.	S	SoE	TBD
WH5	Conduct a risk assessment on the vehicle tracks south of Whyllie Bay Road.	S	SoE	TBD

wharton beach



3.18 WHARTON BEACH

BACKGROUND

This is a very popular beach in summer and is used for swimming, driving on the beach, fishing, surfing and dog walking/exercise.

Wharton Beach is accessible by 2WD on a sealed road and has two bitumen car parks, both with pedestrian access to the beach. Rota-loo toilet facilities are provided at the second car park on the foredunes. The use of rota-loo toilets is expected to be slowly phased out over the next few years and it is likely that compost toilets will be established instead. The Shire has trouble maintaining the toilets as there is no vehicle access. The toilets should either be moved closer to the car park or the track widened to allow vehicle access (Shire vehicles only via a locked gate).

Informal pedestrian tracks have been established over the granite headland. It is recommended that this track is formalised to provide pedestrian access and to prevent further degradation of the coastal vegetation.

Vehicle access to the beach is via an established access track which leads from the road onto the beach before the car parks. Appropriate safety/risk signage is located at this access track, although signage does not warn drivers to look out for other beach users.

Issues at Wharton Beach include:

- Vehicle and motorbike use on the beach is a safety risk to other users and can cause environmental degradation on the dunes.





- Signage – Vehicles should be advised to be aware of other users and the exclusion zone. A sign at the beginning to the exclusion zone is required on the beach.
- Toilets – The Shire experiences issues maintaining the toilets as they are not accessible with vehicles. The toilets should either be relocated or the track widened to allow access for Shire vehicles (and a locked gate placed at the entrance to prevent public vehicle access).
- Dieback has been found in the area.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
WT1	Erect signage at the vehicle access entrance to advise of shared use zone for licenced vehicles only, the speed limit and to be careful of other beach users.	S	SoE	\$500
WT2	Formalise the track from the second car park to the headland.	M	SoE	\$500
WT3	Widen the track from the car park to allow Shire maintenance vehicles to access the toilets (place a locked gate at the entrance).	S	SoE	\$5,000
WT4	Replace toilets with a compost or sealed vault system.	M	SoE	\$20,000

- WT1** Erect signage at the vehicle access entrance to advise that only licenced vehicles can drive on the beach, that the area is a shared use zone, and that speed limits apply.
- WT2** Formalise the track from the second car park to the headland.
- WT3** Widen the track from the car park to allow maintenance vehicles to enter and relocate toilets midway between the beach access and car park.
- WT4** Replace toilets with a vaulted system with operational fans.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Access
-  Parking



little wharton beach



3.19 LITTLE WHARTON BEACH

BACKGROUND

Around the headland from Wharton, Little Wharton Beach is mostly utilised for fishing, swimming including vacation swimming lessons in January and some boat launching. It is a short beach of approximately 300m. Predominately the users of the beach are families with children and tourists.

One small gravel car park is located at Little Wharton beach which holds a small number of vehicles. 4WD access is available onto the beach from the car park. A small rotaloo toilet is located in the car park and no picnic facilities or shelters are provided. Separate pedestrian access is not provided.

The issues at Little Wharton Beach include:

- Vehicles Parking on Beach – the car park is too small for the numbers of people who utilise the beach, particularly during January Vacation Swimming classes. This means large numbers of 4WD vehicles are parking on the beach. 2WD vehicles can only park in car park and are not adequately catered for.
- Vehicles Driving on Beach – use of vehicles on the beach can be dangerous, particularly during busy swimming period during the January school holidays. Use of vehicles on the beach should be restricted during this 2 week period.
- Public Safety Issue – swimmers and pedestrians (particularly children) have to share a very small beach with 4WD vehicles, and this is increasing the likelihood of an accident occurring.





- Dune Degradation – the foredunes are degrading due to people parking vehicles on them.
- Lack of Facilities – Picnic tables in the car park are in poor condition.
- Illegal camping and campfires – there is evidence of camping under the trees in the second car park, and evidence of campfires next to the sign with fire restrictions.
- Signage – the amount of signage is poor. The locational and safety signage is located at the end of the vehicle access track and faces away from vehicles so is hard to see. The sign should be relocated to the top of the access track.

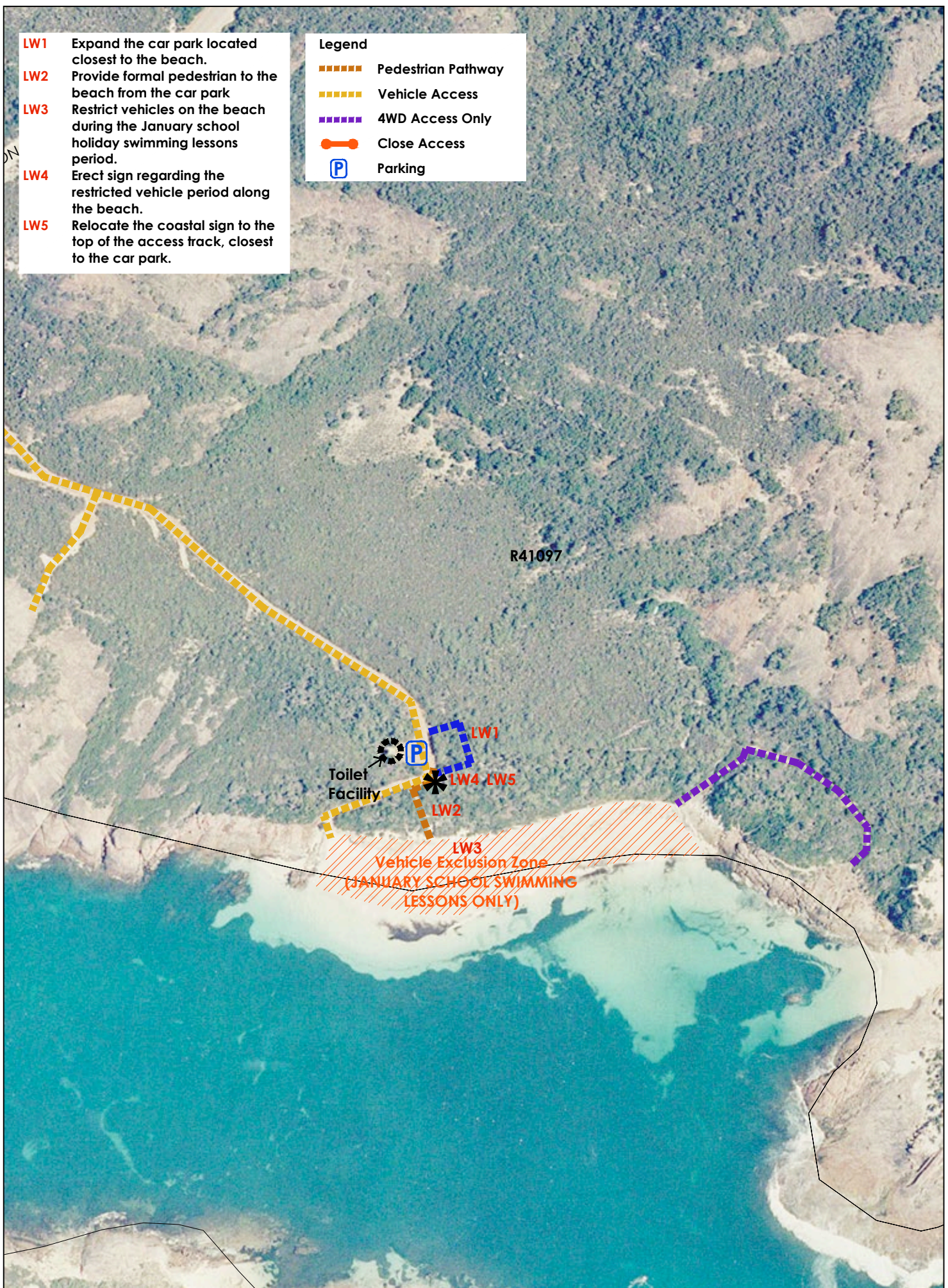
ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
LW1	Expand the car park.	S	SoE	\$5,000
LW2	Provide formal pedestrian to the beach from the car park.	S	SoE	\$18,000
LW3	Restrict vehicles on the beach during the January school holiday swimming lessons period.	S	SoE	N/A
LW4	Erect sign regarding the restricted vehicle period along the beach.	S	SoE	\$500
LW5	Relocate the coastal sign to the top of the access track, closest to the car park.	S	SoE	\$500

- LW1** Expand the car park located closest to the beach.
- LW2** Provide formal pedestrian to the beach from the car park
- LW3** Restrict vehicles on the beach during the January school holiday swimming lessons period.
- LW4** Erect sign regarding the restricted vehicle period along the beach.
- LW5** Relocate the coastal sign to the top of the access track, closest to the car park.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  4WD Access Only
-  Close Access
-  Parking



mt belches



3.20 MT BELCHES

BACKGROUND

Mount Belches is the rugged mount that dominates the landscape between Wharton Beach, Little Wharton Beach and Nares Island Beach. A GreenCorp team has established a walk trail up to Mt Belches as a project in 1998. The walk trail is currently not well signposted or marked and could be improved. This would be an added attraction and activity for visitors to the Duke of Orleans Bay Regional Park.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
MB1	Provide directional signage for the walk trail leading to Mt Belches from the Duke of Orleans Bay Caravan Park. Wharton Beach Road and Nares Island Track.	M	SoE	\$500-\$1,000

nares island beach



3.21 NARES ISLAND BEACH

BACKGROUND

Nares Island Beach lies in the southern corner of the Duke of Orleans Bay and is protected by Nares Island. Access is via a gravel road and there is a small parking area near the bay for a couple of cars. A number of established sand vehicle tracks weave around the site. These tracks can be walked a short distance to reach the headland for a view of the bay and islands. There are further 4WD tracks which extend across the headlands in a north and south direction.

The beach is commonly used for launching boats, fishing and waterskiing. It is not heavily used for swimming as large piles of seaweed tend to collect on the shore, making swimming unattractive. The site is currently low-key and used by a small number of people. Limited Shire facilities are provided. It is recommended that this site remain low-key in order to reduce pressures on this site and to direct use to the other nearby beach locations (such as Wharton's Beach, Little Wharton's Beach and Duke of Orleans Bay).


Reserve 36979 (1.11 ha in size) is located on Nares Island Beach for the purpose of Professional Fishermens' Camping. The last professional fishermens' camping lease was granted in 1987 for a two year period. Many of the professional fishermen now camp in the Duke of Orleans Caravan Park a short distance away. This reserve doesn't have any existing structures and only a few small cleared areas exist. It is considered that this reserve is no longer needed by professional fishermen due to the availability of other living arrangements. The Shire should consider amalgamating Reserve 36979 with the surrounding reserve.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
NI1	Keep this location as a low-key use site.	O	SoE	N/A
NI2	Monitor use over time and note any increase in use.	O	SoE	N/A
NI3	Block vehicle tracks which divert off the main road.	S	SoE	\$2,000
NI4	Increase the size of the parking area to accommodate a few more vehicles.	M	SoE	\$2,000
NI5	Install safety risk signage about rock fishing and ocean swells at the car park and at the rocks to the east of the car park.	S	SoE	\$500
NI6	Amalgamate the fisherman lease Reserve 36979 with the surrounding reserve.	M	SoE, Landgate	N/A

- N11** Keep this location as a low-key use site.
- N12** Monitor use over time and note any increase in use.
- N13** Block vehicle tracks which divert off the main road.
- N14** Increase the size of the parking area to accommodate a few more vehicles.
- N15** Install safety/risk signage regarding rock fishing and ocean swells.

Legend

-  Vehicle Access
-  4WD Access Only
-  Parking



duke of orleans bay



3.22 DUKE OF ORLEANS BAY

BACKGROUND

This sheltered bay is popular mainly for boat launching, fishing, motorbike riding and four-wheel driving and sometimes, swimming. The Duke of Orleans Bay Caravan Park is located in this area and is privately managed. A gravel car park is located just north of the caravan park and provides a suitable location for boat launching into the bay. A fish cleaning station is located here, as well as some shelters, toilets and information signage. Vehicles can be parked in the car park and people should be encouraged to do so in to reduce dune degradation caused by parking on the beach. The standard of facilities appears to be sufficient for the use and location.

A proposed boat ramp has been considered at this location in the past, although the need for it is questioned.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
D01	Maintain the existing toilets, shelter, information signage and car park.	0	SoE	N/A
D02	Replace and upgrade facilities is required.	0	SoE	TBD
D03	Monitor the use of vehicles on the beach and create a vehicle exclusion area if the use of vehicles opposite the caravan park is an issue.	0	SoE, Duke of Orleans bay Caravan Park	N/A

table island beach



3.23 TABLE ISLAND BEACH

BACKGROUND

This beach is located on the headland to the north of the Duke of Orleans Bay, where the Dailey River joins the ocean. A small gravel car park is provided at this location which includes a small rota-loo toilet, a picnic table and shelter. Pedestrian access from the car park leads to the Duke of Orleans Bay beach area.

An informal track at the end of the car park leads to Dailey River. Access to Table Island is via a sandbar between the island and the mainland, however water levels in the Dailey River can restrict access. Pedestrian access to the Dailey River and Table Island should be formalised to reduce the creation of more tracks through this area.





Vehicle access onto Table Island Beach is only available for 4WDs as the Dailey River will always be an obstacle.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
T11	Formalise access track to the Dailey River from the car park.	M	SoE	\$2,000
T12	Formalise the lookout at the Dailey River.	M	SoE	\$5,000
T13	Close and rehabilitate the informal track leading from the lookout to the river.	M	SoE	\$2,000

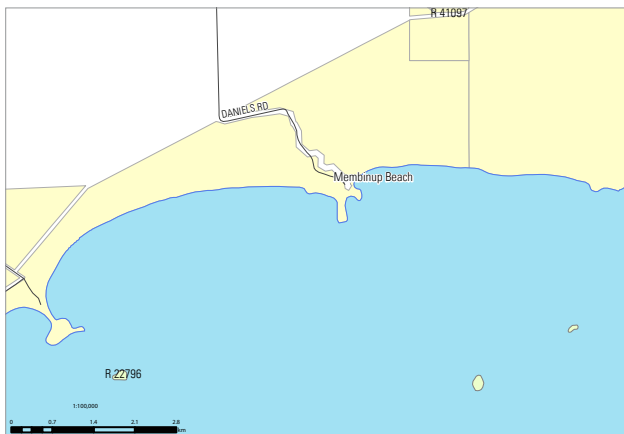
- T11** Formalise access track to the Dailey River from the car park.
- T12** Formalise the lookout at the Dailey River.
- T13** Close the informal track leading from the lookout to the river.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Access
-  Parking



membinup beach



3.24 MEMBINUP BEACH

BACKGROUND

Membinup Beach is a low-key camping area with minimal facilities. It's accessed via a rough 4WD track from Daniels Road. The difficult access, combined with the low-key nature of the site means that it is mainly used by locals and for people wanting a bush camping experience. The only facilities provided at Membinup Beach are a picnic table and shelter. Another low-key camping area is located further to the east where Munglinup Creek joins the ocean part way along Membinup Beach. Some large natural dune blowouts are occurring on the opposite side of the river and should be monitored over time.

Membinup has never been a designated camp area, but camping occurs in an ad-hoc fashion through the dunes. Issues associated with this are destruction of vegetation as visitors create and expand camping areas and hygiene issues (no toilets are provided). Some areas can also become flooded in winter.

The issues associated with locating a formal campsite at Membinup Beach is the close proximity to the commercially run Duke of Orleans Bay Caravan Park and the cost to the Shire of running another campsite, especially considering the other relatively close campsites at Kennedys Beach and Alexander Bay. This suggests that the creation of a formal camp area is not warranted. However, the difficulty in access, absence of facilities and limited knowledge of the site is management in itself as it reduces the number of people who know about the site and who can access it.

Use of the site for informal camping does not currently have significant issues as the area is mainly used by locals and visitors seeking a bush camping experience. The site should be monitored for signs of increased use and environmental stress because once this occurs it would be beneficial to set out appropriate camping areas to reduce environmental damage.





A large number of tracks run across the foredunes for access to Table Island Beach, on the west side of the Membinup Beach headland. These tracks are in poor condition and new tracks have been formed that also do not provide adequate access to the beach. Track rationalisation and alignment should take place.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
MB1	Continue to monitor both camping areas for signs of increased use and management issues.	0	SoE	N/A
MB2	Formalise camping areas if use increases or encroachment becomes an issue. Define camp bays with bollards and clearly define access tracks.	L	SoE	TBD
MB3	Rationalise 4WD tracks by closing duplicate tracks.	L	SoE	\$5,000-\$10,000

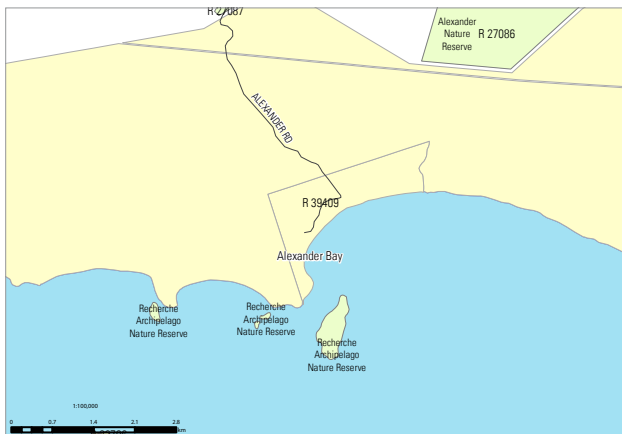
- MB1** Continue to monitor both camping areas for signs of increased use and management issues.
- MB2** Formalise camping areas if use increases or encroachment becomes an issue. Define camp bays with bollards and clearly define access tracks.
- MB3** Rationalise 4WD tracks by closing duplicate tracks.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Access
-  Parking



Alexander Bay



3.25 ALEXANDER BAY

BACKGROUND

Alexander Bay is situated between Membinup and Kennedys beaches on Reserve 39409. It has its management orders with the Shire of Esperance for the purpose of Recreation and Camping and is surrounded by unallocated crown land. The reserve covers an area of 224ha, with the boundaries being the Alexander River (which enters the ocean half way around the bay) and across the middle of the Alexander Bay headland.

NATURAL ENVIRONMENT

Alexander Bay is dominated by low coastal scrub. The foredunes are colonised by Hairy Spinifex (*Spinifex hirsutus*) and Sea Spurge (*Euphorbia paralias*). The seaward facing slope of the primary dune is thickly vegetated with wind pruned, salt tolerant species, particularly Wedding Bush (*Ricinocarpus glaucus*).

Dune crests are dominated by Showy Banksia (*Banksia speciosa*), which usually forms dense thickets in areas of deep sand. An impenetrable scrub of *Melaleuca* interspersed with *Verticordia* and *Agonis* characterizes the interdunal swales. Further inland where Pallinup Siltstones are near the surface, Eucalyptus species form a mallee-scrub with scattered associations of Pin-cushion Hakea (*Hakea laurina*).

A sandy swampy site landward of the primary dune supports a low woodland formation of Saltwater Paperbark (*Melaleuca cuticularis*), adjacent to which a heath of eridoid shrubs has formed. This area becomes very swampy during winter (Craig and Oma, 1984) and is used as an informal camping area during peak times (mainly December-January).

RECREATION AND SOCIAL ENVIRONMENT

Alexander Bay is a popular camping area with both locals and tourists. It also attracts both day visitors. The area is popular for its fishing off the headland and local islands, exercising dogs, camping, swimming and surfing in the bay east of Alexander River. Visitors from Kalgoorlie, Esperance and Condingup often use the area. The Esperance Surfcasters Club visits Alexander Bay once or twice a year for fishing competitions. Locals often refer to this area as "A Bay".

FACILITIES AND ACCESS

Existing access is via an extension of Alexander Bay Road. The road is sometimes in poor condition and suitable for 4WDs only. A network of tracks feed off this main track with most heading towards Alexander Bay.

The camp site includes a long drop toilet, a rotaloo toilet (not in use), information bay and signage, vehicle access onto the beach, marked camp bays and shelters. Rubbish bins are provided within the camp site and visitors are encouraged to take their rubbish home with them. Potable water should not be provided at this site to discourage long term campers. Non-drinking water for toilets and other tasks should continue to be provided.

An information bay has recently been installed at the entrance to the camp site which contains important safety information and guidance on use of the area. The camp fee collection box is provided at the information bay.

MANAGEMENT ISSUES

Camping

There have been many problems in the past at Alexander Bay such as informal camping, squatting, rubbish, incidences of vandalism and anti-social behaviour. Informal camping along the beach and within the melaleucas has degraded the area. The Shire needs to seriously consider its options for future management of the area to avoid significant environmental degradation. The reserve is at the stage that "business as usual" management is not enough to sustain the site for the level of use by the public.

The swampy melaleuca area near the tin shelter is problematic because it is often entirely under water during winter. Camping in this area needs to be phased out because a swamp is not a suitable site for a camp area, and people camping in the area are killing the surrounding melaleucas. If this continues over many years all the melaleucas will die and the swamp area will expand. Limiting camping in the area will be difficult, especially during peak periods when the formal camp site is at capacity. It is recommended that the existing camp site is expanded and more camp bays provided to accommodate increased use during peak periods. A sign should also be placed on Alexander Bay Road by the camp host to advise drivers when the camping area is full. This might encourage campers to drive to another location instead. The melaleuca area could be turned into a day use area.

Camping on foredunes is an issue because it destroys vegetation, encourages weed growth and exacerbates dune erosion leading to dune blowouts. These areas also expand over time which can lead to significant

destruction of the foredunes and vegetation, which will eventually reduce the visual quality of the area. It is recommended that boulders are placed at these tracks to discourage access and that the camp host and Shire work together to discourage camping in these areas.

The formal campsite is well defined and managed. In recent years a camp host has been present on site during the peak summer period. This has been beneficial because it ensures that fees are collected and that someone is present to provide visitors with assistance and information. Shire Rangers visit the site on a regular basis, particularly during peak periods. The camp host on site has been successful and it is recommended that this continues. It is also recommended that the Shire considers establishing a permanent caretaker at Alexander Bay if there is any interest displayed.

Amenities

The toilet facilities provided include a long drop toilet and a disused rotaloo. Long drop toilets are no longer popular with campers and it can lead to use of bush toilets which can be unhygienic. The rota loo is no longer used because it did not have capacity for the number of people using the toilet. A septic toilet cannot be installed because there is no water available.

An alternative toilet facility needs to be provided. It is recommended that the Shire install a sealed vault toilet. This is essentially a long drop toilet which uses a bacterial additive to break down and digest waste. The Department of Parks and Wildlife (DPaW) currently use a product known as E-zyme which is a bacterial granule which is designed to speed up the breakdown of waste. The toilets should be fitted with working fans which will help to eliminate odour. These toilets are used by DPaW at a number of their remote camping locations and are considered suitable for areas which are difficult to access for regular maintenance and which experience an influx of visitors during peak periods.

The Shire will need to consider the appropriate size of the tank for the toilet to ensure that it is large enough to cater for use during peak periods and the remainder of the year. It may not be possible for large maintenance trucks to drive to the site down the access track so this is another factor that may determine the size of the tank.

It is also recommended that a dump point is installed for the disposal of black waste from caravans and RV's. This is to discourage disposal of black water down the toilets which can fill up these systems and reduce their efficiency at processing waste.

Camp Kitchen

The provision of a camp kitchen can be considered in the long term as an additional facility at this site. This type of facility provides a number of benefits to campers. For example it provides an area to cook which could reduce the desire for camp fires, an avenue for signage, shade and a communal area for social activities. However, the cost of a camp kitchen can be high and it is unlikely that enough revenue will be obtained from camp fees. The Shire will need to consider the costs and benefits for the installation of a camp kitchen.

Tin Shelter

A three walled tin shelter is located at the clearing near the informal Melaleuca camping area. It's possible that camping in the Melaleucas





is encouraged because of the existence of the shed as it attracts long term campers or squatters and encourages others to camp around them. The group that built the shed it is believed to be either Rotary or Lions Club. Further consultation needs to be carried out with the responsible Club to determine the purpose of the shack, what it was intended to be used for and who is responsible for its maintenance. It is occasionally used by the Esperance Surfcasters Club for fishing competitions but usually they use the beach for their weigh-ins. If no Club takes responsibility for the shelter, it should be removed because it is an eye-sore and is encouraging squatting. If there is an established need for the shelter it should be relocated closer to the campsite and built with no walls or only one wall and a roof.

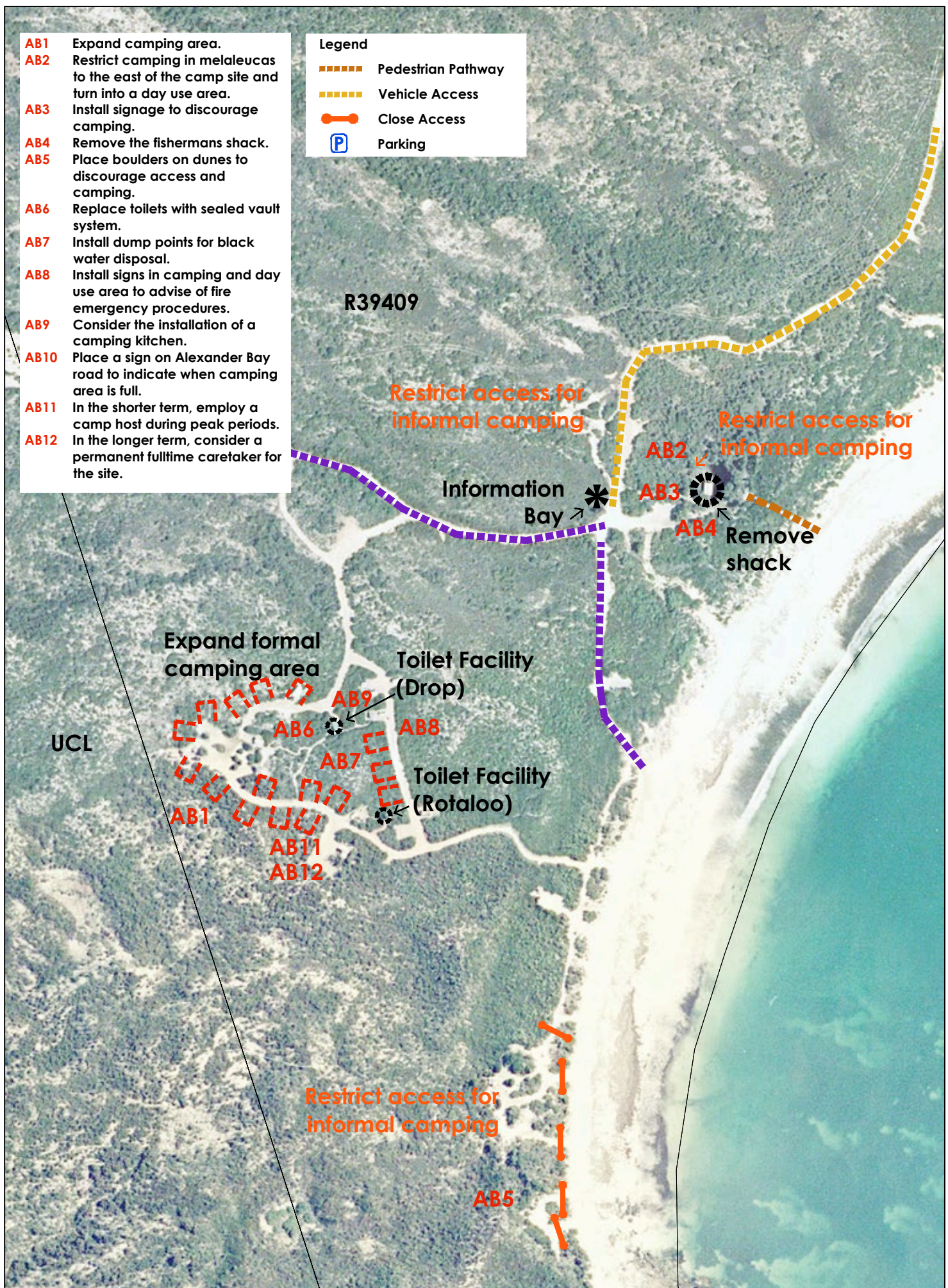
ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
AB1	Expand the formal camping area to accommodate more campers during peak periods.	S	SoE	\$10,000
AB2	Restrict camping in the Melaleucas to the east of the formal camp site and turn into a day-use area with picnic tables, shelters and a BBQ.	S/O	SoE	\$5,000-\$10,000
AB3	Install signage to discourage camping in the Melaleucas.	S	SoE	\$500
AB4	Remove the fisherman's shack.	S	SoE	\$2,000
AB5	Place boulders on dunes to discourage access and camping in the dunes.	S	SoE	\$5,000
AB6	Install a sealed vault toilet which uses bacteria granules (E-zyme) to process waste and with working fans for odour control.	S	SoE	\$10,000
AB7	Install dump points for black water disposal.	M	SoE	\$5,000
AB8	Install signs in the camping and day use area to advise visitors of the fire emergency procedures.	S	SoE	\$500
AB9	Consider installing a camp kitchen.	L	SoE	\$70,000
AB10	Place a sign on the Alexander Bay Road turnoff to indicate when the camping area is full.	O	SoE	\$500
AB11	Keep a camp host on site during peak periods to help with management and to assist visitors.	O	SoE	TBD
AB12	Consider allowing a permanent caretaker to remain at the camp full time.	L	SoE	N/A

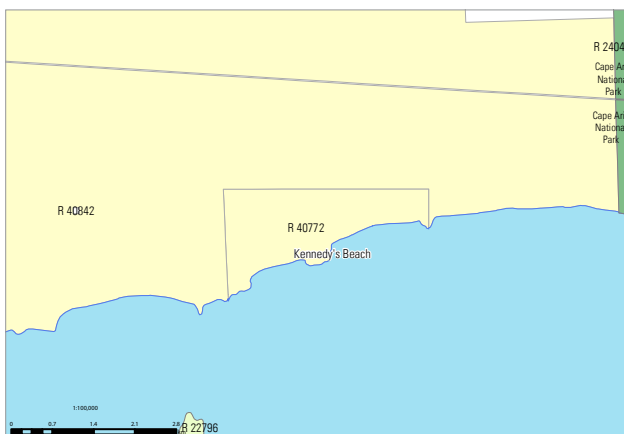
- AB1** Expand camping area.
- AB2** Restrict camping in melaleucas to the east of the camp site and turn into a day use area.
- AB3** Install signage to discourage camping.
- AB4** Remove the fishermans shack.
- AB5** Place boulders on dunes to discourage access and camping.
- AB6** Replace toilets with sealed vault system.
- AB7** Install dump points for black water disposal.
- AB8** Install signs in camping and day use area to advise of fire emergency procedures.
- AB9** Consider the installation of a camping kitchen.
- AB10** Place a sign on Alexander Bay road to indicate when camping area is full.
- AB11** In the shorter term, employ a camp host during peak periods.
- AB12** In the longer term, consider a permanent fulltime caretaker for the site.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Access
-  Parking



kennedy's beach



3.26 KENNEDY'S BEACH

BACKGROUND

Kennedy's Beach is situated about 110kms east of Esperance off Exchange Road. The purpose of Reserve 40772 is for Recreation and Camping, although there is no formal campground on the reserve. This is a low-key camping and day-use area mainly used by locals. It consists of minimal facilities such as a fishing shelter and rotaloo. A rotaloo toilet is also provided at this camp site. The road leading to the beach is accessible by 4WDs only and difficult to traverse. This is a management tactic in itself as it reduces the number of people that can access the beach.

A fishing shelter built by the Esperance Surfcasters Club (ESC) is situated at the site. Built in 1988, with the approval of the Shire of Esperance, it is starting to become dilapidated and is in need of repair. The unlocked shelter is mostly used by the ESC to camp in during fishing competitions. Other people also use the open shelter. Management of the shelter may need to be reviewed if any future problems arise with unwanted squatters or vandalism of the building.





Signage at the site asks campers to take their rubbish home with them. At times there can be significant amounts of rubbish close to the shelter. Regular rubbish removal by the ESC and Shire Rangers seems to be managing this problem. This form of rubbish disposal should be continued and no tip or rubbish bins provided.

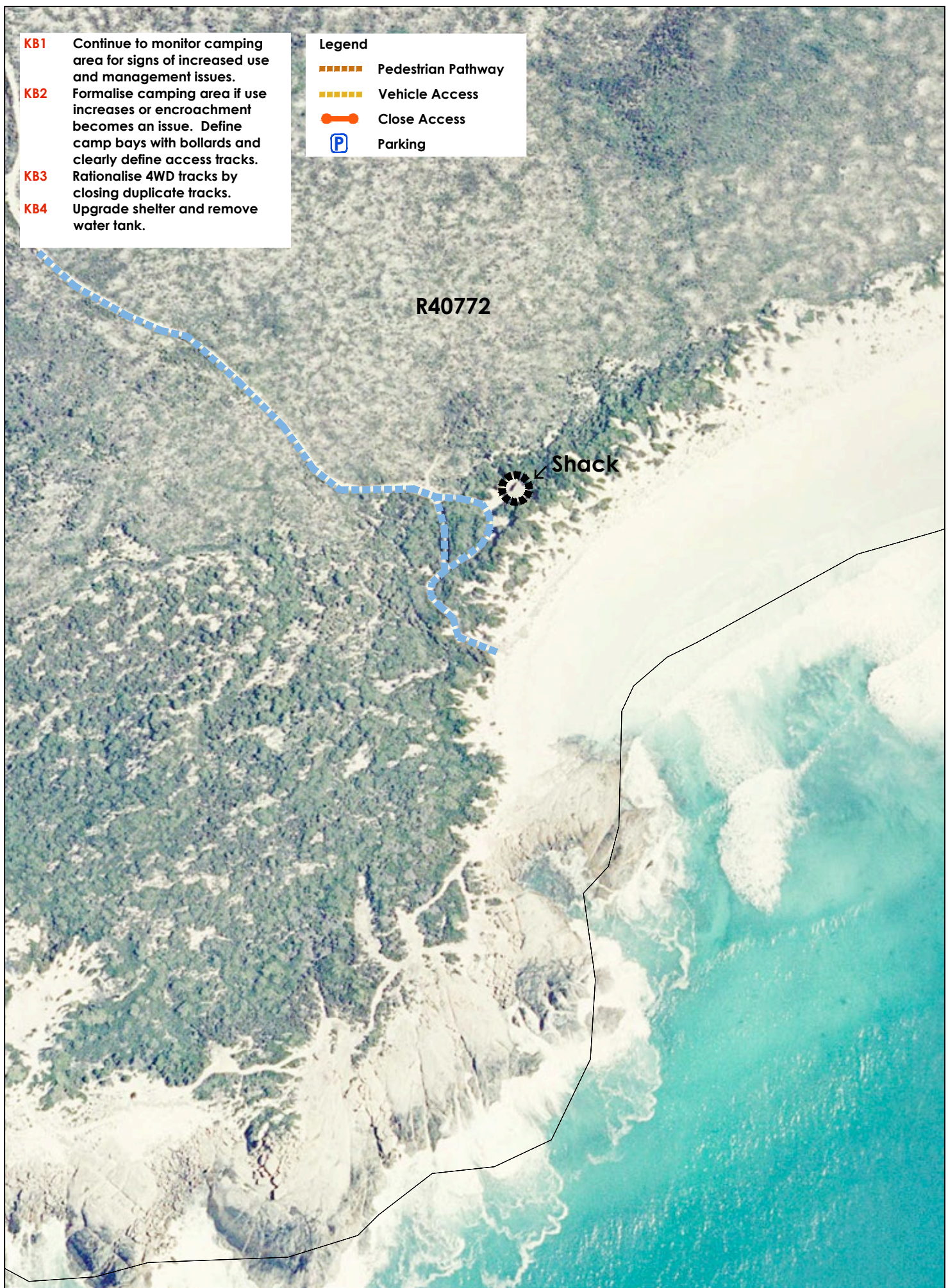
ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
KB1	Continue to monitor camping area for signs of increased use and management issues.	0	SoE	N/A
KB2	Formalise camping area if use increases or encroachment becomes an issue. Define camp bays with bollards and clearly define access tracks.	L	SoE	TBD
KB3	Rationalise 4WD tracks by closing duplicate tracks.	L	SoE	\$5,000
KB4	Upgrade shelter and remove water tank.	M	SoE	\$5,000

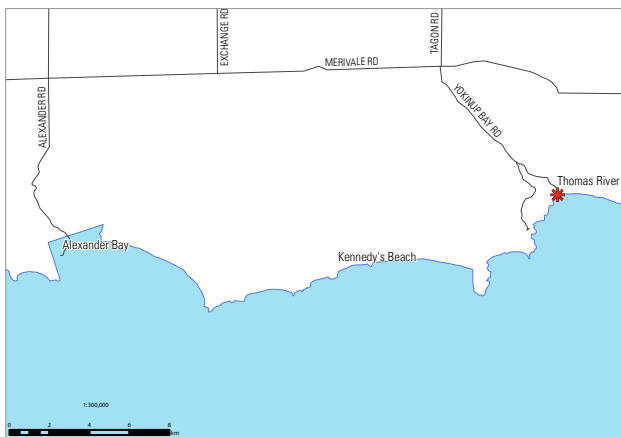
- KB1** Continue to monitor camping area for signs of increased use and management issues.
- KB2** Formalise camping area if use increases or encroachment becomes an issue. Define camp bays with bollards and clearly define access tracks.
- KB3** Rationalise 4WD tracks by closing duplicate tracks.
- KB4** Upgrade shelter and remove water tank.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  Close Access
-  Parking



thomas river



3.27 THOMAS RIVER

BACKGROUND

The Thomas River camp site is located on Reserve 518 and is surrounded by DPaW managed Cape Arid National Park, 130kms east of Esperance. Thomas River is one of the Shire's better managed coastal camping reserves, partly because of the daily DPaW Ranger presence in the National Park.

A DPaW campground adjoins the reserve to the west. The differences between the two campgrounds are the standard of facilities, and the fact that the Shire reserve allows dogs which obviously attracts dog owners. Dogs are not allowed entry to Cape Arid National Park.

FACILITIES AND ACCESS

Access to Thomas River is via a gravel road. The camp site is well-defined and camp bays have been defined using bollards to reduce expansion and removal of vegetation. Shelters have been placed in some camp bays to reduce campers pushing into the vegetation for shade.

The camp site has been established with a number of facilities including:

- Two amenity blocks (A rota loo, flushing toilet and compost toilet)
- Picnic and shade shelters
- A BBQ
- Rubbish bins (Shire collects rubbish on a bi-weekly basis and the DPaW Ranger often empties bins during peak periods).
- Information Bay and signage.

A day-use car park is located south of the camp site. Pedestrian access to the beach and river mouth is provided using the vehicle access track.

The DPaW camp site has additional facilities such as a kitchen/cooking shelter with picnic tables, cooking benches, BBQs and a sink. Some consideration could be made to provide similar facilities in the Shire camp site to better match the DPaW site.

MANAGEMENT ISSUES

Management

The agency responsible for management of Thomas River needs serious consideration. In the past, the purpose of the Shire reserve was to provide a location for the community to camp near the coast before similar facilities were provided by the DPaW in the National Parks. Nowadays, there are a number of issues associated with the Shire reserve being located in such an isolated spot in the middle of a National Park. These issues include:

- Dogs are allowed in the Shire reserve, but not in the National Park. Therefore, visitors are not technically allowed to bring dogs through the National Park on the way to the Shire camp site.
- The delineation between the two reserves is not established on ground, making it confusing for visitors as to where the Shire reserve starts and finishes.
- There is a difference in facilities and management between the two sites can be an issue due to the expectations of campers. The location of the reserve in the middle of a National Park also causes confusion because different rules and restrictions apply to DPaW land (such as no dogs). The cost to the Shire of Esperance of management of the reserve also needs to be taken into consideration. Options for alternative management such as handing the management orders for the reserve with DPaW urgently need to be reviewed by the Shire.

The Shire campsite is largely managed and maintained by the DPaW rangers.

Pedestrian Access

Pedestrian access to the beach is an issue as the only access track which leads to the beach is also used by vehicles. This has safety implications where pedestrians and vehicles use the same track. The location of the Thomas River makes it difficult to construct another pedestrian access. The existing vehicle track could be widened on one side (the other side is restricted by the river) to provide an additional space for pedestrians to walk along. However, only a short proportion of the vehicle track is within the Shire reserve, with the remainder in the National Park. This action will need to be carried out in cooperation with the DPaW.

Amenities

The existing rota-loo toilet has been closed as there have been issues with the high water table. Feedback from DPaW indicates that the existing toilets do not have capacity for peak periods. An alternative toilet facility needs to be provided.

It is recommended that the Shire install a sealed vault toilet. This is essentially a long drop toilet which uses a bacterial additive to break down and digest waste. The DPaW currently use a product known as E-zyme which is a bacterial granule which is designed to speed up the breakdown of waste. The toilets should be fitted with working fans which will help to eliminate odour. These toilets are used by DPaW at a number of their remote camping locations and are considered suitable for areas which are difficult to access for regular maintenance and which experience an influx of visitors during peak periods.

The Shire will need to consider the appropriate size of the tank for the toilet to ensure that it is large enough to cater for use during peak periods and the remainder of the year.

Camp Kitchen





The provision of a camp kitchen can be considered in the long term as an additional facility at this site. This type of facility provides a number of benefits to campers. For example it provides an area to cook which could reduce the desire for camp fires, an avenue for signage, shade and a communal area for social activities. However, the cost of a camp kitchen can be high and it is unlikely that enough revenue will be obtained from camp fees. The Shire will need to consider the costs and benefits for the installation of a camp kitchen.

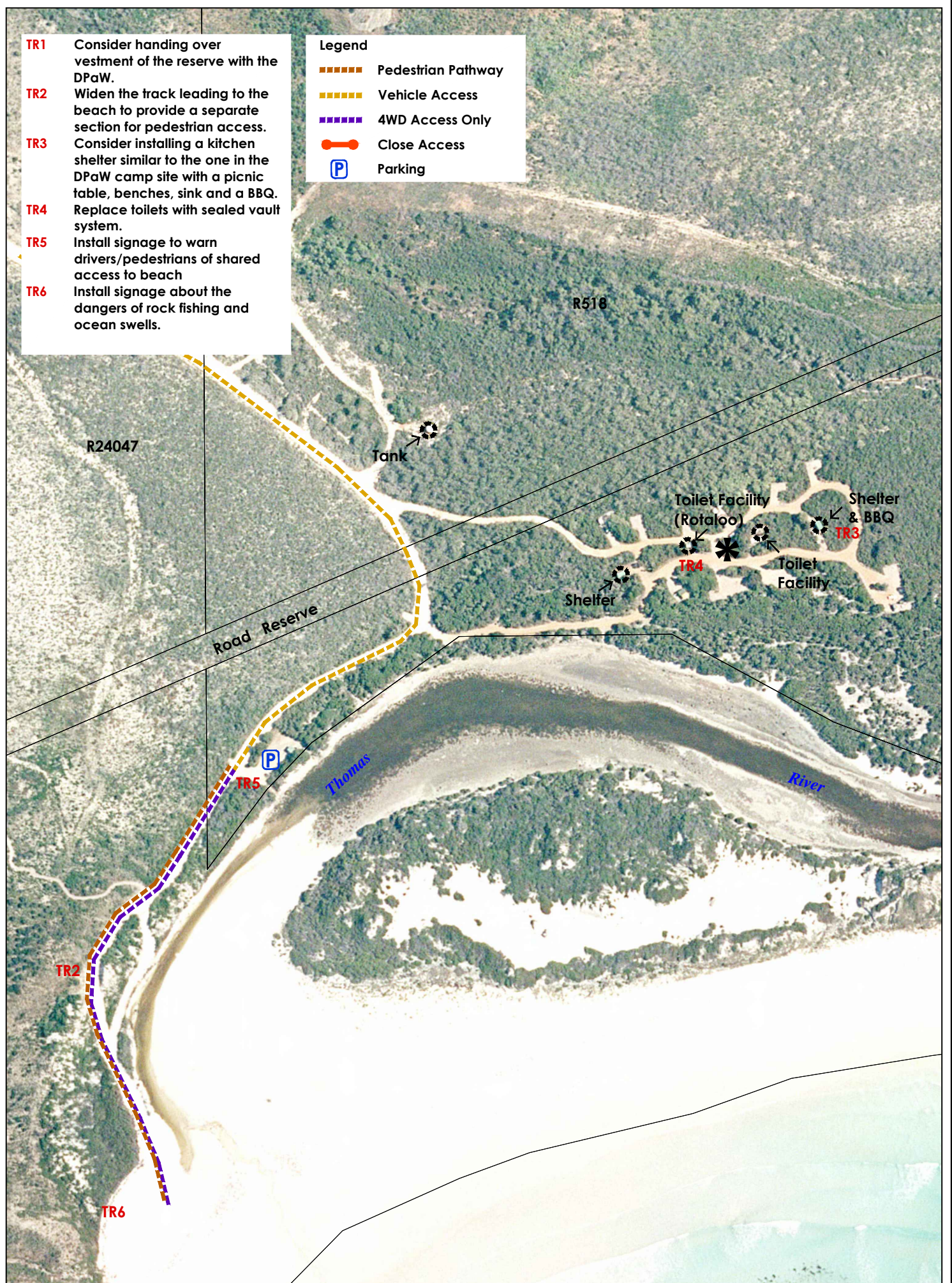
ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
TR1	Consider handing over the Management Order of the reserve with the DPaW.	M-L	SoE, DPaW	N/A
TR2	Widen the track leading to the beach to provide a separate section for pedestrian access.	S	SoE	\$10,000
TR3	Consider installing a kitchen shelter similar to the one in the DPaW camp site with a picnic table, benches, sink and a BBQ.	M-L	SoE	\$70,000
TR4	Replace rotaloo toilets with a sealed vault toilet which uses bacteria granules (E-zyme) to process waste and with working fans for odour control.	M	SoE	\$10,000
TR5	Install signage at the vehicle track leading to the beach to warn drivers to look out for pedestrians.	S	SoE	\$500
TR6	Install signage at the beginning of the pedestrian access track to warn pedestrians to look out for vehicles.	S	SoE	\$500
TR7	Install signage about the dangers of rock fishing and ocean swells.	S	SoE	\$500

- TR1** Consider handing over vestment of the reserve with the DPaW.
- TR2** Widen the track leading to the beach to provide a separate section for pedestrian access.
- TR3** Consider installing a kitchen shelter similar to the one in the DPaW camp site with a picnic table, benches, sink and a BBQ.
- TR4** Replace toilets with sealed vault system.
- TR5** Install signage to warn drivers/pedestrians of shared access to beach
- TR6** Install signage about the dangers of rock fishing and ocean swells.

Legend

-  Pedestrian Pathway
-  Vehicle Access
-  4WD Access Only
-  Close Access
-  Parking



israelite bay



3.28 ISRAELITE BAY

BACKGROUND

Israelite Bay is located close to the eastern boundary of the Shire of Esperance on the western shores of the Great Australian Bight. It is over 200kms east of Esperance with access along Fisheries Road. The track to Israelite Bay is a rough sand track only accessible by 4WD. This location consists of three reserves:

Reserve Number	Area	Management Order	Purpose	Features
3805	918.6ha	Shire of Esperance	Recreation	Part of the existing informal camping area. Israelite Bay Jetty
38086	1.08ha	Shire of Esperance	Fisherman's Camp Site	Part of the existing informal camping area
36002	48.16ha	National Trust of Australia	Historic Place	Old Telegraph Station Gravestones Cook's Cottage Spurr's Shack

The DPaW managed Nuytsland Nature Reserve 27632 surrounds the two reserves. The National Trust *Israelite Bay Post Office and Telegraph Station Conservation Plan* details recommendations for the maintenance and enhancement of these historical buildings (Campbell, 1995).

The Israelite Bay Telegraph Station was constructed in 1876 and the overland telegraph line was completed in 1877. A series of stations were constructed along the southern coastline to connect Western Australia with the colonies in the eastern states. The overland

telegraph line extended from Perth to Eucla. It required repeated stations at Bremer Bay, Esperance, Israelite Bay and Eyres Patch.

The discovery of gold in Kalgoorlie in 1893 required the construction of an overland telegraph line to Kalgoorlie. In 1894 the Israelite Bay Jetty was constructed to supply goods and building materials for the construction of the telegraph line. A railway line was also constructed to connect the jetty with storage sheds in land. Storage sheds were also erected at the bay. The jetty made Israelite Bay more accessible and became an important location for ships travelling from Albany to Adelaide and for pastoralists and fishermen transporting goods.

The Telegraph Station was abandoned in 1896 and the Israelite Bay Post Office and Telegraph Station was constructed. This continued operation until 1917 and sold to private landowners in 1927. The station discontinued operation due to construction of the new overland telegraph line in conjunction with the transcontinental railway.



NATURAL ENVIRONMENT

The remote nature of Israelite Bay and difficulties in access means that it is not a popular or busy camping spot relative to other sites closer to Esperance. This has assisted in reducing environmental impact at this location in general. Nevertheless, degradation in the form of vegetation destruction and erosion has resulted from the creation of multiple tracks and ad-hoc camping has occurred.

A heavy infestation of Bridal Creeper (*Asparagus asparagoides*) is growing throughout reserves 36002 and 3805 and is choking other vegetation. Birds eat the bright red berries and then spread the weed seeds through their faeces. Biological controls are the only known method of management besides hand-pulling. Release of the bridal creeper rust or leafhopper could assist in minimising this noxious weed.

RECREATION AND SOCIAL ENVIRONMENT

Reserve 3805 is used for informal camping, sightseeing, fishing, hiking and other outdoor activities. The numerous tracks are used for dune buggy riding. This leads to the creation of duplicate tracks, destruction of vegetation and dune erosion. It also has safety implications if other vehicles are using these tracks. The ruins of the railway line and storage



sheds are located on this reserve, although they are severely degraded and unrecognisable. Despite this, the history of the location should be recognised. The old jetty extends from the edge of this reserve and is also severely deteriorating.

FACILITIES AND ACCESS

Israelite Bay is accessible via Fisheries Road to the west or a track from Baxter Cliffs to the east. Road access is difficult and only accessible with a 4WD and is often inaccessible during winter. A DPaW traffic counter found that in the year 2000 approximately 747 vehicles traversed the road. The figures suggest an average of 2 vehicles/day.

Limited facilities are provided at Israelite Bay. Informal camping takes place at the beach and further inland at the Fisherman's Campsite Reserve. Tracks are provided throughout the reserve which link to all the features of the site. Signage is required in the Shire reserve.

MANAGEMENT ISSUES

Due to its location and difficulties with accessibility, Shire rangers are only able to visit the site once a year. As a result, Israelite Bay suffers from a lack of integrated planning and management. This has resulted in random camping and vehicle access across the reserve. The remote

nature of this location makes it difficult and impractical to create a formal camping area. No fees are collected for this site. A more suitable form of management is required as camping and tourist traffic into the area is increasing. The Spurr family and others have assisted over the years in maintaining road access, cleaning the campsite, collecting rubbish, removing weeds, repairing the windmill and gardening around the historical sites.

Options for the area include:

- Retain status quo – the reserve has been unmanaged since at least 1984. The issues are essentially the same but they have become worse over time. This option cannot be sustained for the long term due to the number of people visiting the area and the potential for degradation.
- Place management order for the Reserve with DPaW – this will need to be discussed with DPaW to determine whether they are interested in managing the reserve.
- Employ a Part-time Caretaker – the employment of a caretaker in the peak season from October to April could help reduce degradation and misuse and could help to collect fees. Accommodation and facilities would need to be considered.
- Commercial Camp Area – the existing camp site could be formalised with further facilities provided. This is a long term option as management would be expensive and would require much more use and collection of fees to offset Shire expenses with the provision of facilities and regular management. It would require a significant capital input as the infrastructure at the reserve is non-existent and the road access is poor.

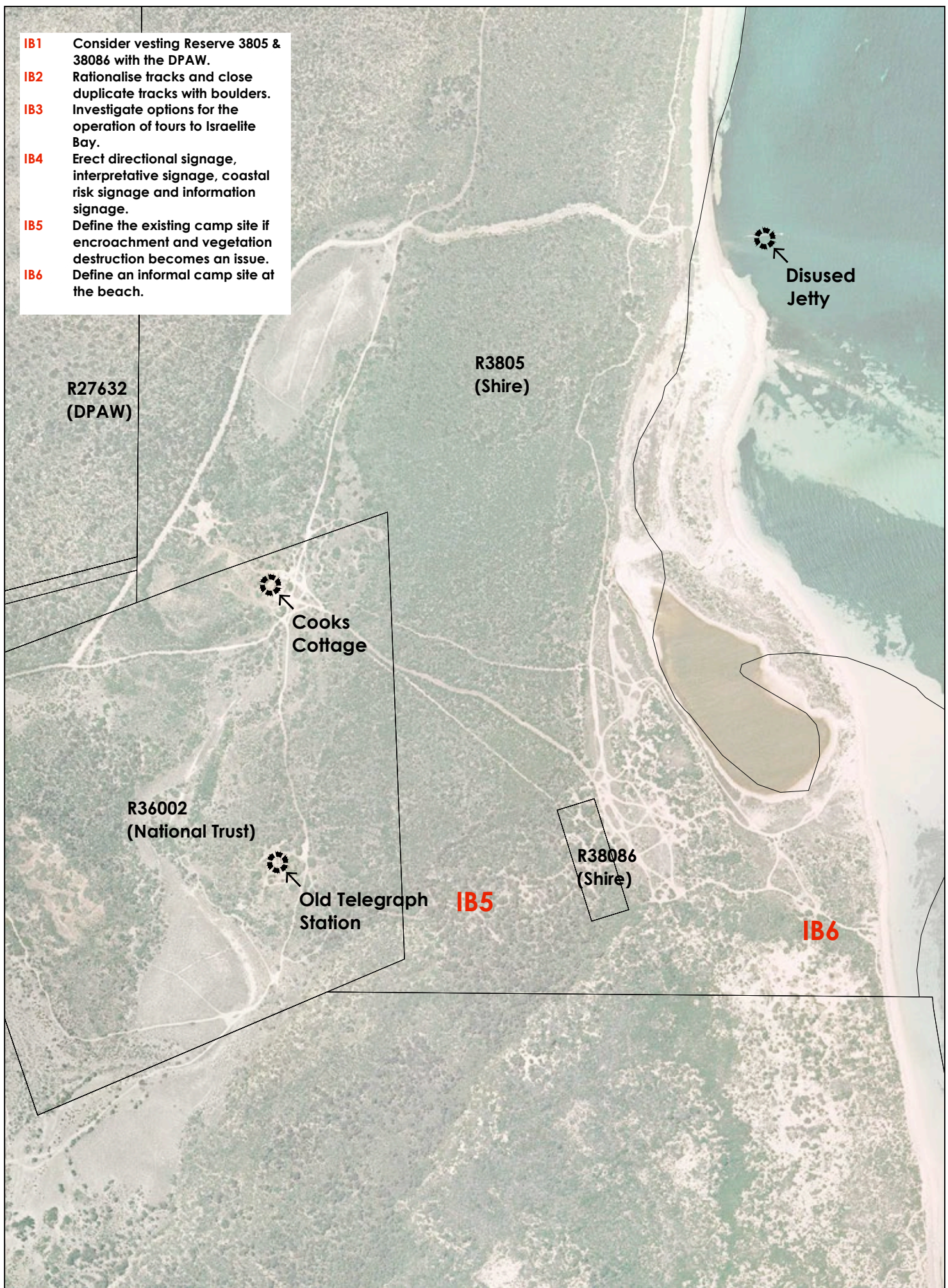
Other issues with need to be addressed are as follows:

- Track rationalisation is also needed to minimise damage to the surrounding environment.
- The only facility available is a windmill that pumps water to a tank, which is actually located on DPaW managed lands.
- Rubbish disposal is an issue. Campers should be encouraged to take their rubbish away.
- Limited signage is located at Israelite Bay. Some makeshift directional signage is located at Cooks Cottage which adds to the character of the location. Further directional signage is required on the Shire reserve to provide an indication of the campsite, historical buildings, beach, old jetty and other features. Coastal risk signage should be established at the beach and information signage in the campsite.

ACTIONS AND RECOMMENDATIONS

Action	Description	Priority	Responsibility	Cost
IB1	Consider handing over the Management Order of Reserve 3805 with the DPaW.	M-L	SoE, DPaW	N/A
IB2	Rationalise tracks and close duplicate tracks with boulders.	M	SoE, NTA	\$5,000
IB3	Investigate options for the operation of tours to Israelite Bay.	M-L	SoE, NTA, Tour operators	N/A
IB4	Erect directional signage, interpretative signage, coastal risk signage and information signage.	S-M	SoE, NTA	\$1,000
IB5	Define the existing camp site if encroachment and vegetation destruction becomes an issue.	S	SoE	TBD
IB6	Define an informal camp site at the beach.	S	SoE	\$1,000
IB7	Amalgamate the fisherman lease Reserve 38086 with the surrounding reserve.	S	SoE, Landgate	N/A

- IB1** Consider vesting Reserve 3805 & 38086 with the DPAW.
- IB2** Rationalise tracks and close duplicate tracks with boulders.
- IB3** Investigate options for the operation of tours to Israelite Bay.
- IB4** Erect directional signage, interpretative signage, coastal risk signage and information signage.
- IB5** Define the existing camp site if encroachment and vegetation destruction becomes an issue.
- IB6** Define an informal camp site at the beach.



4. IMPLEMENTATION PLAN



implementation plan

4.1 INTRODUCTION

This section of the Coastal Management Plan provides guidance on the implementation of the Action Plan. This can be used as a framework to ensure coastal management is adequately catered for in future budgets. It is anticipated that the recommendations will be implemented over the next 10 years.

The implementation of recommendations from the Action Plan will need to be appropriately costed and programmed for implementation by the Shire of Esperance.

4.2 PRIORITIES

The recommendations have been allocated a priority to assist with implementation. Priorities have been classified as follows:

- **S:** Short term – within the next 2 financial years
- **M:** Medium term – within the next 5 years
- **L:** Long term – 5+ years
- **O:** Ongoing – as required.

The Shire of Esperance Council is responsible for providing budget allocation and decision-making support to their staff to enable the effective and safe long-term management of the coastal reserves managed by the Shire. It is in the interests of the entire community of Esperance for the Shire Council to invest annually in the maintenance, safety and improvement of the Shire's coastal reserves infrastructure assets and natural values.

The priorities assigned to each recommendation are advisory only. Priorities can be reviewed as required by the Shire to take into account availability of resources and granting of funding requests.

4.3 RESPONSIBILITIES

The Shire of Esperance is responsible for recommendations within this plan. In some instances another party may be able to 'partner' the Shire when implementing recommendations.

Responsibilities and partners have been classified as follows:

- | | |
|--|--------|
| • Shire of Esperance Council and Directorate | SOE |
| • Department of Parks and Wildlife | DPaW |
| • Department of Agriculture and Food | DAFWA |
| • Department of Planning | DoP |
| • Fire and Emergency Services Authority | FESA |
| • Birds Australia | BA |
| • Esperance Bird Observers Group | EBOG |
| • Esperance Weeds Action Group | EWAG |
| • Goldfields Esperance Surf Life Saving Club | GESLSC |
| • Australian Quarantine Inspection Service | AQIS |
| • Esperance Ports Sea and Land | EPSL |
| • Recherche Advisory Group | RAG |
| • National Trust of Australia | NTA |

4.4 MONITORING

Monitoring is an essential component of the rehabilitation or maintenance program. Its purpose is to assess the success of management activities and to determine whether certain objectives or goals have been achieved. Monitoring of recreational elements is important to ensure they are safe and undamaged.

Weed invasion and human disturbance can reduce the success of rehabilitation. It is recommended that rehabilitated areas are monitored to determine the level of success and whether weed management or more access control is required.

Monitoring of recreational facilities can be conducted using visual assessments and safety inspections. These should be carried out regularly, and issues attended to immediately if they arise.

4.5 COSTS

Cost estimates for the recommendations of the Action Plan are provided in Table 4.2. It should be noted that these are indicative only and could change depending on the location, ease of access, cost of labour, transportation of materials etc. They have been provided to give some assistance to funding applications and future financial planning for the coastal sites. The costs provided for timber steps, car parks, timber boardwalks, toilets and rehabilitation have been based on the following rates provided by the Shire and DPaW:

- Timber steps – \$573/lineal metre
- Timber boardwalk – \$354/m²
- Gravel carpark – \$11/m²
- Sealed vault toilet – \$10,000 (for materials and installation)
- Brushing – \$900/day for 50m²
- Plants – \$900 for 100m² of rehabilitation.

4.6 FUNDING SOURCES

The Shire may be able to seek funding for certain activities from other sources. Funding opportunities such as these tend to change on a regular basis and as a result a review of options should be undertaken each year. They tend to be given higher priority if the proposed activities have been identified in a Coastal Management Plan. Applications will generally need to show how the proposed activities will have an environmental and social benefit and will need to provide details as to how the activity will be carried out, timeframes, costings and responsibilities. Funding can be applied for through the following:

- Coastwest Grants program (through the Department of Planning)
- South Coast NRM (each round of grants aims to address a different issue or topic, therefore this site should be regularly checked).

The Department of Planning also provides funding for regional local government authorities for the preparation of coastal management plans and strategies through the Coastal Management Plan Assistance Program.

4.7 ACTION PLAN SUMMARY

A summary of the overarching strategies recommended in this document to deal with coastal management issues which affect all the Shire managed coastal reserves is provided in Table 4.1 below.

Table 4.1 – Summary of Coastal Strategies

SUMMARY OF COASTAL STRATEGIES			
Strategy	Description	Priority	Responsibility
COASTAL TENURE			
CT1	Seek management of unallocated reserves (e.g. Reserve 24486 and 15042).	S	SoE, Landgate
CT2	Consider handing over Management Order of Reserves 518, 3805 and 38085 (Thomas River and Israelite Bay) with DPaW.	M-L	SoE, DPaW
CT3	Amalgamate fisherman leases with surrounding reserves (e.g. Reserve 38086 at Israelite Bay and Reserve 36979 at Nares Island).	M	SoE, Landgate
COASTAL PROCESSES			
CP1	Implement and review an Asset Management Plan focussing on existing infrastructure and recreational facilities in Shire-managed reserves and consider how they can be protected from coastal process such as storm events.	S-M	SoE
CP2	Give due regard to SPP 2.6 to ensure that the location of coastal facilities and development takes into account coastal processes and that appropriate coastal setbacks are implemented and maintained.	O	SoE
CP3	Conduct regular monitoring of the beach and the dune systems of priority high risk sites.	O	SoE
CP4	Conduct regular monitoring of infrastructure and recreational facilities along the beach.		SoE
CP5	Development of land adjoining the ocean, within the Shire of Esperance, to retain the complete primary dune system as a coastal foreshore setback.	O	SoE
CP6	Review Shire of Esperance Town Planning Scheme to incorporate guidelines for coastal foreshore setbacks for land abutting the ocean.	O	SoE
CP7	Advocate for a coastal vulnerability assessment of high risk priority areas.	M	SoE

ENVIRONMENTAL MANAGEMENT			
E1	New buildings overlooking Twilight Beach Road to retain, where possible, coastal landforms, natural skylines and remnant vegetation.	0	SoE
E2	Encourage the design of coastal car parks, roads and buildings that minimise the visual impact on the surrounding environment.	0	SoE
E3	Encourage access to the coast along formal tracks and pathways through the use of fencing and signage.	0	SoE
E4	Monitor dunes located around campsites and higher-use sites for signs of disturbance and close and revegetate informal tracks as they occur.	0	SoE
E5	Liaise and work with DPaW across Shire and DPaW reserve boundaries.	0	SoE, DPaW
E6	Carry out long-term rehabilitation techniques such as ongoing weed control, access control and monitoring for disturbance.	0	SoE
E7	Support efforts by the local community to conduct rehabilitation efforts within Shire coastal reserves.	0	SoE, community groups
E8	Encourage local nurseries to grow coastal plants suitable for dune rehabilitation.	0	SoE
E9	Liaise and work with the DPaW to carry out fire management including prescribed burning, hazard reduction techniques and emergency procedures.	0	SoE, DPaW
E10	Develop and implement a Bushfire Hazard Reduction Plan in consultation with local Volunteer Brigades, FESA and the DPaW.	0	SoE, FESA, Volunteer Brigades, DPaW
E11	Establish a regular dieback monitoring program to monitor and manage areas susceptible to the spread of dieback for signs of infection and monitor sites known to be affected for signs of spread.	S	SoE, DPaW
E12	Follow the <i>Management of Pytophthora Dieback Guidelines for Local Government</i> by the Dieback Working Group (2009) in the event that dieback is detected.	0	SoE
E13	Encourage Shire field officers to maintain weed identification and management skills to conduct ongoing weed control.	0	SoE, EWAG

E14	Continue identification and eradication of weeds on coastal reserves (refer to the Esperance Environmental Weed Strategy 2009-2018 for further information).	O	SoE, EWAG
E15	Undertake an education program to encourage Esperance residents to properly dispose of their garden waste in provided bins or at the Wylie Bay tip site.	S	SoE
E16	Seek assistance from the Department of Agriculture WA for the eradication of feral rabbits, foxes and cats from coastal reserves.	O	SoE, DAFWA
E17	Encourage the eradication of rabbits, foxes and feral cats by private landholders.	O	SoE
E18	Inform drivers to avoid driving between the high water mark and low water mark to protect shorebird nesting and erect educational signage in beach area	O	SoE
E19	Undertake survey of Hooded Plover nesting sites and distribution in priority coastal reserves.	M-L	SoE, BA, EBOG
E20	Assist the Esperance Ports Sea and Land agency with regular on-going monitoring of the Esperance port area and associated infrastructure for the presence of exotic marine organisms.	S	AQIS, EPSL
E21	Encourage and support the implementation of the Recherche Archipelago Marine Conservation Reserve in consultation with the community and associated industry groups.	S	SoE, DPaW, RAG
ACCESS			
A1	Maintain coastal roads such as Daniels Road to Membinup Beach, Alexander Bay Road to Alexander Bay, Exchange Road to Kennedys Beach and Fisheries Road to Israelite Bay.	O	SoE
A2	Maintain formal pedestrian walkways throughout the Shire's coastal reserves and close informal tracks to discourage their use.	O	SoE
A3	Consider seasonal closures of some coastal access roads due to weather and subsequent road conditions and for dieback control.		
A4	Give due regard to SPP 2.6 which provides for public access to foreshore areas and apply these when considering future options for the development of dual use pathways and recreational trails within the Shire's coastal reserves.	O	SoE

A5	Investigate opportunities for more formal disabled access.	O	SoE
A6	Ensure disabled access is considered when designing and implementing the actions recommended in this plan and that the Shire's Disability Access and Inclusion Plan is referred to.	O	SoE
A7	Seek funding to implement the dual use path from Twilight Beach to Observatory Point and the walk trail at Dempster Head.	M-L	SoE
A8	Investigate and assign areas as suitable for off-road vehicles.	S	SoE
A9	Investigate the comparative use of the <i>Control of Vehicles (Off-Road Areas) Act 1978</i> and local laws as a means to control and manage vehicles in priority areas and apply for the <i>Control of Vehicles (Off-Road Areas) Act 1978</i> to apply to the Shire if considered beneficial.	S	SoE
A10	Adopt a local law for the management of Road Registered Vehicles and Off-Road Vehicles in Shire coastal reserves which outlines conditions under which these vehicles can operate in these reserves. This local law should also identify those coastal areas and reserves where vehicle access is not acceptable.	S	SoE, DPaW
A11	Support a driver education program for vehicle use on the Shire's beaches where access/use is appropriate (refer to the South Coast NRM code of conduct manual and any other user group codes i.e. Trail Bike Riders).	M	SoE
A12	Educate vehicle drivers on the <i>Control of Vehicles (Off-Road Areas) Act 1978</i> and the Shire's local laws and how they are applicable to the coastal areas of the Shire.	M	SoE
A13	Include off-road vehicle safety education in the Coastal Education Program.	S-M	SoE
A14	Retain the vehicle exclusion area from Twilight Beach to Bandy Creek and implement an exclusion area at Little Wharton Beach during 2 weeks of the January school holidays.	O	SoE
A15	Encourage cooperation with user groups and key stakeholders such as Roadwise and Road Safety Council regarding off-road vehicle use.	O	SoE
A16	Review boat launching facilities every two years to manage beach access, safety and potential conflict between beach users.	O	SoE

A17	Continue to monitor and regulate boat launching activities, especially during peak holiday periods.	O	SoE
A18	Implement signage directing people to the existing and future boat-launching ramps.	O	SoE
A19	List boat ramps on Esperance tourist maps.	S	SoE
A20	Seek funding and implement interpretive signage about the coastline along the dual use path from Dempster Head to Twilight Beach.	M	SoE
A21	Consider the implementation of a Visitor Risk Assessment to investigate the safety and risk management of all the Shire's coastal reserves which would form the basis of a Visitor Risk Management Strategy.	S	SoE
A22	Contract a geologist to identify coastal limestone hazards along the entire length of the Shire of Esperance coastline.	S	SoE
A23	Include visitor safety education in the Coastal Education Program.	O	SoE, DPaW
A24	Ensure that risk hazard information is included on the standard coastal signs car park and formal access track.	O-S	SoE, DPaW
A25	Ensure that the Coastal Education Program and resources (such as tourist brochures and maps with warnings about coastal hazards) are available and accessible to the public.	S	SoE, DPaW
A26	Develop a brochure specifically about coastal hazards and how to keep safe.	S	SoE, DPaW
A27	Make brochures available at popular tourist locations, shops, information centres, accommodation and businesses (such as tackle supply shops and fishing supply shops).	O	SoE, DPaW
A28	Support Surf Lifesaving and Rec Fishing WA to conduct a state wide campaign warning the public about the hazards associated with rock fishing, climbing rocks and sightseeing from rocks.	O	SoE, Surf Lifesaving, Rec Fishing WA
A29	Monitor equestrian use within the Shire's coastal reserves and the condition of horse riding trails and appropriately manage for future use and demand.	O	SoE

A30	The development of horse riding trails should aim to meet the needs and activities of horse riders/trailers and group meets, whilst minimising environmental and social impacts.	O	SoE
LAND USE AND FACILITIES			
F1	Continue to enforce a no camping rule within all the Shire's coastal reserves unless it is carried out within designated camping and caravan areas with assistance of Shire rangers.	O	SoE
F2	Information on campsites, roads and tracks across the Shire be made available to the public, and include ways in which campers can minimise coastal degradation and maintain campsites for future users. General information should be provided on a flyer and a website and phone app can be regularly updated with road closures and camp availabilities.	O	SoE
F3	Enact the <i>State Squatter Policy (1989)</i> if deemed necessary.	O	SoE
F4	Amalgamate professional fishermen's camping lease Reserve 38086 at Israelite Bay with the surrounding Reserve 3805 and Reserve 36979 at Nares Island with the surrounding reserve.	M	SoE
F5	Ensure coastal sites are adequately serviced with rubbish bins, amenities, seating, shelters etc. according to the level of use and priority.	O	SoE
F6	Maintain the amenities at all coastal locations (public amenities, picnic areas, seating, shelters, etc.), and complement or improve where necessary.	O	SoE
F7	Adopt a consistent design style for all furniture established within their coastal reserves.	O	SoE
F8	Provide facilities for tourism operators such as toilets, barbecues and shade shelters in exchange for annual licensing fees.	S	SoE
F9	Replace low capacity or functioning toilets where required with alternative systems which cope with capacity and maintain fans to ensure they are operational at all times.	M-L	SoE
F10	A long term plan be drawn up to provide for RV use in some camping grounds (such as Alexander Bay and Thomas River) and provide dump points for black water disposal.	M	SoE

F11	Provide, or continue to provide, rubbish receptacles and a regular collection service at Munglinup Beach, Quagi Beach, Little Wharton Beach, Wharton Beach, Nares Island Beach, Duke of Orleans Bay, Table Island Beach, Alexander Bay and Thomas River and dispose in registered landfill site.	O	SoE
F12	Encourage people to take their rubbish with them by not providing bins at Membinup Beach and Kennedys Beach, and erect signage to reflect this at Membinup Beach.	O	SoE
F13	Undertake occasional rubbish clean-ups at all coastal reserves.	O	SoE, DPaW
F14	Continue to enforce the boat launching and vehicle prohibited areas to help reduce land use conflicts. Implement a clear zoning of recreational activities to ensure safety and minimise risk for users.	O	SoE
F15	Monitor the Shire's designated Dog Exercise Areas for signs of land use conflict.	O	SoE
F16	Develop guidelines for land-based aquaculture development.	M	SoE
F17	Ensure impacts of aquaculture developments on environmental and recreational values are minimised when assessing aquaculture proposals.	O	SoE
F18	Community consultation be undertaken when aquaculture development sites are identified that may impact on the communities recreational and environmental values and access to the coast.	O	SoE
F19	Liaise with mining companies to ensure the environmental impacts of the mining process will be minimised and a best practice rehabilitation plan is in place prior to mining commencing.	O	SoE
F20	Implement a public education program to reduce contamination to stormwater in the catchments where the drains flow to the ocean.	O	SoE
F21	Investigate engineering and funding options for sump retention of stormwater on land, in those catchments where there is direct ocean disposal.	M	SoE
F22	Make resources available to the public on the appropriate use of coastal reserves.	S	SoE
F23	Consider a strategy for the compatible use of reserves.	S	SoE

HERITAGE			
H1	Continue to liaise with local Indigenous representatives to ensure a culturally sensitive approach to recreational activities and the provision of visitor amenities in coastal reserves.	O	SoE, Indigenous groups
H2	Encourage involvement of indigenous persons in coastal management.	O	SoE, Indigenous groups
H3	Consider the implementation of interpretative signage which describes the Indigenous heritage of the area (if requested by local traditional landowners).	O	SoE, Indigenous groups
H4	Consult with Indigenous representatives during any future biodiversity surveys to develop a better understanding of the Noongar traditional values and uses of biodiversity of coastal reserves.	O	SoE, Indigenous groups
H5	Encourage and provide support to the Department of Indigenous Affairs to conduct a cultural landscape study across the Shire's coastal reserves.	O	SoE
H6	Continue to manage and recognise European historic places.	O	SoE
H7	Establish interpretative signage at historically significant sites.	O	SoE
COMMUNITY INVOLVEMENT			
C11	Support programs that actively engage the local community in managing the Shire's coastal reserves e.g. school education programs, beach clean-up days.	O	SoE
C12	Provide opportunities for the community to be involved in rehabilitation, monitoring, flora and fauna surveys, facility and access management etc.	O	SoE
C13	Assist and encourage the community with forming "Friends of Coastal Reserves" groups.	O	SoE
C14	Investigate the possibility of forming community groups for Alexander Bay.	S	
C15	Undertake ongoing public education and engagement programs to encourage the conservation and care for coastal biodiversity and bird nesting sites e.g. Hooded Plover nesting sites.	O	SoE, BA, EBOG
C16	Include coastal safety in any coastal education and awareness program developed for the Shire of Esperance.	O	SoE
C17	Formulate and implement a Coastal Education Program to foster awareness and educate the general public and school children about coastal issues and the part they can play in minimising impacts on the coast.	M	SoE

CI8	Establish a Coastal Community Support Program to encourage community groups to run coastal awareness and education programs on issues that directly affect the Esperance coastline.	M	SoE
CI9	Facilitate the running of short courses on coastal management and related issues in association with the SCMG.	O	SoE
CI10	Encourage research organisations and community groups to obtain funding to investigate marine and terrestrial flora, fauna and coastal issues in the Esperance region.	O	SoE
CI11	Continue to survey number of visitors to reserves and to survey their experiences and expectations.	O	SoE, DPaW

A summary of the recommended actions for each coastal reserve is provided in Table 4.2 below. The below recommendations are also presented on the Action Plans for each coastal reserve.

Table 4.2 – Summary of Actions for Coastal Reserves

SUMMARY OF ACTIONS FOR COASTAL RESERVES				
Action	Description	Priority	Responsibility	Cost
MUNGLINUP BEACH				
MG1	Establish an Information Bay with general information on safety, location and interpretative information.	S	SoE	\$1,000
MG2	Upgrade old compost toilets.	M	SoE	\$7,000
MG3	Regularly inspect and maintain fans in the toilets to ensure they are working properly.	O	SoE N/A	
MG4	Move the two shelters and benches which are getting covered by the dunes onto the gravel area.	S	SoE	\$10,000
MG5	Ensure camping ground doesn't extend beyond the existing area.	O	SoE	N/A
MG6	Install bollards around the car park and camp bays.	S	SoE	\$5,000
MG7	Install bay allocation signs within the camp bays.	S	SoE	\$500
MG8	Identify a boat launching location at the Inlet (for recreational, non-powered crafts such as canoes and small boats).	M	SoE	N/A
MG9	Continue with weed control, particularly removal of Pyp Grass.	O	SoE, community	TBD

QUAGI BEACH				
QB1	Formalise pedestrian access and provide steps at the first car park area and further south along the beach.	S	SoE	\$35,000
QB2	Close duplicate pedestrian tracks and rehabilitate.	S	SoE	\$15,000
QB3	Restrict pedestrian access along duplicate paths on the beach side by brushing the dunes and placing low key signage saying 'dunes under repair'.	S	SoE	Included above
QB4	Install signage at first car park to advise cars to beware of pedestrians sharing the path.	S	SoE	\$500
QB5	Close vehicle access to the car parks south of the campsite to reduce erosion and informal camping.	M	SoE	N/A
QB6	Keep vehicle access open further south of the campsite along the headland.	O	SoE	N/A
QB7	Install entry signage.	M	SoE	\$500
QB8	Place bollards around the perimeter of all camp bays.	M	SoE	\$6,000
QB9	Provide a gas BBQ.	M	SoE	TBD
QB10	Expand the capacity of the camping area by providing more camp bays.	S	SoE	N/A
QB11	Place a sign on the South Coast Highway turnoff to indicate when the camping area is full.	S	SoE	\$500
QB12	Install signs at the entrance to the campsite to indicate that the road is one way.	S	SoE	\$500
QB13	Keep a camp host on site during peak periods to help with management and to assist visitors.	M	SoE	N/A
QB14	Consider allowing a permanent caretaker to remain at the camp full time.	L	SoE	N/A
ELEVEN MILE BEACH				
EM1	Formalise the 4WD tracks to the beach and lookout spot.	S	SoE	N/A
EM2	Erect a sign on the road before the first track to advise that this is a lookout only and that there's no beach access.	S	SoE	\$500

EM3	Erect a sign on the road before the second track to advise that beach access is available on either side.	S	SoE	\$500
EM4	Erect standard beach signage in the car park where it will not affect views.	S	SoE	\$500
EM5	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
EM6	Monitor vehicle use on the eastern side of the car park for possible conflict with other beach users.	O	SoE	N/A
EM7	Close vehicle access to the east of the car park if conflict with other beach users becomes an issue	L	SoE	TBD
TEN MILE BEACH				
TM1	Expand car park if necessary.	M	SoE	\$1,500
TM2	Upgrade pedestrian access to timber steps.	S	SoE	\$35,000
TM3	Erect standard beach signage in the car park (including warning of unstable cliffs) in a location which won't affect views.	S	SoE	\$500
TM4	Conduct a risk assessment of this location.	S	SoE	TBD
TM5	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
TM6	Revegetate area in front of existing lookout and prevent access to this area.	M	SoE	\$3,000
TM7	Close vehicle access from Twilight Beach Road east of the car park.	S	SoE	\$5,000
NINE MILE BEACH				
NM1	Erect standard beach signage in the car park (including warning of unstable cliffs) in a location which won't affect views.	S	SoE	\$500
NM2	Conduct a risk assessment of this location.	S	SoE	TBD
NM3	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
NM4	Close and rehabilitate old pedestrian access to the beach.	M	SoE	\$3,000
OBSERVATORY BEACH				
OB1	Erect standard beach signage in the car park (in a location which won't affect views).	S	SoE	\$500

OB2	Erect signage on Twilight Beach Road facing west so that vehicles travelling east can see the signage.	S	SoE	\$500
OB3	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
OB4	Replace vandalised toilet block.	S	SoE	\$10,000
OB5	Monitor level of use for long term planning and upgrade facilities if required.	L	SoE	N/A
OBSERVATORY POINT				
OP1	Erect standard beach safety signage at the top of the steps leading to the east down the cliff to the beach.	S	SoE	\$500
OP2	Erect standard beach safety signage at the beach at the end of the steps (particularly regarding the dangers of rock fishing and ocean swells).	S	SoE	\$500
OP3	Erect a shelter and interpretative signage in the car park.	M	SoE	\$2,000
OP4	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
TWILIGHT BEACH AND PICNIC COVE				
PT1	Install a timber boardwalk along the front of the Twilight Beach car park.	M	SoE	\$21,500
PT2	Install a timber boardwalk between the Twilight Beach and Picnic Cove (behind the headland).	M	SoE	\$36,000
PT3	Install a disabled access ramp at Twilight Beach.	S	SoE	\$36,500
PT4	Replace pedestrian access on the southern side of the Twilight Beach car park.	M	SoE	\$10,700
PT5	Repair or relocate the timber steps leading to the beach at Picnic Cove/Dolphin Cove.	S	SoE	\$7,000
PT6	Close and rehabilitate informal tracks over the dunes.	S	SoE, community groups	\$4,000
PT7	Install viewing platforms.	M	SoE	\$20,000
PT8	Install interpretative signage.	M	SoE	\$600
PT9	Rehabilitate near toilets and shelters.	S-M	SoE, community groups	\$18,000
PT10	Maintain and upgrade facilities when necessary.	O	SoE	N/A
PT11	Erect safety signage about the risks associated with the limestone cliffs and the dangers of rock fishing.	S	SoE	\$500

PT12	Install a dedicated, well-defined walk trail over the headland and markers for the high water mark.	S	SoE	\$2,000
PT13	Manage the dune blowout on the Twilight Beach headland.	M	SoE, community groups	\$10,000
PT14	Seek Management Order of Reserve 24486.	S	SoE, Landgate	N/A
FOURTH BEACH				
FB1	Install standard coastal signage at car park 1, including information on vehicle restrictions and dog exercise.	S	SoE	\$500
FB2	Install locational signage on Twilight Beach Road near car park 1.	S	SoE	\$500
FB3	Install timber steps at car park 2 and remove buried bollards.	S	SoE	\$18,000
FB4	Keep the second access path at car park 2 closed and continue to brush and rehabilitate.	O	SoE	\$5,000
FB5	Erect standard coastal signage at car park 2 (without interrupting views).	S	SoE	\$500
FB6	Replace bollards at car park 2.	M	SoE	\$5,000
FB7	Install timber steps at the eastern access path at car park 3.	M	SoE	\$18,000
FB8	Close and rehabilitate the central access path at car park 4.	S	SoE	\$3,000
FB9	Install timber steps at car park 5 (eastern track).	M	SoE	\$26,000
FB10	Close and rehabilitate the western track at car park 5.	M	SoE	\$3,000
FB11	Place bollards around the lookout at car park 5.	M	SoE	\$5,000
SALMON BEACH AND BLUE HAVEN				
SB1	Expand the Salmon Beach eastern car park.	S	SoE	\$2,000
SB2	Establish toilets at Salmon Beach car park.	L	SoE	\$10,000 - \$20,000
SB3	Place bollards around the perimeter of the Blue Haven car park.	L	SoE	\$6,000
SB4	Conduct a risk assessment at the Blue Haven car park 3.	S	SoE	TBD

SB5	Either close the informal access track or formalise with timber steps at Blue Haven car park 3.	M	SoE	\$5,000 - \$13,000
SB6	Install a lookout at the intersection with the dual use path at Blue Haven car park 3.	M	SoE	\$10,000
CHAPMANS POINT				
CP1	Formalise the lookout, place bollards around the perimeter.	M	SoE	\$10,000
CP2	Close informal access tracks leading from the lookout and the main track.	M	SoE	\$5,000
CP3	Erect locational/directional signage on Twilight Beach Road.	S	SoE	\$500
CP4	Install slow down signs on the dual use path before it intersects with the access road.	S	SoE	\$500
WEST BEACH				
WB1	Monitor use of the informal access track extending from the dual use path to the west of the first West Beach car park and formalise if necessary.	L	SoE	N/A
WB2	Discourage the creation of informal tracks along the dual use path and close and rehabilitate as soon as tracks appear.	O	SoE	N/A
WB3	Close and rehabilitate informal tracks which have been created in the dunes to the east of the second West Beach car park.	M	SoE	\$20,000
WB4	Monitor the use of the informal access tracks and formalise if necessary.	M	SoE	N/A
WB5	Formalise access over the dunes with timber steps to reduce erosion.	L	SoE	\$35,000
DEMPSTER HEAD				
DH1	Refer to the Dempster Head Management Plan 2003 for recommendations and actions relating to Dempster Head and Lovers Cove.	O	SoE	N/A

ESPERANCE BAY				
EB1	Refer to the Esperance Bay Management Plan 2003 for recommendations and actions relating to the foreshore from Dempster Head to Bandy Creek.	O	SoE	N/A
EB2	Seek Management Order of the Unallocated Crown Land on the foreshore between Castletown Quays and Bandy Creek.	S	SoE, Landgate	N/A
WYLIE HEAD				
WH1	Close the second access track to the south of Wylie Head.	S	SoE	\$5,000
WH2	Create a car park and day use area on the closed track.	S	SoE	\$5,000
WH3	Expand the northern car park.	S	SoE	\$3,000
WH4	Conduct a risk assessment on the off road vehicle track which extends across the headland.	S	SoE	TBD
WH5	Conduct a risk assessment on the vehicle tracks south of Whyllie Bay Road.	S	SoE	TBD
WHARTON BEACH				
WT1	Erect signage at the vehicle access entrance to advise of shared use zone for licenced vehicles only, the speed limit and to be careful of other beach users.	S	SoE	\$500
WT2	Formalise the track from the second car park to the headland.	M	SoE	\$500
WT3	Widen the track from the car park to allow Shire maintenance vehicles to access the toilets (place a locked gate at the entrance).	S	SoE	\$5,000
WT4	Replace toilets with a compost or sealed vault system.	M	SoE	\$20,000
LITTLE WHARTON BEACH				
LW1	Expand the car park.	S	SoE	\$5,000
LW2	Provide formal pedestrian to the beach from the car park.	S	SoE	\$18,000
LW3	Restrict vehicles on the beach during the January school holiday swimming lessons period.	S	SoE	N/A
LW4	Erect sign regarding the restricted vehicle period along the beach.	S	SoE	\$500

LW5	Relocate the coastal sign to the top of the access track, closest to the car park.	S SoE	\$500		
MOUNT BELCHES					
MB1	Provide directional signage for the walk trail leading to Mt Belches from the Duke of Orleans Bay Caravan Park. Wharton Beach Road and Nares Island Track.	M	SoE	\$500 - \$1,000	
NARES ISLAND BEACH					
NI1	Keep this location as a low-key use site.	O	SoE	N/A	
NI2	Monitor use over time and note any increase in use.	O	SoE	N/A	
NI3	Block vehicle tracks which divert off the main road.	S	SoE	\$2,000	
NI4	Increase the size of the parking area to accommodate a few more vehicles.	M	SoE	\$2,000	
NI5	Install safety risk signage about rock fishing and ocean swells at the car park and at the rocks to the east of the car park.	S	SoE	\$500	
NI6	Amalgamate the fisherman lease Reserve 36979 with the surrounding reserve.	M	SoE, Landgate	N/A	
DUKE OF ORLEANS BAY					
DO1	Maintain the existing toilets, shelter, information signage and car park.	O	SoE	N/A	
DO2	Replace and upgrade facilities is required.	O	SoE TBD		
DO3	Monitor the use of vehicles on the beach and create a vehicle exclusion area if the use of vehicles opposite the caravan park is an issue.	O	SoE, Duke of Orleans bay Caravan Park	N/A	
TABLE ISLAND BEACH					
T11	Formalise access track to the Dailey River from the car park.	M	SoE	\$2,000	
T12	Formalise the lookout at the Dailey River.	M	SoE	\$5,000	
T13	Close and rehabilitate the informal track leading from the lookout to the river.	M	SoE	\$2,000	
MEMBINUP BEACH					
MB1	Continue to monitor both camping areas for signs of increased use and management issues.	O	SoE	N/A	

MB2	Formalise camping areas if use increases or encroachment becomes an issue. Define camp bays with bollards and clearly define access tracks.	L	SoE	TBD
MB3	Rationalise 4WD tracks by closing duplicate tracks.	L	SoE	\$5,000 - \$10,000
ALEXANDER BAY				
AB1	Expand the formal camping area to accommodate more campers during peak periods.	S	SoE	\$10,000
AB2	Restrict camping in the Melaleucas to the east of the formal camp site and turn into a day-use area with picnic tables, shelters and a BBQ.	S/O	SoE	\$5,000 - \$10,000
AB3	Install signage to discourage camping in the Melaleucas.	S	SoE	\$500
AB4	Remove the fisherman's shack.	S	SoE	\$2,000
AB5	Place boulders on dunes to discourage access and camping in the dunes.	S	SoE	\$5,000
AB6	Install a sealed vault toilet which uses bacteria granules (E-zyme) to process waste and with working fans for odour control.	S	SoE	\$10,000
AB7	Install dump points for black water disposal.	M	SoE	\$5,000
AB8	Install signs in the camping and day use area to advise visitors of the fire emergency procedures.	S	SoE	\$500
AB9	Consider installing a camp kitchen.	L	SoE	\$70,000
AB10	Place a sign on the Alexander Bay Road turnoff to indicate when the camping area is full.	O	SoE	\$500
AB11	Keep a camp host on site during peak periods to help with management and to assist visitors.	O	SoE	TBD
AB12	Consider allowing a permanent caretaker to remain at the camp full time.	L	SoE	N/A
KENNEDY'S BEACH				
KB1	Continue to monitor camping area for signs of increased use and management issues.	O	SoE	N/A
KB2	Formalise camping area if use increases or encroachment becomes an issue. Define camp bays with bollards and clearly define access tracks.	L	SoE	TBD

KB3	Rationalise 4WD tracks by closing duplicate tracks.	L	SoE	\$5,000
KB4	Upgrade shelter and remove water tank.	M	SoE	\$5,000
THOMAS RIVER				
TR1	Consider handing over Management Order of the reserve with the DPaW.	M-L	SoE, DPaW	N/A
TR2	Widen the track leading to the beach to provide a separate section for pedestrian access.	S SoE	\$10,000	
TR3	Consider installing a kitchen shelter similar to the one in the DPaW camp site with a picnic table, benches, sink and a BBQ.	M-L	SoE	\$70,000
TR4	Replace rotaloo toilets with a sealed vault toilet which uses bacteria granules (E-zyme) to process waste and with working fans for odour control.	M	SoE	\$10,000
TR5	Install signage at the vehicle track leading to the beach to warn drivers to look out for pedestrians.	S	SoE	\$500
TR6	Install signage at the beginning of the pedestrian access track to warn pedestrians to look out for vehicles.	S	SoE	\$500
TR7	Install signage about the dangers of rock fishing and ocean swells.	S	SoE	\$500
ISRAELITE BAY				
IB1	Consider handing over the Management Order of Reserve 3805 with the DPaW.	M-L	SoE, DPaW	N/A
IB2	Rationalise tracks and close duplicate tracks with boulders.	M	SoE, NTA	\$5,000
IB3	Investigate options for the operation of tours to Israelite Bay.	M-L	SoE, NTA, Tour operators	N/A
IB4	Erect directional signage, interpretative signage, coastal risk signage and information signage.	S-M	SoE, NTA	\$1,000
IB5	Define the existing camp site if encroachment and vegetation destruction becomes an issue.	S	SoE	TBD
IB6	Define an informal camp site at the beach.	S	SoE	\$1,000
IB7	Amalgamate the fisherman lease Reserve 38086 with the surrounding reserve.	S	SoE, Landgate	N/A

PART B. BACKGROUND

5. COASTAL MANAGEMENT POLICY FRAMEWORK



coastal management policy framework

5.1 WAPC DEVELOPMENT CONTROL POLICY (DC) 6.1 – COUNTRY COASTAL PLANNING POLICY

DC Policy 6.1 was prepared in 1989 and is currently under review by the WAPC. The objectives of the policy are to:

- *Encourage orderly and balanced development on and adjacent to the coast consistent with the protection of coastal resources*
- *Protect, conserve and enhance, as appropriate, coastal resources*
- *Permit public access to the coast consistent with the protection of coastal resources.*

The policy requires that a number of different issues are considered when planning along the coast and incorporated into coastal management plans and explains the principles which should be applied when considering the above issues. These include principles such as:

- Achieve a balance between the protection of environmental quality and provision for the social and economic needs of the community
- Permanent structures should be located on stable landforms
- Disturbance to vegetation should be minimised and regeneration of appropriate stabilising cover
- Natural regeneration and the use of indigenous species should be encouraged
- Beaches which provide nesting for marine reptiles, mammals and sea birds should be protected
- Off-road-vehicles should, where possible, be kept from degrading vegetation in coastal dunes
- Views of the coast should be either protected or enhanced.

The objectives and guidelines in this policy were considered in the preparation of the CMP.

5.2 STATEMENT OF PLANNING POLICY 2.6 – STATE COASTAL PLANNING POLICY

The updated State Planning Policy (SPP 2.6) was gazetted in July 2013.

The Policy sets out objectives, policy measures, coastal plan requirements and a set of revised guidelines for coastal development setbacks. The objectives of the draft policy (2012) are to:

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

The document sets out policy measures relating to development along the state's coast, including coastal setbacks to respond to climate change and sea level rise. SPP 2.6 also outlines the information which should be included in coastal plans and was referred to in the preparation of this management plan.

A review of sea level rise was also undertaken by the Department of Transport during the revision of SPP 2.6. A background report was prepared entitled *Sea Level Change in Western Australia: Application to Coastal Planning* (Department of Transport, 2010).

Based on this review, the DoP has adopted a vertical sea level rise value of 0.9m to allow for the impact of coastal processes over a 100 year planning timeframe (2010 to 2110). SPP 2.6 should be applied to determine the appropriate coastal setback for new development to account for the impact of coastal processes. The required total setback will vary according to the circumstances of any particular proposal, therefore each case should be considered individually to comply with SPP 2.6.

5.3 SHIRE OF ESPERANCE TOWN PLANNING SCHEME NO.23

The Shire of Esperance Town Planning Scheme No. 23 was gazetted in February 2010 and identifies the zones and reserves for land throughout the Shire.

A majority of the Shire-managed coastal reserves are reserved as *Parks, Recreation and Conservation – Local*. A few sites such as Quagi Beach, Thomas River and Israelite Bay, are reserved as *National Park or Nature Reserve*.

5.4 COASTAL PLANNING AND MANAGEMENT MANUAL 2003

The Coastal Planning and Management Manual was prepared by the WAPC in 2003 to *provide a practical guide to coastal planning and management* in WA. It provides information on a broad range of issues which should be considered when managing the coastline such as the following:

- Common coastal management problems
- Techniques for dune stabilisation
- Rehabilitation of coastal landscapes
- Revegetation methods
- Weed management.

A number of principles are described in the manual, the aim of which is to advise readers about an appropriate framework for managing the coast. These principles address the following:

- Sustainable management
- Identifying the limits of acceptable change
- Maintenance of ecosystem integrity
- Consultation
- Respect for and protection of Indigenous rights, interests, culture and heritage

- Identification of management objectives
- Staged management approaches
- Minimal intervention
- Site-specific management approaches.

5.5 ESPERANCE COASTAL MANAGEMENT PLAN 2002

The Esperance Coastal Management Plan was prepared in 2002 by Catherine Field. It provides management recommendations for Shire-managed coastal reserves for a period of 10 years.

An audit of the actions from the 2002 Coastal Management Plan was conducted as part of this review. It looked at which actions have been undertaken and which of the outstanding actions should be included in the revised plan or excluded.

5.6 SOUTHERN SHORES 2009 – 2030

Southern Shores 2009 - 2030 was prepared as a review of Southern Shores 2001- 2020 (which is conducted on a bi-annual to five yearly basis). The purpose of the review was to recognise achievements in coastal management over the preceding 8 years and to identify management recommendations to assist with protection of the coast in the future. The aim of the report is to help guide the maintenance of the coastal environment, natural assets and lifestyle values and to promote development that is carried out in a sustainable manner.

The report acknowledges the previous work and management plans which have been prepared for the Shire's coastal reserves. It contains management actions that relate to the entire southern coast between the Shire of Denmark and the Shire of Esperance. There are no actions which specifically relate to the Shire's coastal reserves. Nevertheless, many of the broad actions were adapted and integrated into this plan to ensure consistency with Southern Shores 2009-2030.

5.7 COASTAL MANAGEMENT SPECIFICATION MANUAL 2010

The Coastal Management Specification Manual was prepared in 2005 by Green Skills for the South Coast Management Group and revised in 2010. It provides a guide for the construction of coastal infrastructure, including specifications and drawings for the design of features such as seating and tables, BBQs, signage, car parking areas, campsites, timber boardwalks and steps, viewing platforms, birdhides, low water use toilets and fish cleaning stations.

The Specification manual should be referred to when designing and constructing infrastructure at the Shire's coastal reserves.

5.8 ALEXANDER BAY MANAGEMENT PLAN

The Alexander Bay Management Plan was prepared in 2004 to provide site specific actions to carry out the recommendations from the Esperance Coastal Management Plan. The actions are as follows:

- Implement Council resolution within the allocated budget of

\$20,000 by upgrading the access road, improving drainage, filling erosion channels, designating camping sites, upgrading ablution block

- Increase Shire visitation to 3 visits per week during designated school holiday periods and 2 visits per week during October to May
- Place a prominent sign on the toilet block behind the honour box for camp fees
- Clearly define the beach access track and sign post tracks to the camping area and close unnecessary tracks
- Apply to Landgate to gazette Alexander Bay Road
- Design an appropriate sign for public information at the entrance to the camping area
- Clearly delineate campsites with bollards
- Cover campsite floors with scalps
- Plant more shelter trees
- Fill in wheel ruts and potholes and grade road regularly.

5.9 ISRAELITE BAY MANAGEMENT PLAN

The Israelite Bay Management Plan was prepared in 2009 and provides detailed information on the history of the reserves, the current uses and issues. A number of management actions are recommended to address these issues. They include the following:

- Consult with aboriginal communities and representatives of the Ngadju Native Claim Group to determine the extent of the spiritual importance and significance of the reserves and possibly carry out an Aboriginal Heritage Survey
- Prepare an Access Rationalisation Plan to reduce the number of access roads and ancillary tracks
- Prepare a Camping Ground and Facility Management Plan – include rationalisation of beach access tracks, define camping areas and provide for facilities such as water
- Create a primary camping ground on Reserve 38086 (the fisherman's campsite) and provide a permanent water supply, storage tanks and a multipurpose structure
- Create 2 camping grounds on Reserve 3805 as secondary camping grounds
- Prepare an Information Signage Plan – include provision for historical signage, navigation and directional signage
- Establish a leave for Reserve 38086 for the purpose as a Fisherman's Campsite
- Prepare a refuse remediation Plan to close the refuse site
- Identify and develop a permanent water supply.

5.10 MUNGLINUP BEACH CAMPSITE MANAGEMENT PLAN

The Management Plan for Munglinup Beach was prepared in 2004 to provide specific recommendations to manage use and to protect the environmental integrity of the reserve. The plan identifies future management pressures from increased use associated with

increased population from the Ravensthorpe Nickel Mine. The recommendations made in the plan relate to carparking areas, roads, trails, camping facilities, boat launching, vegetation, firewood, weeds, quarrying, fire, risk management and Indigenous heritage. Recommendations include;

- Identify tracks and close informal and duplicate tracks
- Provide two wheel drive access to scenic lookout at the Inlet
- Implement a regular road and track maintenance program
- Delineate car parking areas at campsite
- Formalise a car parking area near the mouth of the Oldfield inlet
- Formalise the beach access pedestrian track with fencing, gravel and rehabilitation
- Whale Beach foot trail to headland to be defined
- Delineate 15 camping bays with bollards at Munglinup Beach, 2 camping bays at the Inlet and 1 camping bay at Whale Beach
- Establish camping bay identification at each bay
- Replace the concrete toilet with composting toilet
- Replace the water taps with threaded taps with hose attachments and pole supports
- Replace rusted roofs of 3 shelters with trim deck
- Paint picnic tables
- Demolish and replace showers
- Construct campsite places in designated campsites
- Erect an Information Bay enroute to campsite
- Erect signage at Munglinup Beach
- No rubbish to be disposed of on site – all to be collected and transported to rubbish tip
- Erect boating safety signage at beach and Inlet
- Identify a boat launching location at the inlet
- Identify areas of vegetation for conservation
- Brush and revegetate degraded areas
- Erect signs prohibiting the collection of firewood
- Install a gas BBQ
- Control Pyp grass and other weeds
- No new quarries to be established without a management plan
- Decommissioned quarries to be rehabilitated
- Implement the Esperance Coastal Reserves Fire Management Plan
- Develop a risk management Plan
- Give due consideration to indigenous heritage.

5.11 ASSESSMENT OF QUAGI BEACH PICNIC AND CAMPING AREA

This assessment was carried out in 2002 to determine whether any deleterious environmental impacts were occurring as a result of visitor usage and provides site specific recommendations to mitigate these impacts.

The assessment concluded that the most obvious impact is dune erosion from multiple walking tracks to the beach and the use of off-road vehicles driving through dunes. There is also evidence of camping and firewood collection in the vegetation on top of the dunes. Creation of campfires in the dunes is also an issue.

The recommendations in the plan include:

- Closing duplicate pedestrian beach access tracks
- Creating formal access to the beach with wooden stairs
- Revegetation of eroded tracks
- Fencing off vegetation on the tops of the dunes to discourage camping
- Closing 4WD tracks
- Creating three or four new campsites
- Banning fires completely and provide gas BBQs
- Discontinuing the rubbish collection service and remove rubbish bags to encourage visitors to take their waste with them.

5.12 DEMPSTER HEAD MANAGEMENT PLAN

The Dempster Head management Plan was prepared in 2003 and is a comprehensive document which provides baseline environmental information, a detailed discussion of the issues and recommendations to address these. The vision for this area is as follows:

A well-managed environmentally friendly area for the community and visitors to enjoy, with world class walk trails/board walks incorporating preservation and interpretation of the environment. The headland should be protected and promoted as one of Esperance's most significant assets.

Public consultation undertaken during preparation of the management had the following outcomes:

Major issues:

- Environment
- Rubbish
- Walk trails
- Pedestrian access

Most popular activities:

- Bushwalking
- Sightseeing
- Exercising
- Social activities

Suggested facilities:

- Rubbish bins
- Walk trails
- Interpretive signage
- Seating
- Directional signage
- Toilets.

Management actions relate to issues such as weeds, plant diseases, feral

animals, walk trails, vehicle access, lookouts, carparks, erosion, fire, facilities, signage, anti-social activities, recreational pursuits, exercising animals, heritage, future development and reserve management.

5.13 COASTAL RESERVES PUBLIC TOILET STRATEGY

The Public Toilet Strategy was prepared in 2011 to provide guidelines for maintenance, replacement and installation of toilets on Shire coastal reserves. It reported that the Rota Loo toilets were not operating effectively and that these toilets needed to be removed and replaced. It also recommended that the provision of toilets at Israelite Bay and Membinup Beach might need to be considered. The overall recommendations from the report were that council should consider replacement of public toilet facilities to match the facilities on DPaW managed land, to increase the frequency of maintenance and introduce a fee collection strategy to support the improved facilities. It also provides costs for establishment and replacement of toilets and maintenance costs.

The report also includes an evaluation of 4 different toilet systems; hybrid, clivismulstrum composting toilet, rota loo and septic. It recommends that all rota loo toilets should eventually be replaced with hybrid systems and suggests that septic toilets could be installed at Quagi Beach and Munglinup Beach.

All toilets on Shire coastal reserves were rated as being in fair to poor condition and the report recommends actions for all toilets. These recommendations are as follows:

- Quagi Beach – demolish dry septic and replace rota loo with hybrid
- Alexander Beach – demolish dry septic and replace rota loo with hybrid
- Observatory Beach – demolish dry septic
- Table Island – demolish long drop
- Thomas River – demolish dry and flushing septic and replace rota loo with hybrid
- Munglinup – demolish dry septic, renovate compost and replace rota loo with hybrid
- Wharton – replace rota loo with hybrid and relocate to car park
- Lake Monjingup reserves – renovate low use toilets
- Little Wharton – replace rota loo with hybrid
- Duke of Orleans Boat ramp - demolish flushing septic and replace with hybrid
- Kennedys Beach - replace rota loo with hybrid
- Israelite Bay – establish hybrid
- Membinup Beach – establish hybrid.

5.14 DISABILITY ACCESS AND INCLUSION PLAN 2010-2012

The Disability Access and Inclusion Plan contains a summary of the outcomes of a review of the Shire's facilities and services and contains a list of issues and strategies to address these.

The main issues in relation to the management of the Shire's coastal areas relate to parking, access and seating. The plan makes the following recommendations for the Shire's coastal reserves;

- Install seating at Twilight Beach
- Install seating at Salmon Beach
- Install seating on boardwalk at West Beach-John Street
- Install seating on boardwalk at West Beach-Albany Street
- Install seating on walkway between Rotary lookout and West Beach
- Improve toilets at Twilight Beach (no lights or skylight, not able to access shower facilities or urinal).

5.15 SHIRE OF ESPERANCE ENVIRONMENTAL WEEDS STRATEGY 2009-2018

The Esperance Environmental Weeds Strategy 2009-2018 focuses on identification of priority environmental weeds, priority areas for eradication and outlining procedures for weed control.

There are seven declared weeds in the Shire and three are definitely known to occur on Shire land. These include Cotton Bush, Paterson's curse and Stemless Thistle.

The Strategy outlines the best practise principles of weed control such as prevention, limiting the spread, revegetation, recording and monitoring. The various methods of weed control are discussed to provide a variety of options for removal and management of weeds.

The following Priority Environmental Weeds were identified in the Strategy:

- Spiny Rush
- Geraldton Carnation Weed
- Pyp Grass
- Victorian Tea Tree
- African Boxthorn
- Watsonia Species
- African Lovegrass
- Cumbungi
- Caltrop
- Acacia pycnantha.

The priority reserves for weed control are also listed. Of relevance to the Coastal Management Plan are the following priority areas:

- Munglinup Beach Reserve
- West Beach to Twilight Beach.

The main weed within Munglinup Beach reserve is identified as Pyp Grass which is believed to have been planted in the 1970's to assist with dune stabilisation. Some weed control has already taken place at this location. The area between West Beach and Twilight Beach is identified as having a high weed burden with the main weeds being Pyp Grass, Pelagoniam, Marram Grass, Dune Onion Weed, Sea Spurge, Geraldton Carnation Weed, Victorian Tea Tree and African Boxthorn.

5.16 ESPERANCE TRAILS MASTER PLAN 2007 – 2017

The Trails Master Plan is an important tool in the future planning of trail development in the Shire. It assist with the grant application process and ensures that comprehensive planning of trails takes place so that there are linkages between sites and priority areas are identified. The Trails Master Plan considers vehicular access, disabled access, pathways, facilities (such as rubbish, fencing, toilets, viewing areas, benches, picnic tables, signs, parking, water and artwork), risk management, user conflict and vandalism.

Existing dual use paths were identified in the Master Plan and audited. It makes the following comments:

- The Rotary Lookout walk trail is in good condition, but needs some maintenance in some areas.
- The dual use path from Dempster Head to Salmon Beach is in good condition. Improvements could include interpretative signage.
- The dual use path from Salmon Beach to twilight Beach stops along Fourth Beach. The Master Plan recommends that the path could be extended.

The Master Plan makes the following recommendations:

- A series of trails at Duke of Orleans Bay, particularly for use of quad bikes. A separate trails master plan is recommended.
- The dual use path is extended to Twilight Beach
- A dual use path from Twilight Beach to Observatory Beach
- A dual use path from Observatory Point to Eleven Mile Beach.

5.17 SHIRE OF ESPERANCE STRATEGIC ACTION PLAN 2007 – 2017

The Shire's Strategic Action Plan 2007-2017 sets out guiding principles and actions to assist on decision making for the implementation of various projects. Priority actions were identified in the plan, as well as projects for implementation of moderate priority, although none relate to coastal areas covered under this CMP.

The Strategic Action Plan sets out that the Shire should *undertake an active role in Coastal Management to address issues that impact upon environmental and recreational values* and identifies the principles and actions relating to coastal areas. Through implementation of the recommendations of the CMP, the Shire will be carrying out the actions identified in the Strategic Action Plan.

5.18 SHIRE OF ESPERANCE STRATEGIC COMMUNITY PLAN 2012-2022

The Shire's Strategic Community Plan provides the primary strategic direction for the Council which is put into practice by the Shire as an organisation. The views, values and aspirations of the community members, Councillors and businesses are at the heart of the Plan. In terms of the CMP, the Strategic Community Plan indicates the relative priority of the Shire's coastal areas to the community, which in turn will influence how these areas are managed and valued and how much will be invested into them.

The goals and strategies which have most relevance to the CMP are identified below. Of most relevance are the goals and strategies for the environment identified on page 23.

- Goals:
 - A healthy community engaging in positive and rewarding lifestyles with access to a broad range of recreational opportunities
 - Valuing our pristine environment and ensuring the natural resources within the Shire are recognised as an important asset and managed in a sustainable manner
 - Recognising the environmental and recreational value of coastal reserves, and managing them in a way that will preserve them for future generations to enjoy
 - Community infrastructure and services delivered in a timely manner, are well utilised, effective and meet the expectations of our growing community.
- Strategies:
 - Create a social environment that is accessible and inclusive for all ages and abilities
 - Protect, restore and enhance the Shire's natural assets
 - Educate the community on ways to use our environment responsibly and build environmental awareness
 - Provide equitable access for all users to our environment while balancing the protection of natural assets
 - Effectively use our land and development policies to optimise environmental outcomes and minimise environmental risks and impacts
 - Deliver a diverse range of affordable services and infrastructure across the Shire
 - Ensure essential services and infrastructure are aligned to community needs now and in the future
 - Maintain the Shire's robust asset management practices and maintenance programs.

The goals and strategies of the plan indicate that environmental management and protection is a priority to the Shire's community. The recommendations in this CMP are in accordance with the goals and strategies if the Strategic Community Plan.

5.19 SHIRE OF ESPERANCE CORPORATE BUSINESS PLAN 2013/2014 – 2016/2017

The Shire of Esperance Corporate Business Plan is a plan to guide the Shire to achieve the strategies identified in the Strategic Community Plan. It sets out the strategic priorities that will drive the operation of the Shire over the short to medium term. In relation to the CMP, the Corporate Business Plan will influence how and when the recommended actions can be carried out and what the priority is.

Some additional positions at the Shire are projected including environmental officers and rangers who can assist with implementation of this CMP.

It identifies a number of actions to help achieve the goals of the Strategic Community Plan and the timeframe and budget over the next 5 years. Actions which align with the CMP include:

- Action 2.2.2 Actively engage the community in the development and delivery of protection, restoration and enhancement projects
- Action 2.3.1 Review and update Trails Master Plan and coordinate implementation schedule
- Action 2.3.3 Review and update Coastal Management Plan and coordinate implementation schedule
- Action 2.6.1 Review and update the Environmental Weed Strategy
- Action 3.1.6 Maintain coastal infrastructure.

5.20 SHIRE OF ESPERANCE PLAN FOR THE FUTURE 2010/2011 – 2012/2013

The Plan for the Future report aims to establish a series of targets for the Shire's major projects in line with the Strategic Plan. It provides a guide as to the expected major projects that are proposed to be commenced or continued for the next two financial years. One of the projects listed in the Esperance foreshore protection and enhancement project. However, the projects identified in the plan do not relate to the coastal areas included in the CMP. Future revisions of the Plan for the Future document could include projects relating to the Shire's coastal areas.

5.21 SHIRE OF ESPERANCE COASTAL INFRASTRUCTURE ASSET MANAGEMENT PLAN

The Shire's Coastal Infrastructure Asset Management Plan was prepared in 2012 with the aim of identifying the assets currently in place, their condition, value, levels of service and life cycle costs. It identifies the actions required to provide an agreed level of service in the most cost effective manner. Assets covered by the plan include surfaces, general assets and facilities, marine facilities, camping facilities and tourist facilities.

The Plan indicates that the areas of highest demand for assets are coastal steps, campgrounds and recreational facilities and all assets in general (such as management, tenure, camp hosts, fee collection etc.).

The recommendations in the CMP should be used to help update the Coastal Infrastructure Asset Management Plan and guide investment over the next 10 years.

5.22 SHIRE OF ESPERANCE INFRASTRUCTURE ASSET MANAGEMENT PLAN 2013

The Shire's Infrastructure Asset Management Plan provides information to help the Council improve the way it delivers various services and facilities. The recommendations in this CMP should be worked into the Asset Management Plan to ensure that these actions are considered in future financial planning and management of assets.

5.23 SHIRE OF ESPERANCE LONG TERM FINANCIAL PLAN 2013/2014 – 2023/2024

The Shire's Long Term Financial Plan is a modelling tool to project the Shire's financial commitments over the next ten years as a means of helping to ensure financial sustainability. It analyses financial trends over a ten year period and provides information to assist with decision making. This will help guide where money is to be invested, and particularly relates to how much will be invested at the Shire's coastal sites.

Information from the Long Term Financial Plan can help guide how actions from the CMP are prioritised over the next 10 years.

5.24 ESPERANCE TOWNSITE FORESHORE REDEVELOPMENT PLAN

The Esperance Townsite Foreshore Redevelopment Plan was prepared in 2005 for the Esperance Bay area from the port to Castletown Quays. Key features and recommendations of the plan include;

- A new small boat harbour and waterfront that will be the focal point of the tourism node
- The revitalisation of retail opportunities in the CBD especially the Museum Precinct at James and Dempster Streets and at Andrew Street, with the potential for links to the new waterfront and the diverse activities available.
- A new water park and lagoon next to the Taylor Street Jetty to provide protected swimming, boating and recreation for residents and tourists alike
- Development of the cultural node at the Cannery Arts Centre and a link to the Tanker Jetty to create opportunities for the location of the Kepa Kurl Discovery Centre
- A new road behind the Cannery Arts Centre to cater for through traffic and promote the link between the centre and the Tanker Jetty
- Relocation of the tank farm to allow for the new road
- Rehabilitation of the CSBP and Water Authority land for parkland and recreation
- A future tourist resort adjacent to the gateway to the town at the junction of Norseman and Goldfields Roads.

The Coastal Management Plan does not review this area in detail as it is subject to the Redevelopment Plan.

5.25 DIEBACK INTERPRETATION REPORT

The Dieback Interpretation Report was prepared by the DEC in 2009 for Cape Arid national Park, Alexander Reserve, Kennedy Reserve and Daniels Road Reserve. The survey assessed a total of 557km of roads.

The results of the survey indicated the following:

- An infestation exists at Daniels Road
- A lime pit adjacent to Daniels Road showed signs of infestation
- Two infested areas were identified within Alexander Reserve – one is 0.5ha in area and the other 27ha in size
- A lime pit adjacent to Alexander Road showed signs of infestation

- Two infested areas were identified within Kennedy Reserve – both of which are associated with tracks heading towards the beach from Exchange Road
- Seven new infestations were identified within Cape Arid National Park in addition to the 4 known infestations.

The report recommends the following:

- Monitor Alexander Road for signs of infestation
- Use material from the lime pit to upgrade the track which runs from Alexander Road to Alexander River
- Close the section of the track which runs off Alexander Road in a south-west direction
- Close the track which extends from Alexander to Daniels Road Reserve at the point where it crosses Munglinup Creek
- Erect dieback signage at the infestation at the north western firebreak
- Upgrade the boggy sections of Exchange Road
- Close the eastern loop and erect dieback signage
- Monitor Kennedys track for signs of infestation
- Consider realigning the track around the infested area.

5.26 AUSTRALIAN COASTAL PUBLIC SAFETY GUIDELINES

The Australian Coastal Public Safety Guidelines were prepared in 2007 by Surf Lifesaving Australia. The purpose of the guidelines is to provide world-bets practical advice to land managers with a responsibility for public safety on the Australian coast.

It provides guidelines and advice on the following topics:

- Integrated coastal zone management
- Dune and cliff safety
- Safety for coastal activities
- Watercraft safety management
- Coastal safety signage
- Beach safety flags
- Safe beach operations
- Traffic management on beaches
- Aquatic event management
- Surfing and surf school safety
- Beach cleaning and litter control
- Stormwater drainage
- Water quality
- Lifesaving and lifeguards
- Lifesaving equipment and facilities
- Emergency management
- Dangerous marine life
- Occupational health and safety
- Storage and handling of dangerous goods
- Coastal tourism safety.

5.27 ESPERANCE AND RECHERCHE PARKS AND RESERVES DRAFT MANAGEMENT PLAN 2012

The Esperance and Recherche Parks and Reserves Management Plan covers the conservation reserves managed by the DPaW in the Esperance District from Lake Shaster Nature Reserve to the west to Wylie Scarp in Nuytsland Nature Reserve to the east.

It is important that the recommendations of this Coastal Management Plan are consistent with the actions from this Management Plan, particularly where Shire reserves are located adjacent to DPaW reserves. Actions of particular relevance to the management of the Shire's coastal reserves includes:

- Driving on beaches will be permitted from Wylie Bay to Cape Le Grand Beach, in Cape Arid National Park from Thomas River to Barrier Anchorage and in Nuytsland Nature Reserve from Israelite Bay to Point Culver
- Vehicles not registered under the *Road Traffic Act 1974* are not permitted to be used in DPaW reserves (i.e. no unlicensed off-road vehicles such as 4WD motorbikes, trail bikes and dune buggies)
- No hang-gliding, paragliding, sand boarding and abseiling within DPaW reserves
- Campfires are only permitted in fire rings provided by the DPaW
- Educate visitors about the appropriate management of waste
- Dogs are prohibited in DPaW reserves except for the area between Wharton Beach in Cape Le Grand National park where domestic dogs on leads are allowed
- Horseriding is not permitted in DPaW reserves.

The above are proposals only at this stage and dogs are currently not permitted on the area between Wharton Beach and Cape Le Grand National Park.

6. CONSULTATION



consultation

6.1 PAST CONSULTATION

Extensive community consultation was undertaken during the preparation of the CMP 2002 and on advice from the Shire it was agreed that issues and values raised at that time are still relevant. This included a face-to-face survey, an internet survey and a mail back survey. The survey asked questions relating to the frequency of beach visits, recreational activities undertaken, which coastal sites they visited, items taken to the beach and disability access. Meetings were also held with interested community groups.

Other public consultation has been undertaken by Sinclair Knight Merz in 2000 (to determine the appropriate location for a boat ramp) and by the South Coast Management Group in 2001 (during the preparation of the Regional Coastal Management Plan).

OUTCOMES

The outcomes of the coastal survey during the preparation of the CMP in 2002 are as follows:

Beach Visits

Coastal beach locations have a range in the number and type of people who visit them. This information is summarised below:

High	Medium	Low
Twilight Cove	Munglinup Beach	Quagi Beach
West Beach	Quallilup Beach to 13 Mile Beach	Lovers Cove
Dempster Head to Tanker Jetty	11 Mile Beach	Little Wharton
Tanker Jetty to Bandy Creek	10 Mile Lagoon or Free Beach	Nares Island Beach
Bandy Creek to Wylie Bay	Observatory and 9 Mile Beaches	Table Island Beach
Esperance Bay Islands (especially Woody Island)	Fourth Beach	Membinup Beach
	Chapmans Point	Kennedys Beach
	Salmon Beach	Israelite Bay
	Blue Haven	Islands off Cape Le Grand
	Wharton Beach	Islands off Duke of Orleans
	Duke of Orleans Bay	Islands off Alexander Bay
	Alexander Bay	
	Thomas River Beach	

The high use beaches tend to be used on a daily basis as they are close to the Esperance township and the number of people visiting these beaches is higher. Some of the medium or low use beaches can be high use beaches during peak holidays ie Christmas, New Year, Easter, long weekends. For the remainder of the year these beaches have relatively few people at them.

Recreational Activities

Ownership of equipment taken to the beach found that the most popular items were:

1. fishing rod (51%)
2. four-wheel-drive vehicle (49%)
3. boogie- or body-board (41%)
4. dog (35%).

The two most important factors that determined peoples use of a beach were recreational activities which could be undertaken there (59%) and the beach's location (54%). Other factors that attracted people to beaches included areas to take dogs (33%), isolation (31%), friends and family at the beach (31%) and ability to use a four-wheel-drive vehicle (31%). Facilities provided and access for two-wheel-drive vehicles were not considered an important consideration for the choice of beach.

Disabled Access

Results of the Coastal Survey showed that 7% of respondents considered themselves to have a disability. The main concerns raised by people with a disability were the need to provide alternative beach access. This was particularly the case for people who have problems walking down steep steps such as the elderly and parents with prams. This issue is further discussed under section 5.18 Disabled Access.

Coastal issues

Results of the Esperance Coastal Survey demonstrate that people thought the biggest issues and pressures facing the future of beaches and marine areas within the Shire of Esperance were:

1. rubbish dumping and littering (62%)
2. motorbikes or 4WD's on dunes/beaches (55%)
3. beach erosion (53%)
4. marine pollution (38%).

Public Consultation by Other Organisations

South Coast Management Group public consultation found similar issues were a concern to the Esperance community as those identified through the Esperance Coastal Survey.

Some of the issues identified in the public consultation workshops were:

- informal camping
- beach access
- four-wheel-drive vehicles and motorcycles on beaches and dunes
- loss of vegetation
- weeds
- feral animals
- firewood collection from natural vegetation
- lack of management presence
- disposal of rubbish
- coastal erosion (particularly Esperance foreshore)
- vandalism of management infrastructure
- loss of visual amenity and environmental integrity of Esperance foreshore
- stormwater drainage and many others.

Sinclair Knight Merz found that the Duke of Orleans Bay or Nares Island Beach were the two preferred sites for a new boat ramp location. Other comments received involved an unresolved issue with the existing recreational boat ramp in the Esperance Bay.

6.2 WORKING GROUP CONSULTATION

A Working Group was created to oversee the development of the Coastal Management Plan. Members of the Working Group included:

- Rod Hilton – Director Community Services – Shire of Esperance
- Cr Paul Griffiths – Presiding Member
- Cr Roger Mansell – Deputy Presiding Member
- Cr Lara McIntyre – Councillor
- Heather Beswick – Senior Shire Ranger
- Paul Clifton – Manager Health & Environment – Shire of Esperance
- Trish Gardner – Environmental Officer – Shire of Esperance
- Melissa Ammon – Shire of Esperance
- Dylan Gleave – South Coast Natural Resource Management Group
- Robert Blok – District Manager – DPaW
- Ian Hughes – Esperance Parks & Visitors Coordinator – DPaW

A meeting was held with the Working Group at the commencement of the project on the 20th March 2013. The purpose of the meeting was to introduce the group to the project and to present to method and timeframes. The group was invited to share their thoughts, ideas and vision for the future management of the Shire's coastal reserves. The main outcomes of the meeting are listed below:

- Priority sites include all of the coastal sites located away from the townsite
- Main issues include camping on the beach, people removing vegetation (for camping space and firewood), toilets, tenure, remote location of some of the reserves makes it hard to access,
- Possibility of giving up Thomas River and Israelite Bay reserves to the DPaW
- The plan should consider the interaction between shire reserves and DPaW reserves
- The facilities and management on DPaW reserves should be observed and considered
- Use of vehicles on beach – possibly have zones on beaches for different/conflicting uses
- Need to take into consideration changing camping trends (such as higher use of RV's)
- Fire risk and management.

7. ENVIRONMENTAL CHARACTERISTICS



environmental characteristics

7.1 INTRODUCTION

Coastal environments are highly dynamic and valuable ecosystems. They have significant economic value in terms of residential, tourism and recreational land uses. From a social perspective, coastal areas act as a meeting place for families and friends and are places in which a range of recreational activities can take place. It is important that the environmental value of coastal areas is not neglected in order to cater for social and economic values as these are inextricably linked with the environmental.

7.2 CLIMATE AND CLIMATE CHANGE

Esperance has a Mediterranean climate with mild to hot, dry summers and cool wet winters. The average annual rainfall is 616mm with over 50% of the rainfall falling between May and August. The average minimum and maximum temperatures throughout the year range from 20.9°C to 22.7°C. The average winter temperatures range from 8.2 to 17.9°C from June to August. Average summer temperatures between December and February range from 14.4 to 26.2°C (Bureau of Meteorology, 2013).

The dominant wind direction in summer is from the southeast and afternoon sea breezes occur from October to March. During winter, southwest winds prevail and northwest storm events occur (FWA, 2000). On average, Esperance experiences 68 days a year of strong winds (between 22 and 33knots) and 3 days a year of gale force winds (greater than 33 knots). The months of March, April and May tend to be the calmer periods of the year (Bureau of Meteorology, 2013).

The south coast of WA is sensitive to climate change variability and. Annual rainfall in the south-west has declined by approximately 10% since the 1970's. Declines have been noted as occurring in autumn and early winter. There has been little change in late winter and spring rainfall, however a slight increase during summer. The frequency of extreme rainfall events is not expected to change. Projections for rainfall suggest that a further reduction in autumn, spring and winter rainfall is likely for much of southern Australia (DEC, 2008).

Climate change projections also indicate that an increase in the mean sea level is also likely. The frequency of extreme events will continue to be highly modulated by inter-annual cycles of tides, mean sea level and storminess. Possible rises in sea level could have an impact on low-lying coastal areas and well established beaches. SPP 2.6 adopts greenhouse predictions based on the Third Assessment Report (2001) of the Intergovernmental Panel on Climate Change. A background report was prepared entitled *Sea Level Change in Western Australia: Application to Coastal Planning* (Department of Transport, 2010). Based on this review, the DoP has adopted a vertical sea level rise value of 0.9m to allow for the impact of coastal processes over a 100 year planning timeframe (2010 to 2110).

The consequences and rates of climate change are still being debated within the scientific community. Issues relating to climate change will need to be continually monitored and appropriate measures taken to protect near-coastal and estuarine infrastructure as new information becomes available. This should involve continuous review and adaption of management in response to new knowledge and understanding of climate change and its effect on coastal areas.

7.3 COASTAL PROCESSES

The Esperance coast is buffeted by strong, relatively consistent swells from the southwest for most of the year. They are generated by the Roaring Forties winds blowing across the Southern Ocean. The open ocean shores are exposed to strong wave action most of the time except where estuaries, inlets, islands and coves provide shelter eg. Esperance Bay (CALM, 1994). Their swells can be reinforced by wind-generated waves, producing a net eastward littoral drift along the south coast.

The ruggedness of the Esperance coastline generally makes the area more resilient to the impacts of human activities compared to the north and west coasts of WA.

Waves constantly change the shape of the coastline as part of a natural cycle of beach erosion and accretion (short-term changes). The winter months are associated with a large number of storms and high wave energy which results in increased shoreline erosion. During the months of summer and autumn, the wave energy decreases resulting in the movement of sand back onto the beach and the foredunes. In general, the onshore-offshore movement of sediment does not represent a significant loss from the beach system.

The process of cross-shore transport during storm events is part of the continuous adjustment that occurs in response to variation of the coastal climate. The nature of this adjustment can be altered by human intervention, where effort is made to provide an immobile section of coast. An example is the groyne at Esperance Bay.

CURRENTS

The Leeuwin Current dominates the south west corner of Western Australia and the Esperance coastline. The saline, warm current flows southward along the continental shelf from Exmouth around Cape Leeuwin and eastwards to Cape Pasley (Pearce and Caputi, 2000). The current moves offshore as the coast indents to form the Great Australian Bight. The current is of great importance particularly for the growth of fish stocks and other marine organisms that are closely linked to its variations in strength, temperature and position.

Rip currents are hazardous to beach use and development. The action of waves breaking against a beach pushes water up against the shore. This results in a return flow of water from the surf zone to the adjacent waters further offshore. Under conditions of relatively low wave energy, this return flow is likely to be diffused relatively uniformly along the coast. In the presence of moderate to high wave conditions however, this return flow is likely to be concentrated in rip currents.

Rip currents are most prevalent and severe during winter storms, however they also form during summer months particularly when the background swells and the sea breezes are quite strong. As far as hazards to beach users are concerned, the formation of rips during summer is of greatest concern as this is when exposure is greatest.

TIDES, SEA TEMPERATURES AND BATHYMETRY

The tides in the Esperance region occur twice daily and are considered microtidal, with the maximum spring tidal range of 1.1 metres. Large

components of the tidal currents are generated by wind, although some local currents may be experienced between islands of the Recherche Archipelago (FWA, 2000).

Sea temperatures in the Recherche Archipelago range from 14°C in winter to 21°C in summer (FWA, 2000). The depth of the sea floor within the Recherche Archipelago averages about 40m with most being within the 50 metre bathymetric contour. The outer islands rise from depths of 70 metres or more.

7.4 GEOLOGY AND SOILS

The Esperance region is underlain by either basement rocks of the Albany-Fraser Orogen or the Yilgarn Craton (Johnson and Baddock, 1998). The basement rocks are mostly comprised of granites and gneisses. The divide between the basement rocks of the Proterozoic Albany-Fraser Orogen and the Archaean Yilgarn Craton follows a line that runs approximately northeast of the Dalyup River with the Albany-Fraser Orogen to the east and the Yilgarn Craton to the west.

Projections of basement rocks are seen today as coastal headlands, islands and hills eg. Recherche Archipelago islands and Mt Merivale. Over 40 million years ago sea levels peaked at 275m above the present day level. During this period the climate became drier and the sea level receded filling the depressions between the hills and islands with sediment. This sediment now forms the flat plains of sandstone, siltstone, lignite and spongolite we see behind the present coastline.

About 12,000 years ago the Ice Age had a major impact on sea levels along the coast. The change in sea levels eroded coastal sediments and cut back the shoreline to its present day position. In addition, limestone dune systems forced along the coastline were blown inland by prevailing winds. Carbonate leaching and laterisation have taken place to form the present topography and soil profiles.

7.5 WATER RESOURCES

Groundwater within the Esperance region consists of a thin layer of low salinity groundwater overlying saline water. The majority of fresh to marginal groundwater is limited to coastal areas (WRC, 1997).

Estuaries include partially enclosed coastal basins into which rivers flow, that are at one time or another open to the ocean. Estuaries do not include coastal lakes that are never open to the ocean. Esperance estuaries are mostly semi-permanently closed estuaries where the bars remain closed for several years at a time and only open when there is above-average river flow or flood flows (CALM, 1994).

A number of estuaries are located west of Esperance. These include Oldfield Inlet (sometimes called Munglinup Inlet), Torradup Inlet, Stokes Inlet and Barker Inlet.

Esperance has mostly minor river systems compared to those found in other parts of WA. The major rivers within the Esperance region include Oldfield River, Lort River and Young River. Other more minor systems include Munglinup River, Coobidge Creek, Dalyup River, West Dalyup River, Caitup Creek, Coramup Creek, Bandy Creek, Neridup Creek, Mungliginup Creek, Alexander River, Blackboy Creek, Thomas River, Jorndee Creek and Poison Creek.

West of Esperance, suites of wetlands are impounded behind coastal dune systems. The Lake Warden System directly north of the Esperance township and the Lake Gore System directly south of the Dalyup township are both RAMSAR listed wetlands of international importance. Other coastal wetland systems include Lake Quallilup, Lake Monjingup, Lake Mortijinup, Coobidge Swamp and Lake Bannitup.

7.6 VEGETATION AND FLORA

The Shire of Esperance lies within the Eyre Botanical District of the South-West Botanical Province. It covers two vegetation systems – the Esperance and Fanny Cove systems (Beard, 1975). The Recherche System applies to the Recherche Archipelago islands and is very different to that of the mainland but has not been comprehensively studied.

ESPERANCE SYSTEM

This is one of the largest vegetation systems within the Shire of Esperance and corresponds to the sandplain farming soils of the region. The vegetation system extends west from the Phillips River within the Ravensthorpe Shire, virtually to Israelite Bay. In the western sector, the valleys of seasonally intermittent rivers flow across the plain to the sea.

Stands of Swamp Yates (*Eucalyptus occidentalis*) occur in swampy, clay depressions or with Saltwater Paperbark (*Melaleuca cuticularis*) if the bottom of the depression is sandy. The plain is broken by numerous granite domes mostly bare of vegetation that rise 100m or more.

The surface of the plain consists of sand of variable depth, overlying clay. West of Condingup, the intersection of these different soils is marked by a band of ironstone nodules. Variations in the depth of sand and in the ironstone layer produce a mosaic of vegetation types. These include: scrub-heath with Showy Banksia (*Banksia speciosa*) and Chittick (*Lambertia inermis*) dominant on deep sands; shallower sands (<90cm depth) support mallee-heath in which *Eucalyptus* replaces the proteaceous dominants; on laterite the typical species is Tallerack (*Eucalyptus tetragona*) and without laterite *Eucalyptus incrassata*. In areas with more than 600mm rainfall per year and frequently waterlogged soils, heath with scattered Christmas Tree (*Nuytsia floribunda*) is found.

FANNY COVE SYSTEM

The Fanny Cove Vegetation System occupies a narrow coastal strip between the sea and the older land surface of the Esperance System. The coastal sand dunes of the Fanny Cove System were formed during the Quaternary period. Most of the dunes are vegetated with occasional patches of loose drift sand. The dunes frequently impound small shallow lakes, swamps or closed estuaries eg Lake Warden, Oldfield Inlet, Pink Lake. In the east, a decayed former sea-cliff is apparent. It rises to become 30m high at Esperance. Between Mt Merivale and Cape Arid there is no longer any plain and the Tertiary land surface has been overridden by the Quaternary dune systems extending up to 20kms inland.

The seaward slopes are held together by low shrubs and grasses, which are tolerant to salt spray eg Hairy Spinifex (*Atriplex hirsutus*) and Thick-leaved Fan Flower (*Scaevola crassifolia*). The more sheltered leeward

slopes are dominated by Rottneest Tea Tree (*Melaleuca lanceolata*) with Ridge-fruited Mallee (*Eucalyptus angulosa*) and Summer Scented Wattle (*Acacia rostellifera*) closer to the dune swales. Old, consolidated dunes have developed a mallee-heath association with Tallerack (*Eucalyptus tetragona*) and Bell-fruited Mallee (*Eucalyptus preissiana*).

Inland of the dunes scrub heath of Showy Banksias (*Banksia speciosa*) dominate the deep sands. Coastal Moort (*Eucalyptus utilis*) also form patches of low woodland in depressions, while swamps are colonised by *Melaleuca* scrub.

THREATENED AND PRIORITY FLORA AND COMMUNITIES

There are 254 known species of threatened and priority flora for the Esperance district. It is likely that some threatened and priority flora species are located within the Shire's coastal reserves. The Threatened Ecological Community Proteaceae Dominated Kwongan Shrublands of the southeast coastal floristic province of Western Australia is found along the southern coastline from Albany to east of Cape Arid National Park and is likely to be found on the Shire's coastal reserves. The Shire should work in association with the DPaW to identify, manage and protect threatened species and communities.

MARINE FLORA

The marine flora of the Esperance waters is poorly known but fascinates divers and researchers alike (CALM, 1994).

Seagrass Beds

Large seagrass meadows occur in bays and off limestone reefs along the Esperance coast where they are protected from the disturbance of direct ocean swell and storm waves. The genus *Posidonia* dominates as the main meadow forming seagrass.

Seagrasses are important in the marine ecosystem as they provide protection for many juvenile fish, rock lobsters, prawns and other commercially valuable species (Chape and Sansom, 1983). They are also a major source of food for most invertebrates, some of which are eaten by carnivores higher up the food chain (CALM, 1994).

Seagrass is relatively resilient to some natural and human impacts such as storms or ship anchoring but can be completely destroyed by dredging, landfilling and other coastal engineering projects. Nutrient enrichment, sewage discharge, thermal pollution, sedimentation, oils and chemicals are also known to reduce seagrass communities. Recent WA studies have shown that seagrass communities do not readily recover from damage caused by pollution (CALM, 1994).

Algae and Seaweed-kelp beds

The seaweed that is washed up on our beaches is the remains of different types of algae. Seaweed-kelp beds are a dense group of algae that attach themselves to the sea floor between the reefs and the shore. Rock slopes in the Recherche Archipelago 0 to 20m below the water tend to be dominated by macrophytic algae.

Seaweed-kelp beds are important as a home for a large number of marine animals. Essential nutrients are also released during decomposition, which is important in sustaining marine life (CALM, 1994).

The dominant algae along the south coast region is *Ecklonia radiata*, which often forms dense beds just below the water level. Other common brown algae includes *Cystociera*, *Scytothallia*, *Cystophora* and *Hormosira banksii*. The green algae consists of various species of *Caulerpa* (CALM, 1994).

WEEDS

The presence of weeds and introduced flora in natural ecosystems is a significant environmental issue in Australia. Weeds are present in the coastal reserves largely as a result of their use in past rehabilitation and dune stabilisation (e.g. Marram Grass and Pyp Grass), from private gardens and from general vegetation disturbance which increases the likelihood of weed colonisation.

The Esperance Environmental Weeds Strategy 2009-2018 (Shire of Esperance, 2009) should be referred to for information on priority weed and how they should be controlled and managed. The following Priority Environmental Weeds were identified in the Strategy:

- Spiny Rush
- Geraldton Carnation Weed
- Pyp Grass (*Ehrharta villosa*)
- Victorian Tea Tree (*Leptospermum laevigatum*)
- African Boxthorn (*Lycium ferocissimum*)
- Watsonia Species
- African Lovegrass
- Cumbungi
- Caltrop (*Tribulus terrestris*)
- Acacia pycnantha.

Other coastal weeds include:

- Marram Grass (*Ammophila arenaria*)
- Sea Spurge (*Euphorbia paralias*)
- Rose Pelargonium (*Pelargonium capitatum*)
- Bridal Creeper (*Asparagus asparagoides*)
- Dune Daisy (*Arctotheca populifolia*)
- Fleabane (*Conyza bonariensis*)
- Brassicas – raddish, turnip, mustard.

The Strategy also identifies Munglinup Beach and West Beach to Twilight Beach as priority reserves for weed control. Munglinup Beach is known to be infested with Pyp Grass. Some weed control has already taken place at this location. The area between West Beach and Twilight Beach includes Pyp Grass, Pelargonium, Marram Grass, Dune Onion Weed, Sea Spurge, Geraldton Carnation Weed, Victorian Tea Tree and African Boxthorn.

The Esperance Weeds Action Group (EWAG) is active in the identification and eradication of weeds in the Esperance region.

7.7 FAUNA AND HABITAT

Fauna of the Esperance mainland and Recherche Archipelago islands is unique but not well studied.

MAINLAND FAUNA

No known surveys have been undertaken on coastal reserves managed by the Shire of Esperance, with the exception of the Monjinup Reserve. Surveys undertaken in other coastal areas, however, show a wide diversity of fauna on the Esperance coast. A biological survey has previously been undertaken of Cape Le Grand National Park by Chapman, A. *et. al.*, in 1975. The DPaW also contains records of fauna species in the Esperance area and should be referred to for up-to-date information.

Birds

Previous studies of birds in the Stokes, Cape Le Grand and Cape Arid National Parks found over 125 different land- and sea-based birds. Some of the common seabirds include Silver Gull (*Larus novaehollandiae*), Pacific Gull (*Larus pacificus*), Little Pied Cormorant (*Phalacrocorax melanoleucos*) Caspian Tern (*Hydroprogne caspia*), Pied Oystercatcher (*Haematopus ostralegus*), Sooty Oystercatcher (*Haematopus fuliginosus*) and Common Sandpiper (*Tringa hypoleucos*).

Threatened fauna

The threatened mammal, the Chuditch (*Dasyurus geoffroii*) or Western Quoll, used to exist in the Cape Arid National Park. The Chuditch has been captured and reintroduced at Thomas River in Cape Arid National Park in March 1998.

There are historical records and unconfirmed sightings of Ground Parrots (*Pezoporus wallicus faviventris*), also a threatened species, at Alexander Bay, Cape Le Grand National Park and Lake Shaster Nature Reserve. Many occur on any of the low coastal or near coastal heaths.

Hooded Plovers (*Thinomis rubricollis*) are a protected bird species that have made Esperance their location of choice. The Esperance region has recorded the highest numbers of Hooded Plovers in the world (at Lake Gore). The Esperance region is used mainly as a feeding ground but sometimes for breeding by the Hooded Plover. They have been seen nesting at Fourth Beach and Pink Lake.

Feral animals

Goats are known to exist on several islands of the Recherche Archipelago, including Cull Island, and wild horses are known to exist in vacant Crown land north of Cape Le Grand National Park. While this is DPaW land, there is potential for these animals to move into Shire land.

Other feral animals known to exist in the area includes rabbits, cats and foxes.

ROCKY SHORE FAUNA

The marine fauna of the Esperance region is unique in many ways. The rocky shores of the Esperance coastline are where some of the more conspicuous marine fauna lives. The smooth granite and gneiss rock slopes of the region, where the waves wash against the rocks, are populated with large numbers of gastropods, molluscs and barnacles.

Sponges, sea anemones, sea squirts, sea stars, sea urchins, starfish and other marine fauna dominate the vertical rock walls 20m or more below the waterline. They provide a colourful display although there has

been little study of this rock wall fauna.

FISH, CRUSTACEANS AND SHELLFISH

A wide variety of fish and crustacean species inhabit the marine areas. These include the commercially important Australian Salmon, Southern Bluefin Tuna, Queen Snapper, Pilchard, Gummy Shark, Bronze Whaler or Dusky Shark, Whiskery Shark, Southern Rock Lobster, Western Rock Lobster, Saucer Scallop, Greenlip Abalone, Brownlip Abalone and Roe's Abalone.

Recreational finfish in the area include Australian Herring, King George Whiting, Pink Snapper, Nannygai, Breaksea Cod, Harlequin Cod, Skippy, Samson Fish, Squid and others.

MARINE MAMMALS

Mammals of the marine waters around Esperance include the Common Dolphin (*Delphinus delphis*), Australian Sealion (*Neophoca cinerea*) and New Zealand Fur Seal (*Arctocephalus forsteri*). The sealions and fur seals use the Recherche Archipelago islands as resting and breeding sites. The breeding colonies are the largest in WA for both species. Both species are protected under the WA Wildlife Conservation Act and breeding colonies for these species are the largest in WA (CALM, 1994).

The Southern Right (*Eubalaena australis*) and Humpback Whales (*Megaptera novaeangliae*) pass through the waters of the southern ocean on their way to feeding and/or breeding grounds on the West Coast and North West Shelf. Previously, the Southern Right Whale was nearly hunted to extinction but has made a come back since whaling was banned in the 1970's. The Humpback and Southern Right whales are both threatened species under the WA Wildlife Conservation Act (CALM, 1994).

7.8 OFFSHORE ISLANDS

A diverse group of 105 islands comprises the Recherche Archipelago off the Esperance coast. The islands represent the highest points of the Albany-Frazer Orogen basement rock now flooded by the ocean. Most of the islands are exposed to high or moderate wave action from all directions and there are few safe anchorages or landings.

The approximate boundaries of the Recherche Archipelago extend 65kms west, 65kms south and 200kms east of Esperance. The DPaW manages the islands as an A Class Nature Reserve (22796) with Woody Island having its own reserve.

8. CULTURAL AND SOCIAL CHARACTERISTICS



cultural and social characteristics

8.1 LAND STATUS AND ZONING

A majority of the Shire-managed coastal reserves are reserved as *Parks, Recreation and Conservation – Local* in the Shire of Esperance Town Planning Scheme No. 23. A few sites such as Quagi Beach, Thomas River and Israelite Bay, are reserved as *National Park or Nature Reserve*.

8.2 LAND MANAGEMENT AND TENURE

This Coastal Management Plan applies to coastal reserves managed by the Shire. The coastal reserves are identified in the table below.

Reserve #	Location	Management Order	Purpose	Cost
32337	Munglinup Beach	Shire of Esperance	Recreation	N/A
40943	Quagi Beach	Shire of Esperance	Camping and recreation	\$5,000
24486	Esperance beaches	Unallocated	Flora protection	N/A
4180	Fourth Beach	Shire of Esperance	Common	\$1,000
15042	Fourth Beach	West Australian Rifle Association Inc.	Rifle Range	TBD
25891	Salmon Beach and Blue Haven	Shire of Esperance	Recreation	\$1,000
31540	Chapmans Point	Shire of Esperance	Public recreation	N/A
41141	West Beach and Dempster Head	Shire of Esperance	Park and recreation	
41097	Wharton's Beach, Duke of Orleans Bay and Table Island Beach	Shire of Esperance	Parklands and recreation	
	Membinup Beach	Shire of Esperance		
39409	Alexander Bay	Shire of Esperance	Recreation and camping	
40772	Kennedy's Beach	Shire of Esperance	Recreation and camping	
518	Thomas River	Shire of Esperance	Recreation and camping	
3805	Israelite Bay	Shire of Esperance	Recreation	

The tenure of each coastal location is shown on the tenure plans and on the action plans.

A majority of the adjoining land is reserves with the DPaW for recreational and conservation purposes.

8.3 EXISTING LAND USES

The Esperance coast is a focal point for a wide range of recreational activities that relate directly to the use of the ocean and surrounding coastline.

Issues associated with recreational activities include informal camping, retention of undersized fish or shellfish, littering at popular beach locations, fire management, conflict with other beach users, visitor safety, facilities for recreational users, habitat degradation by boats, pedestrians, four-wheel-drives, dune buggies and motorbikes, spread of terrestrial and marine pest species and lack of ownership of coastal issues.

VISITOR NUMBERS

The Esperance and Recherche Parks and Reserves Management Plan 2012 states that 159,157 people visited Cape Le Grand National Park in 2010-2011. Stokes National Park had 15,451 visitors and Cape Arid National park had 16,319 visitors during the same year.

A survey of visitor numbers to the campsites at Quagi Beach and Alexander Bay was conducted by the Shire rangers over the busy summer holiday period in 2012/2013.

The total number of visitors to Alexander bay from mid-December to early April was 815 people. The busiest month was January with 538 people followed by December with 152 people. The bulk of visitation was found to be from 24th December to 6th January.

The busiest periods for visitation at Quagi Beach were the months of January and February.

WATER SPORTS

Swimming occurs at all accessible beaches within the Shire of Esperance. Esperance Bay, Twilight Beach, West Beach, Wharton Beach and Bandy Creek to Wylie Head are some of the more populated swimming beaches during peak summer. Vacation swimming classes are carried out during December and January at Little Wharton Beach, Esperance Bay (James St Jetty) and Munglinup Beach.

Surfing is a popular sport that occurs at West Beach, Chapmans Point, Fourth Beach and Observatory Beach. To a lesser extent, surfing occurs at other outlying beaches such as between 13 Mile and Quallilup, Munglinup Beach, Wharton Beach, Little Wharton Beach and Alexander Bay. Body-boarding or boogie-boarding is generally carried out at the surfing beaches mentioned above as well as the more popular swimming beaches. About 39% of people who answered the Esperance Coastal Survey said they took a body-board to the beach.

Skurfing is where a person sits on a body-board or inflatable object and is towed along the top of the water behind a motorbike, vehicle or boat. This activity occurs at Esperance Bay and beaches with four-wheel-drive access to long sandy beaches.

Sandboarding involves a person sliding down a dune face on a flat board. Wylie Bay dunes are known to be used for this activity. Sandboarding, however, can exacerbate dune erosion, particularly if carried out on foredunes.

Windsurfing generally occurs at less sheltered beaches as the activity relies on strong winds. Beaches such as Observatory Beach, Fourth Beach and the Esperance Bay are popular.

The Recherche Archipelago is well used by scuba divers because of its clear waters and diversity of marine flora and fauna. The Sanko Harvest, which was wrecked in 1991, is a popular dive destination as

are Remark Island, Frederick Island, Woody Island, Cull Island, Long Island, Magistrates Rock, Lion Island and the artificial reef near the Esperance Tanker Jetty (FWA, 2000).

Snorkelling tends to be popular at Woody Island and around rocky, sheltered bays e.g. Twilight Cove rocks, Wylie Bay rocks.

Waterskiing and jetskiing are predominately undertaken within the Esperance Bay. The designated waterski areas are east of the Tanker Jetty to the end of Castletown Quays and on Woody Lake. A third waterski area previously existed near the Esperance Port but this has recently been closed. Nares Island Beach is also popular for waterskiing although not a gazetted area. Jetskis are allowed to operate within the waterski areas and the commercial jetski hire area east of the James Street Groyne.

Waterskiing and jetskiing are minor recreational activities in the region (6 out of 94 people in Esperance Coastal Survey owned waterskis or a jetski). These activities can cause conflict and noise pollution with swimmers, people boating and nearby residents. The Esperance Ski Club represents local waterskiers in the region. The Esperance Water Ski Club is establishing Lake Qualinup as a water ski area.

RECREATIONAL FISHING

Recreational fishing is an extremely popular activity within the Shire of Esperance. It includes both onshore and offshore fishing. Popular fishing destinations include the Tanker Jetty, and many remote locations mainly east of Esperance. Recreational fishers do not require a fishing licence except for abalone or rock lobster. There are bag, gear, fish and shellfish limits that all recreational fishers are required to comply with.

Fisheries Western Australia is the lead agency involved in education of both commercial and recreational fishers. The Esperance/Goldfields Regional Recreational Fishing Advisory Committee (ERRFAC) represents recreational fishers from Hopetoun to the South Australian border and as far north as Wiluna.

Two recreational fishing organisations exist within the Shire of Esperance – the Esperance Surfcasters Club (ESC) and the Esperance Deep Sea Angling Club (EDSAC). Both clubs have regular fishing competitions and encourage responsible and environmentally sustainable fishing practices in line with Fisheries WA recommendations for bag limits and fish size.

RECREATIONAL BOATING

Small dinghies to large yachts sail around the Esperance region. Boating in the open ocean around Esperance can be hazardous due to the strong swells and winds that buffer the coastline. The most frequented areas therefore include sheltered areas such as Esperance Bay and around the Recherche Archipelago islands. Results of the Esperance Coastal Survey found 13% of participants surveyed owned a boat or yacht.

ALL-TERRAIN ROAD REGISTERED VEHICLES

Driving four-wheel-drive vehicles, riding motorbikes and dune buggies is common on almost all beaches within the Shire of Esperance, with the exception of beaches between Twilight Cove and the west side of Bandy Creek Boat Harbour.

The Esperance Coastal Survey found that 49% of participants owned a four-wheel-drive vehicle. Four-wheel-drive ownership is presumably high in the region due to the dominant farming industry who use the vehicles and inaccessibility of some areas of the coastline.

The dunes at Wylie Bay and north of Eleven Mile Beach are popular with off-road motorcyclists and dune buggy owners. Results of the Esperance Coastal Survey show that 13% of participants aged between 13 and 35 owned a motorbike or dune buggy.

EXERCISING ANIMALS

Horses are permitted to ride along Esperance Bay in the area between Castletown Quays to Bandy Creek Boat Harbour from the hours of 4am to 7am. Horses are also ridden at Wylie Bay, between Bandy Creek and Wylie Bay headland, and at Munglinup Beach, although no designated areas are specifically set aside for this purpose.

The area from Eleven Mile Beach to Bandy Creek is popular for exercising dogs. Dogs are however generally prohibited between the Twilight Beach carpark and the first reef. People occasionally take their dogs to other beaches include Munglinup Beach, Quagi Beach, Wylie Bay, Duke of Orleans Bay, Membinup Beach, Alexander Beach and Thomas River.

CAMPING

Formal Shire of Esperance managed campgrounds exist at Munglinup, Quagi, Alexander and Thomas River. Informal undefined camping areas also exist at Membinup, Kennedys Beach and Israelite Bay.

The formal campgrounds have honour boxes that request a voluntary donation for camping at the site. No honour boxes exist at Membinup, Kennedys Beach or Israelite Bay.

Public holidays such as Christmas, New Years Day, Australia Day, Easter holidays and long weekends are peak camping times.

Walking and Cycling

Walking and cycling are common recreational activities within the Esperance town. The Blue Haven Dual Use Path between Dempster Head and Salmon Beach is well used, as is the path along The Esplanade in the Esperance Bay.

8.4 HERITAGE

ABORIGINAL HERITAGE

Aborigines have occupied the south coast area for at least 50,000 years. Prior to European settlement, there were four groups of Aboriginal people known to frequent the coastal regions of Esperance – the Njunja, Wudjari, Njadjunmaia and Mirninj peoples (GEDC, 2000).

The Njuda consisted of six families based around Esperance. The Njunda lands were bounded by the Wudjari in the east (Ravensthorpe area), Kalaako to the north (Grass Patch north to the Goldfields), Njadjunmaia (Israelite Bay and desert tribes) and Mirning (desert tribes and Great Australian Bight) to the west (SCRIPT, 1997). The primary food source was fish due to the shortage of land-based food. Within

50 years of European settlement, there were virtually no full-blood Aborigines within the south coast area (SCRIPT, 1997).

All Aboriginal sites are protected under the Aboriginal Heritage Act 1972 regardless of whether the site is known or not by the Aboriginal Affairs Department. There are approximately 208 known Aboriginal sites in the Esperance coastal region, south of the South Coast Highway and Fisheries Road (AAD, unpublished). All Aboriginal sites can be broadly categorized as ethnographic and/or archaeological sites.

Sites are known to exist at beaches along Twilight Beach Road, Bandy Creek, Duke of Orleans Bay Regional Park, Alexander Bay, Membinup Beach, Quagi Beach, Thomas River and Israelite Bay.

An ethnographic and archaeological survey by the Western Australian Museum, on land between Cape Le Grand and Cape Arid National Parks, found 36 archeological sites relating to Aboriginal occupation of the area. The Recherche Archipelago islands are also known to have Aboriginal sites. Full ethnographic and archaeological surveys of the Shire of Esperance have not been carried out.

EUROPEAN HERITAGE

The Esperance coastline has a rich history of European explorers, shipwrecks and old buildings.

The Dutch ship *Gulde Zeepaerd* (Golden Seahorse) accidentally discovered the south coast in 1627 whilst travelling the Great Australian Bight and Israelite Bay area. Pieter Nuyts was on the ship (possibly as first merchant) and they named the area near Israelite Bay, Nuytsland (Rintoul, 1984). Today the DPaW managed Nuytsland Nature Reserve near Israelite Bay bears this name.

For the next 165 years there is no definite record of anybody else visiting these shores. In 1792, a French exploration group lead by Brunyd'Entrecasteaux was headed for King George Sound. The ships *La Recherche* (The Research) and *L'Esperance* (Hope) were blown past King George Sound and in December had to lay anchor for a week near Esperance Bay due to bad weather (Rintoul, 1984). The Esperance Bay was named after the French Ship *L'Esperance* although the town itself was not formally named until 1893. The other ship gave its name to the large group of islands we known as the Recherche Archipelago.

The next navigator to spend time in the Esperance area was the Englishman Matthew Flinders. In 1802, Flinders and his crew aboard the *Investigator* landed at a sheltered bay and named it Lucky Bay. They also visited Thistle Cove, Mondrain Island, Middle Island, Cape Arid and Cape Pasley (Rintoul, 1984). In 1825 authorities in New South Wales, fearing the French annexation of the western portion of Australia, sent Major Lockyer for King George Sound. On December 25th 1826 Major Lockyer planted the British flag at King George Sound claiming the area as a British settlement (Rintoul, 1984).

Sealers were known to inhabit the Recherche Archipelago Islands around 1835 or earlier. They would hunt seals and sell their pelts at King George Sound (Albany). The sealers chiefly existed on wild geese and seal flesh, but during the winter months the sealers would hunt kangaroos on the mainland and supply the meat to

the passing ships in exchange for biscuits, flour and salted pork (Rintoul, 1986). One of the most notorious sealers was Anderson. A lawless, feared man Anderson became known as the pirate Black Jack Anderson. His favourite haunt was Middle Island where he lived with a number of Aboriginal women, as his servants, and others. Anderson was known to rob passing ships and amassed a considerable fortune. His own men eventually killed him due to his harsh treatment of them.

Whalers also frequented the Esperance waters. Two private companies controlled by Cheyne and Sherrat hunted whales in the Esperance waters from their base at Doubtful Islands (towards Bremer Bay) (Rintoul, 1986).

John Eyre and his Aboriginal companion Wylie were the next explorers to visit the region in 1841. Eyre travelled from Adelaide to Albany coming across the French whaling ship, the "Mississippi", with Captain Rossiter at its helm, in the bay now named Rossiter Bay. The area, Wylie Bay, is named after Eyre's Aboriginal aide.

In 1848 John Septimus Roe, the famous WA surveyor, traversed the Esperance region inland across Peak Charles, Peak Eleanora, Mount Ridley to Point Malcolm. The party then travelled along the coast to Cape Le Grand and the Esperance Bay. They travelled further west naming Lort River, Young River and Stokes Inlet.

In 1863, the Dempster Brothers were the first settlers in the Esperance region, taking up land at Esperance Bay, east and west of Stokes Inlet, Fanny Cove and even on the Recherche Archipelago islands. A lease was granted in 1866 and the land was stocked the islands with sheep and goats.

The Recherche Archipelago Islands were also used as a prison. Up until 1876, Aborigines who "proved troublesome" were held prisoner on the islands as the nearest law enforcement was at Albany, over 300 miles away (Rintoul, 1986).

John Forrest, Alexander Forrest and party were the next explorers to traverse the Esperance region in 1870. They claimed "if water could be procured on the tableland, it would be the finest pastoral district in Western Australia". More and more pastoralists started to take up land around Esperance, although the farming was not easy. In 1927, the connection of the railway to Kalgoorlie finally arrived bringing added employment and a much needed transport route for grains grown in the region.

By 1950 the population of Esperance was around 1000. The big breakthrough for the region was the discovery that the sandplain soils lacked specific trace elements. With the addition of these elements, farming became more profitable and more farmland on the Esperance sandplain was opened up. In the 1970's the population had grown to about 8000.

Today Esperance is well serviced by road, rail, air and sea transport. Agriculture is still the main industry with tourism, fishing and retail making up the remainder. The Shire of Esperance Municipal Heritage Inventory, compiled in 1996 by O'Brien Planning Consultants, lists some of the buildings and places of historical significance within the Shire of Esperance.

Shipwrecks of Esperance

There are at least twenty-one (21) known shipwrecks in waters off the Recherche Archipelago, although most have never been found. The most recent being the Sanko Harvest, in 1991, which spilt 30,000 tonnes of fertilizers and 700 tonnes of oil into the ocean.

Some of the known shipwrecks (Bindon, 1996) include:

- 1824 “Belinda” wrecked near Middle Island;
- 1835 “Mountaineer” wrecked at Thistle Cove;
- 1876 “Mary Ann” near Bellinger Island;
- 1894 “Rodondo” sunk in the vicinity of Israelite Bay;
- 1906 survey vessel “HMS Penguin” was wrecked on Middle Island; and
- 1991 bulk ore carrier the “Sanko Harvest” which sank off Cape Le Grand.

8.5 LANDSCAPE AND AESTHETIC VALUES

The Esperance coastline is outstanding, both above and below the water. The unique environmental and aesthetic aspects of the Esperance region are valued not only by the tourists and tourism industry but by local residents.

The Essence of Esperance Survey (Community Perspectives, 2000) found that the most important things residents liked about Esperance were (in descending order):

1. beach and ocean
2. lifestyle
3. clean environment
4. beauty and scenery

There are clearly strong aesthetic and environmental values in the Esperance community regarding the coastline and its natural scenic beauty. Many environmental and recreational groups, who aim to address specific coastal issues or minimise the impacts, have, in many cases, extended these environmental and aesthetic values into action.

8.6 COMMERCIAL FISHING

The fishing industry is a small industry compared to other sectors in the Esperance region. In 2004/2005 the fishing industry in the Goldfields-Esperance Region was estimated at \$10.1 million. The mollusc catch accounted for 66% and was valued at \$6.7 million (Goldfields Esperance Development Commission, 2006).

There are a number of ocean-based fisheries that operate within the Shire of Esperance catching rock lobster, shark, abalone, pilchards and scallops. No sea- or land-based aquaculture with ocean outfall exists within the Shire of Esperance.

The main fisheries in the Esperance region include:

- South Coast Purse Seine Fishery – extends from Point Charles to the South Australian border. Pilchards are the main species caught in the purse seine nets.

- Southern Demersal Gillnet and Demersal Longline Fishery – operates from Cape Bouvard to the South Australian border. The main catch comprises several species of shark, including gummy (*Mustelus antarcticus*), whiskery (*Furgaleus mackii*) and dusky or bronze whaler (*Carcharhinus obscurus*) and queen snapper using demersal gillnet (CALM, 1994).
- Esperance Rock Lobster Managed Fishery – this fishery operates between Hopetoun and Point Culver. It includes catches of Southern Rock Lobster, with a small amount of the catch being Western Rock Lobster. Pots are used to catch the lobster.
- South Coast Inshore Trawl – this fishery operates around the islands of the Recherche Archipelago. Saucer scallops are the main target species.
- Abalone – Greenlip, Brownlip and Roe’s abalone are harvested between Shoal Cape and the South Australian border.
- South Coast Estuarine Fishery – only operates from the Oldfield Inlet at Munglinup Beach and Stokes Inlet in Stokes National Park.
- Fishing Boat Licence Catch – a number of charter boats operate fishing tours from Esperance and the Duke of Orleans Bay. The charter operators are required to apply for a licence from FWA.

8.7 TOURISM

Tourism is a popular industry in the Esperance region, with coastal areas being a major attraction. The visitor summary for the Shire of Esperance by Tourism WA indicates that the average number of visitors for year is 124,500 people (average for the years 2009, 2010 and 2011). 87% of these visitors were domestic, the remainder were international (Tourism WA, 2011).

Popular activities at coastal areas include going to the beach, swimming, surfing, diving, fishing and walking.

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