Appendix E Local Coastal Manager Consultation Summary

The local coastal manager consultation was separated into two components. The first was identification of additional hotspots after the first phase of the project (Seashore 2016b; Appendix E.1). The second was to confirm information provided regarding the hotspot issues and assets that may be susceptible to erosion hazard and identify broader coastal management constraints within their Local Government (Appendix E.2).

Appendix E.1 Consultation regarding additional hotspots

There are forty-five (45) local governments (LGs) within Western Australia with coastal boundaries. All 45 coastal LGs were contacted as part of this assessment, and where possible the following information was obtained:

1. Identify the most appropriate contact person for coastal erosion;
2. Identify the LGs highest priority short-term erosion areas;
3. Confirm the extent of coastal assets potentially susceptible to erosion hazard;
4. Identify any recent erosion trends;
5. Identify any current/planned management actions; and
6. Identify most relevant coastal reports/studies.

Consultation was completed by phone call to 100% of LGs.

The degree of concern regarding coastal erosion was found to be highly varied across the state, with some LGs having recently completed CHRMAPs, and others not yet reaching the commencement of hazard studies. The degree of coastal infrastructure susceptible to erosion hazard was found to vary substantially, predominantly between regional areas with large expanses of natural coast and urban centres.

In general it was found that where a CHRMAP or coastal hazard study had been recently completed the response from the LG was consistent with, or referred to the recent assessment.

Appendix E.2 Consultation regarding hotspots and coastal management constraints

An 11 question online survey was provided to the LG works, environmental or planning officers as outlined in the subsequent paragraph. Input was received from 28 of the 29 contacted local coastal managers in the form of the survey and an accompanying email. Not all LGs replied to every question. A summary of the six questions related to broader coastal management within their LG is provided in Table 5-1 to Table 5-5 in Section 5.1 and in Table E-1 to Table E-2 below, separated into Perth Metropolitan (8 LGs) and Regional (21 LGs) areas.

The survey questions related to coastal management were:

- Q1: Hotspot name (as listed on email)
- Q2: Referring to the hotspot issue description and attached figure, do you have any suggested changes or additions to better describe the problem?
- Q3: Have any studies been undertaken on the community aspirations for the hotspot?
- Q4: Are any management options for the hotspot impractical due to community values?
- Q5: Are there plans to change the existing land use of the hotspot or in the immediate vicinity that would impact on its use?
- Q6: What mechanisms does your LG use to raise funds for coastal management?

- Q7: Estimate the budget available for coastal management in the LG over the next 5 years
- Q8: What coastal management capacity does the LG have in terms of staff and equipment?
- Q9: What, if any, specific planning controls or development agreements does your LG use?
- Q10: What are the main issues and constraints to coastal management for your LG?
- Q11: Do you have other comments concerning coastal management?

Questions 1 to 5 were also provided to local coastal managers that were State Government organisations or port authorities. This includes the Department of Biodiversity, Conservation and Attractions (previously Rottnest Island Authority and Parks and Wildlife) and Fremantle Ports.

The responses to questions 6 to 9 are included in Table 5-1 to Table 5-4 in Section 5.1. The responses to questions 10 and 11 are included in Tables E-1 and E-2 below and synthesised in Section 5.2.

Table E-1: Main issues, challenges and constraints to better coastal management (Q10)

Issue	Number of LGs (26 total)	Further explanation
Funding constraints	15	Funding constraints with large coastal protection works. Lack of funding for significant projects (limited pool of internal and external funds to draw from) and lack of certainty of continuity of funding (e.g. through CAP grants) year to year. Lack of connection between LG coastal management responsibility (large) and access to coastal management funding (small). Budget constraints and an appreciation that coastal assets are better built to a high standard than a low budget. There are a lot of vulnerable areas, limited Shire budget and most grants require matching. Funding for managed retreat. Funding for future adaption needs is based on current population and usage. Funding to preserve public foreshore amenity either through coastal protection works or establishment / extension of foreshore reserves
Sand sources	1	Suitable local sand sources for beach re-nourishment
Staffing issues	6	A dedicated Coastal Management Officer is required to focus on this area of coastal management. Lack of internal resources. Lack of dedicated staff. Available expertise and volunteers
Knowledge level	2	Ability to make informed decisions. Management in cyclonic environments.
Community expectations	5	Most people appear to want to draw a line in the sand now and don't seem to want to even consider retreat as an option. Community expectations to protect all coastal assets, including private interests Public access versus protection. Uncontrolled access to beach areas.
Land tenure	3	Geographical constraints for managed retreat. Competing land uses.
Further studies	5	Coastal management requiring in depth engineering planning based on data that is incomplete or not collected. Lack of accurate costal mapping and monitoring. Lack of data regarding coastal processes. Further studies to feed into selection of management and adaptation options Further studies to understand coastlines changes associated with climate change

Issue	Number of LGs (26 total)	Further explanation
Legislative frameworks	3	Absence of a State Government (and desirably consistent Federal/all state) coastal management framework and legislation that enables good long term coastal management strategic and statutory planning and implementation by Local Governments. It should facilitate structured buffer zones, retreat options and targeted coastal protection works of large expenditures including for private property acquisitions to create buffer areas. Requires State or Federal Government funding input where justified, similarly legislative protections for local government regarding its coastal management decision making, similarly clearer and added planning, vesting and funding opportunity to local government for near shore works and activities (e.g. re off shore breakwaters, groynes, jetty structures etc.). An ambiguous State Coastal Planning Policy, particularly an absence of clear guidance for achieving the policy's objectives to preserve public foreshore amenity over the medium to long term without investing in protection works. The unrealistic assumptions in Schedule One of SPP2.6

Table E-2: Additional comments concerning coastal management (Q11)

The community's views are so diverse and sometimes uninformed that while it is important to hear what people have to say, sometimes one needs to use their professional judgement to commit to a certain decision and stick to it so that progress can be made. Constantly debating the issue leads to inertia and uncertainty on everyone's part. At least if a decision is made in good faith and has all the information presented as the rationale for the decision then whether people like it or not, there is a greater degree of certainty over what is actually going to happen in the short term, that may either be "do nothing" or "do something".
Clear need for State Government legislation such as a Coastal Bill (not just a Planning Policy) that recognises the important role of Local Government in coastal management and this not just for new development areas but also existing areas not currently subject to development applications but that equally will be under pressure from coastal processes, and that the State (and Federal) governments need to constructively guide and support initiatives that provide the best long term solutions to deal with climate change induced sea level rise erosion and inundation impacts on our coastline including retreat buffer zone creation etc., aligned also to State Government agency and Corporation awareness and commitment to work with Local Government on best long term coastal and near coastal area management and project implementation.
Specific grant funding stream for managed retreat coastal adaptation.
Technologies available for adaption are sometimes new and difficult to implement because they are not endorsed by other outdated government guidelines. For example - estuary foreshore management guidelines from the Department of Water does not outline the use of geotextile containers.

SURVEY

Thank you for taking the time to provide information to this first-pass analysis of coastal erosion hotspots in WA. You will be providing information to Seashore Engineering (consultancy) to assist with understanding issues at certain sites of interest. This information is being collected for the Departments of Planning and Transport.

We are not seeking a Council position. Responses are confidential and understood to be unofficial and officer level. This is a preliminary information verification exercise only.

For an LGA with multiple sites please answer a new survey for each site

1. Site name (as listed on email from Tanya)

2. Referring to the site issue description and attached figure, do you have any suggested changes or additions to better describe the problem?

3. Have any studies been undertaken on the community aspirations for the site?

- ◯ Yes
- ◯ No

Other (please specify)

4. Are any management options for the site considered impractical due to community values?

5. Are there plans to change the existing land use of the site or in the immediate vicinity that would impact on its use?

- ◯ Yes
- ◯ No

If yes, please detail the changes.

For an LGA with multiple sites, please only answer questions 6 to 11 for one site. You can leave questions 6 to 11 blank in any subsequent survey(s) you fill in for the subsequent site(s).

6. What mechanisms does your LGA use to raise funds for coastal management? You can select more than one.

- ☐ Differential or specified area rating and budget
- ☐ Percent of annual rates or Local Government budget
- ☐ Internal budget allocation process (Emergency, annual or 5-yearly)
- ☐ External grant application(s)

Comments:

7. Please estimate the budget available for coastal management in the LGA over the next 5 years

- ◯ <$25k / year (on average over 5 years)
- ◯ $25k - $100k / year (on average over 5 years)
- ◯ >$100k / year (on average over 5 years)

Additional comments (if required)

8. What coastal management capacity does the LGA have in terms of staff and equipment?

Staff (eg 2 Engineering staff, 1 Environmental officer and 0.5 Planning officer):

Equipment (eg small digger, bobcat):

Other (eg coastcare volunteers):

9. What, if any, specific planning controls, development agreements or similar does your LGA use for coastal management?

10. What are the main issues, challenges and constraints to better coastal management for your LGA?

11. Do you have any other comments concerning coastal management not covered by this survey?

Thank you for your time and advice

Appendix F Options for Hotspots with High Management Importance in the Expected Timeframe

Information on the broad management and adaptation options identified for the 55 hotspots in the Imminent timeframe is included in the table in each sub-Appendix in Appendix D as 'Management Options for Imminent timeframe (0–5 years)'. A summary of this information for the 21 hotspots classed as Rank 1, 2 and 3 is shown in Tables F-1 to Tables F-3.

Cost estimates follow the method in Section 2.8.1. No distinction has been made regarding the origin of funding sources for the recommended actions.

Table F-1: Recommended actions in the Imminent timeframe – Group ranking 1 (High in Imminent timeframe (0–5 years))

Hotspot	Action	Actions in the Imminent Timeframe (0–5 years)	Costs
27 Port Beach	Protect	Revetment may be required to protect road at southern end of hotspot and plan for alternate locations for facilities [Note, depends on scheduling with relocation/retreat]	M
	Review lease agreements with Coast and SLSC to clarify responsibilities for coastal erosion mitigation		50k
	Prepare planning framework for retreat with consideration of management the contaminated site		50k
28 S Thomson Bay	Accommodate	Foredune rebuild, focus on area in front of cottages	L
	Protect	Renourish, possibly with dredged material from any marina capital works dredging, to rebuild dune scarp face	L
	Prepare planning framework to implement retreat for next level of management.		50k

Table F-2: Recommended actions in the Imminent timeframe – Group ranking 2 (Medium in Imminent timeframe (0–5 years), High in Expected timeframe (5–25 years))

Hotspot	Action	Actions in the Imminent Timeframe (0–5 years)	Costs
2 Broome T.B	Avoid	Ensure existing setback buffers are maintained	None
	Protect	False talus at pindan toe to protect cemetery from prevailing conditions. Allow property owners to rebuild and strengthen failed structures at their own expense	L
7 Monkey Mia	Protect	Renourish at focal areas only, where direct beach access is required	L
	Prepare planning framework to implement retreat for next level of management.		50k
	Review lease agreements with Monkey Mia Dolphin Resort to clarify responsibilities for coastal erosion mitigation		50k
10 Drummond Cove	Retreat	Continued removal of houses on Lot 12820. Alternate siting of a road and services required for Whitehill Road now. Alternate siting required for land uses in the northern activity node now	M
	Protect	Maintain rock revetment at northern activity node until alternate siting of facilities occurs	L
	Prepare planning framework to implement retreat for next level of management.		50k
18 Grace Darling Park	Protect	Increase sand renourishment volumes	L
	Prepare planning framework to implement retreat for next level of management.		50k
19 Ledge Point	Avoid	Some private properties (approx. 6) have sufficient buffer to storm erosion	None
	Accommodate	Dune fencing. Access control from individual properties. Drainage management	L
	Prepare planning framework to implement retreat for next level of management.		50k

Hotspot	Action	Actions in the Imminent Timeframe (0–5 years)	Costs
20 Seabird	Retreat	Stairs and boat ramp at Tulley View will now require partial retreat/construction in this timeframe due to seawall extension N	L
	Protect	Maintain existing seawall. Already extended N in 2016 to Tulley View	L
	Prepare planning framework to implement retreat for next level of management.		50k
	Review strata agreements with caravan park to clarify responsibilities for coastal erosion mitigation		50k
25 Mettams Pool	Accommodate	Strengthen dune protection at toilet block and path to N	L
	Prepare planning framework to implement retreat for next level of management.		50k
26 Floreat Beach	Retreat	Car park realignment (i.e. move landward approx. 10m).	L
	Accommodate	Dune rebuilding and fencing to limit vehicles driving along foredune (e.g. a few rocks to divert traffic lower). Improve surface runoff management from car park to avoid dune damage	M
	Review lease agreements with kiosk and SLSC to clarify responsibilities for coastal erosion mitigation		50k
	Prepare planning framework to implement retreat for next level of management.		50k
30 Kwinana waterfront industrial	Avoid	Existing buffer likely to remain viable	None
	Protect	Maintain existing structures	M
	Review lease agreements with 3 industrial leases to clarify responsibilities for coastal erosion mitigation (including possible partial retreat)		50k
32 Rockingham Townsite to Causeway	Accommodate	Continued use of sand extraction from Point Peron boat ramp	L
	Protect	Continued use of minor renourishment. Maintain existing structures	L
	Prepare planning framework to implement retreat for next level of management.		50k
	Review lease agreements with Mangles Bay Fishing Club, cafe, and cottages to clarify responsibilities for coastal erosion mitigation		50k
36 Mandurah Northern Beaches	Accommodate	Continue annual bypassing; Planning policy to encourage house access away from coast Identify easements to provide alternative access	M
	Protect	Maintain existing groynes	L
	Prepare planning framework to implement retreat for next level of management.		50k
41 Koombana Beach	Protect	Renourish. Buried revetment constructed in front of Dolphin Discovery Centre in 2017 with possible discussion of extended groyne.	M
	Prepare planning framework to implement partial retreat for next level of management.		50k
	Review lease agreement with dolphin discovery centre to clarify responsibilities for coastal erosion mitigation		50k

Table F-3: Recommended actions in the Imminent timeframe – Group ranking 3 (Low in Imminent timeframe (0–5 years), High in Expected timeframe (5–25 years))

Hotspot	Action	Actions in the Imminent Timeframe (0–5 years)	Costs
8 Denham Townsite	Protect	Renourishment with dredge materials (West); minor embankment repairs and revegetation as required (East)	M
	Prepare planning framework to implement retreat for next level of management (West).		50k
	Review lease agreement with caravan park to clarify responsibilities for coastal erosion mitigation (East).		50k

Hotspot	Action	Actions in the Imminent Timeframe (0–5 years)	Costs
11 Sunset Beach	Accommodate	Sand drift management; restrict access to dunes by fencing; Review lease agreement	L
	Prepare planning framework to implement retreat for next level of management.		50k
	Review lease agreement with caravan park to clarify responsibilities for coastal erosion mitigation and retreat		50k
14 Grannies Beach	Protect	Maintain existing revetment	L
	Prepare planning framework to implement retreat for next level of management.		50k
	Review lease agreement with caravan park to clarify responsibilities for coastal erosion mitigation		50k
15 Cervantes	Avoid	In the south western section there is still buffer to some private properties.	None
	Retreat	Possible minor realignment and migration of gazebos. Avoid rebuilding. All assets should be temporary and focus on relocatable structures	L
	Protect	Possible upgrade of structure may be required at Lobster Shack (cost to lessee)	Cost to Lessee
	Review lease agreements with Lobster Shack and caravan park to clarify responsibilities for coastal erosion mitigation		50k
23 MAAC Seawall	Protect	Maintain seawall in front of building and S carpark	L
	Review lease agreement with MAAC to clarify responsibilities for coastal erosion mitigation		50k
29 C.Y. O'Connor Beach, Cockburn	Avoid	Use existing buffer	None
	Protect	Backpass sediment from north of Port Coogee	L
	Prepare planning framework to implement retreat for next level of management.		50k
52 Emu Pt, Albany	Protect	Minor works to improve tolerance to shoreline retreat	L
	Review lease agreement with caravan parks to clarify responsibilities for coastal erosion mitigation		50k
	Prepare planning framework to implement retreat for next level of management.		50k

Tables F-4 to F-6 includes the management actions that are likely to be required for the 21 hotspots with high management importance (HMI) in the Expected timeframe. These hotspots require planning to be undertaken now to ensure appropriate management options are well understood, leading to less reliance on reactive management and emergency works. Tables F-4 to F-6 also identify the trigger for transitioning to the next management strategy, progressing from an approach suitable presently (in the Imminent timeframe), through to an approach more appropriate when assets are threatened by erosion (in the Expected timeframe).

Local coastal managers should consider works to be avoided to achieve the long-term plans for the hotspot, which are included in Appendix D for each hotspot.

Table F-4: Recommended actions in the Expected timeframe – Group ranking 1 (High in Imminent timeframe (0–5 years))

Hotspot	Trigger	Action	Actions in the Expected Timeframe (5–25 years)	Costs
27 Port Beach	Loss of dune seaward for more than 75% of building length (Coast pub).	Anticipated Behaviour	Moderate erosion causes dune loss and squeeze of the beach against existing coastal defences (i.e. loss of beach amenity.	
		Retreat	Remove carpark revetments; retreat SLSC, Coast pub, carparks by relocating to Leighton Beach. This will require management of the site contamination.	H
		Accommodate	Repeatedly build dune to manage sand drift	M

Hotspot	Trigger	Action	Actions in the Expected Timeframe (5–25 years)	Costs
28 S Thomson Bay	Minor works replacement within three years; OR Structural damage to existing bungalows.	Anticipated Behaviour	Moderate progressive erosion will eventually mean minor works are ineffective. Given age and state of bungalows, major works are not considered cost-effective.	
		Retreat	Local retreat for at least 3 cottages, up to 12. Cost approximation assumes >6 cottages.	H
		Accommodate	Foredune rebuild	L
		Prepare planning framework to implement retreat for next level of management.		50k

Table F-5: Recommended actions in the Expected timeframe – Group ranking 2 (Medium in Imminent timeframe (0–5 years), High in Expected timeframe (5–25 years))

Hotspot	Trigger	Action	Actions in the Expected Timeframe (5–25 years)	Costs
2 Broome T.B	Localised erosion processes cause acute erosion hazard to assets or expose Pindan	Avoid	Ensure existing setback buffers are maintained	None
		Accommodate	Modification of drainage works outlets to reduce scour effects. Consider program to encourage mangroves along whole length.	M
		Protect	Repeat false talus at pindan toe to protect cemetery from prevailing conditions. Allow property owners to rebuild and strengthen failed structures at own cost. Minor sand renourishment could be trialled for sensitive areas.	M
7 Monkey Mia	End of life for structures adjacent to coast; Erosion leading to walling failure causing damage to landward structures.	Anticipated Behaviour	General coastal retreat may be possible over this timeframe.	
		Retreat	Replace unprotected structures with alternatives to landward	M
		Protect	Continue use of existing walling, without adaptation / strengthening	L
		Prepare planning framework to implement retreat for next level of management		50k
10 Drummond Cove	Further retreat from present (eroded) position within 5 years	Anticipated Behaviour	Progressive general retreat. Removal of rock revetment should reduce the focal nature of erosion and disperse the stress along the broader foreshore.	
		Retreat	Remove services and roads in Lot 12820 as they become under threat. Ensure rock revetment is removed once northern activity node facilities moved. Continued removal of houses (at cost to lessee).	M
		Prepare planning framework to implement retreat for next level of management.		50k
18 Grace Darling Park	Acute erosion hazard for existing facilities >2 months/year (i.e. ineffective nourishment)	Retreat	Remove or relocate existing facilities. Cost may be higher than currently designated dependent on land availability.	M
		Prepare planning framework to implement retreat for next level of management.		50k

Hotspot	Trigger	Action	Actions in the Expected Timeframe (5–25 years)	Costs
19 Ledge Point	Buffer width <5m.	Anticipated Behaviour	Under moderate erosion, existing properties will be threatened by storm erosion.	
		Retreat	Eight private properties.	H
		Accommodate	Measures to encourage dune growth in recovery phase. Sand management focused on entrances (particularly where there is vehicle access)	L
		Prepare planning framework to implement retreat for next level of management.		50k
20 Seabird	Progressive erosion threatening beach access structures to downdrift	Anticipated Behaviour	Coastal retreat is expected to continue, mainly transferring erosion northwards. Loss of existing beach access points will occur due to local downdrift erosion. Erosion may impact caravan park in this timeframe.	
		Retreat	Relocate & redesign beach access points including boat access (recommended)	M
		Protect	(Option) to extend seawall further northwards	H
		Prepare planning framework to implement retreat for next level of management.		50k
25 Mettams Pool	Within 0.5m level (vertically) of undermining foundations of existing facilities	Anticipated Behaviour	Erosion threatens to undermine existing facilities.	
		Retreat	Relocate amenities / toilet blocks (any structures not founded on rock)	M
		Accommodate	Realign seaward end of beach access points.	L
		Prepare planning framework to implement retreat for next level of management.		50k
26 Floreat Beach	Threat to café building, with buffer <10m	Anticipated Behaviour	Progressive & storm erosion will affect carpark and building	
		Retreat	further carpark realignment, modify shape of vehicle access ramp, some lease buildings may require shifting	H
		Prepare planning framework to implement retreat for next level of management.		50k
30 Kwinana waterfront industrial	Infrastructure threatened by acute erosion	Anticipated Behaviour	Moderate coastal retreat is considered likely to affect the southern section first as it has smaller foreshore reserve. The efficiency of artificial headlands will reduce with moderate erosion.	
		Protect	Maintain existing structures. Beach rotation between groynes, leading to installation of revetments where foreshore reserve is lost. Extension of artificial headlands. Note: renourishment may partly extend life of artificial headlands	H
		Prepare planning framework to implement retreat for next level of management.		50k
32 Rockingham Townsite to Causeway	Boat ramps or 'back-up' revetments causing localised erosion	Anticipated Behaviour	Minor erosion of Mangles Bay and Palm Beach areas likely to continue, which may be partly balanced through renourishment using sand from Cape Peron boat launching facility	
		Retreat	Relocate recreational assets subject to damaging recession (i.e. don't armour)	M
		Accommodate	Continued use of sand extraction	L
		Protect	Continued use of minor renourishment	M
		Prepare planning framework to implement retreat for next level of management.		50k

Hotspot	Trigger	Action	Actions in the Expected Timeframe (5–25 years)	Costs
36 Mandurah Northern Beaches	Acute erosion causes damage to Ormsby Terrace infrastructure 3+ times in 10 years	Anticipated Behaviour	Increased beach rotation between the groynes. Efficiency of bypassing to transfer sand north will reduce. Increased seasonal downdrift erosion north of groyne field	
		Retreat	Remove short-term facilities north of groynes Remove facilities seaward of Ormsby Terrace, Remove sections of Ormbsy Terrace not required for access, Retreat car parks on N side of groynes	H
		Accommodate	Continue annual bypassing, with part placement further north, 8 private properties.	H
		Protect	Construct downdrift short 'back-up' revetments	M
41 Koombana Beach	Loss of remaining buffer (~5m).	Anticipated Behaviour	Moderate erosion will cause loss of minimal remaining dune buffer.	
		Retreat	Modify eastern car park	L
		Protect	Ongoing renourishment to maintain beach, consider short groynes to extend the life of the renourishment	M
		Prepare planning framework to implement retreat for next level of management.		50k

Table F-6: Recommended actions in the Expected timeframe – Group ranking 2 (Low in Imminent timeframe (0–5 years), High in Expected timeframe (5–25 years))

Hotspot	Trigger	Action	Actions in the Imminent Timeframe (0–5 years)	Costs
8 Denham Townsite	Loss of sand buffer (i.e. distance to assets is <10m) (West). Foredune is unable to support vegetation, with more than 30% by length either scarped or denuded of vegetation. Alternate trigger is sand drift on the road for more than 2 occasions per year. For private property, draft guidelines suggest a trigger should be 40m from the Horizontal Setback Datum if the goal is to maintain a foreshore reserve (East).	Anticipated Behaviour	Available volume of renourishment insufficient to prevent net erosion (West). Net erosion causing contraction of foredune (East).	
		Retreat	Retreat at some point in front row of chalets (West).	M
		Accommodate	Dune management to deal with drift and shift towards protect (East).	L
		Protect	Renourishment from another dredging campaign will extend life. Terrestrial renourishment materials must be analysed for appropriate beach use grade and quality prior to use (West).	M
		Prepare planning framework to implement retreat for next level of management.		50k
11 Sunset Beach	Dune width <5m.	Anticipated Behaviour	Front of lease and associated buildings will be threatened by storm erosion following moderate retreat.	
		Retreat	Particular focus on front row of buildings at caravan park, hydrant line (services), with consideration of toilet block and car parks. Cost assumes no compensation required for leasehold buildings.	M
		Prepare planning framework to implement retreat for next level of management.		50k

Hotspot	Trigger	Action	Actions in the Imminent Timeframe (0–5 years)	Costs
14 Grannies Beach	Acute erosion threat to Ocean Drive or sand drift compromising vehicle safety	Retreat	Retreat (Y - Remove path seaward of Ocean Drive; Relocate Ocean Drive. Retreat of caravan park and removal of revetment (preferred, but unlikely to be practical)	H
		Protect	Extend revetment 150m to protect the road (southern end)	M
		Prepare planning framework to implement retreat for next level of management.		50k
15 Cervantes	Loss of sand buffer to public assets <5m. Also, if a dredge plant is in the area it may be considered worthwhile	Protect	Renourish using the considerable sand volume deposit at cuspate foreland)	H
		Prepare planning framework to implement retreat for next level of management.		50k
23 MAAC Seawall	Damage to seawall	Anticipated Behaviour	Structural degradation of seawall will occur over time, amplified by increasing sea level	
		Protect	Strengthening of seawall and modification to reduce wave overtopping likely to be required	M
		Prepare planning framework to implement retreat for next level of management.		50k
29 C.Y. O'Connor Beach, Cockburn	Cycle path threatened by acute erosion	Anticipated Behaviour	Beach rotation likely to occur due to reduced sand feed, adding to progressive erosion	
		Retreat	Remove cycle path; Truncate Robb Road	M
52 Emu Pt, Albany	Facilities adjacent to protective works threatened by acute erosion	Anticipated Behaviour	Retreat of leasehold facilities to provide erosion buffer	
		Retreat	Progressively remove facilities adjacent to existing protection works	M
		Prepare planning framework to implement retreat for next level of management.		50k