

Appendix A

PowerPoint Presentation



People | Clients | Growth | Quality | Performance

Beresford Beach Coastal Protection and Foreshore Enhancement Project

Protecting and enhancing your coastal assets

Study Brief

Study focus is to develop coastal protection options for Beresford foreshore that address the following:

1. Are driven by the requirement for City of Greater Geraldton to protect coastal infrastructure along the foreshore;
2. Address the Western Australia Planning Commission position statement (State Planning Policy No. 2.6 State Coastal Planning Policy) that adopts a likely 100-year sea-level rise scenario at 0.9 m;
3. Are based on detailed information on sea conditions impacted by wind, wave, swell, currents and weather systems for this section of coastline;
4. Show design drawings in both plan and aspect views;
5. Show proposed beach lines, sand nourishment locations, initial and annual sand nourishment volumes and potential sources of sand; and
6. Allow for amenity and social infrastructure.

Design Concept: “*multi-modal protection and improvement scheme and design considerations should be given to the accessibility requirements of all transport modes including pedestrians, cyclists, buses, taxis, scooter riders, motorcyclists, in addition to private cars.*”

Options Outlined in the Brief



Option 1

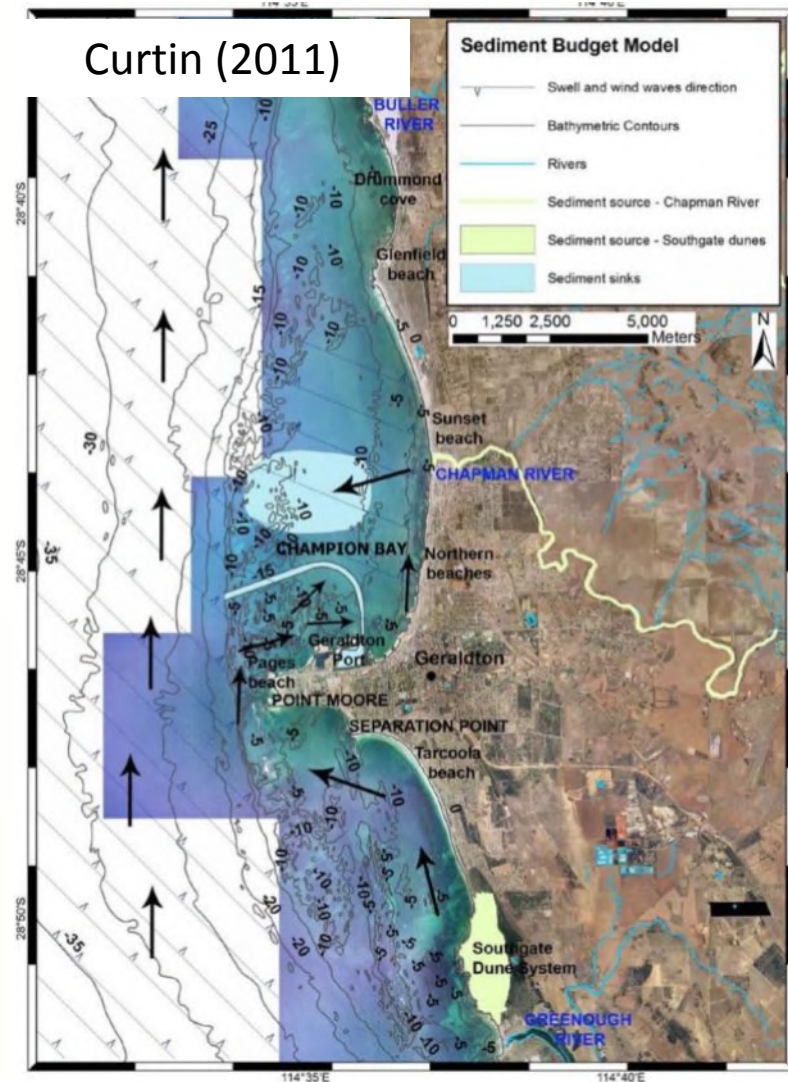


Option 2



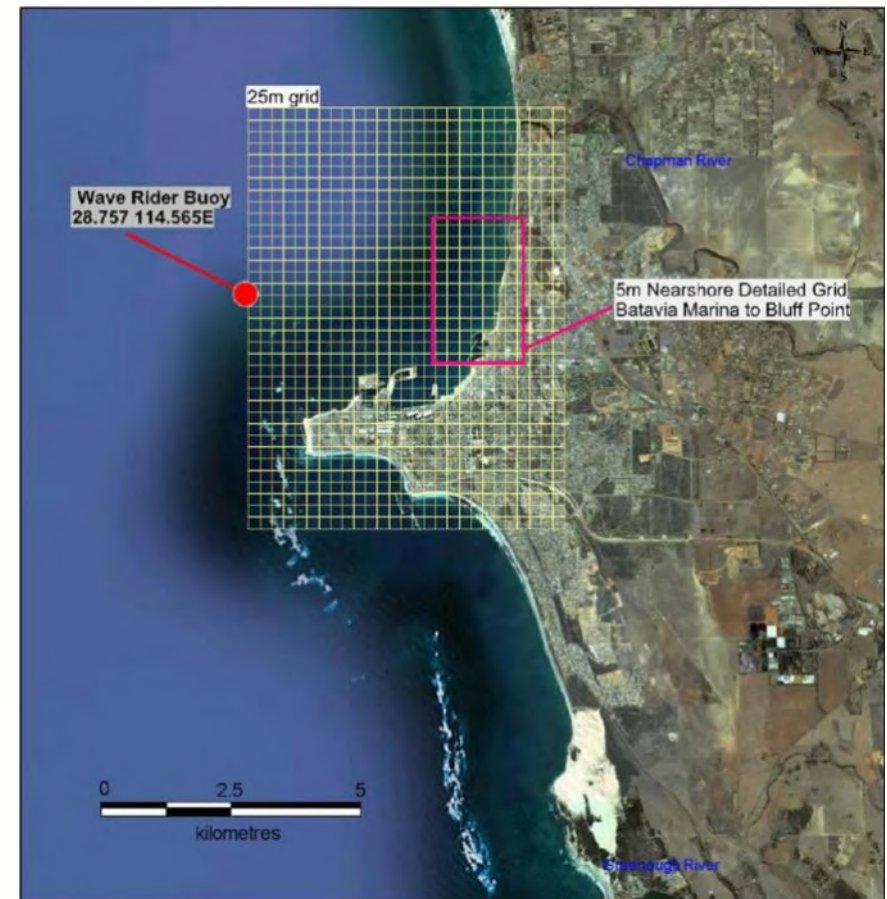
Option 3

Regional Sedimentary Processes



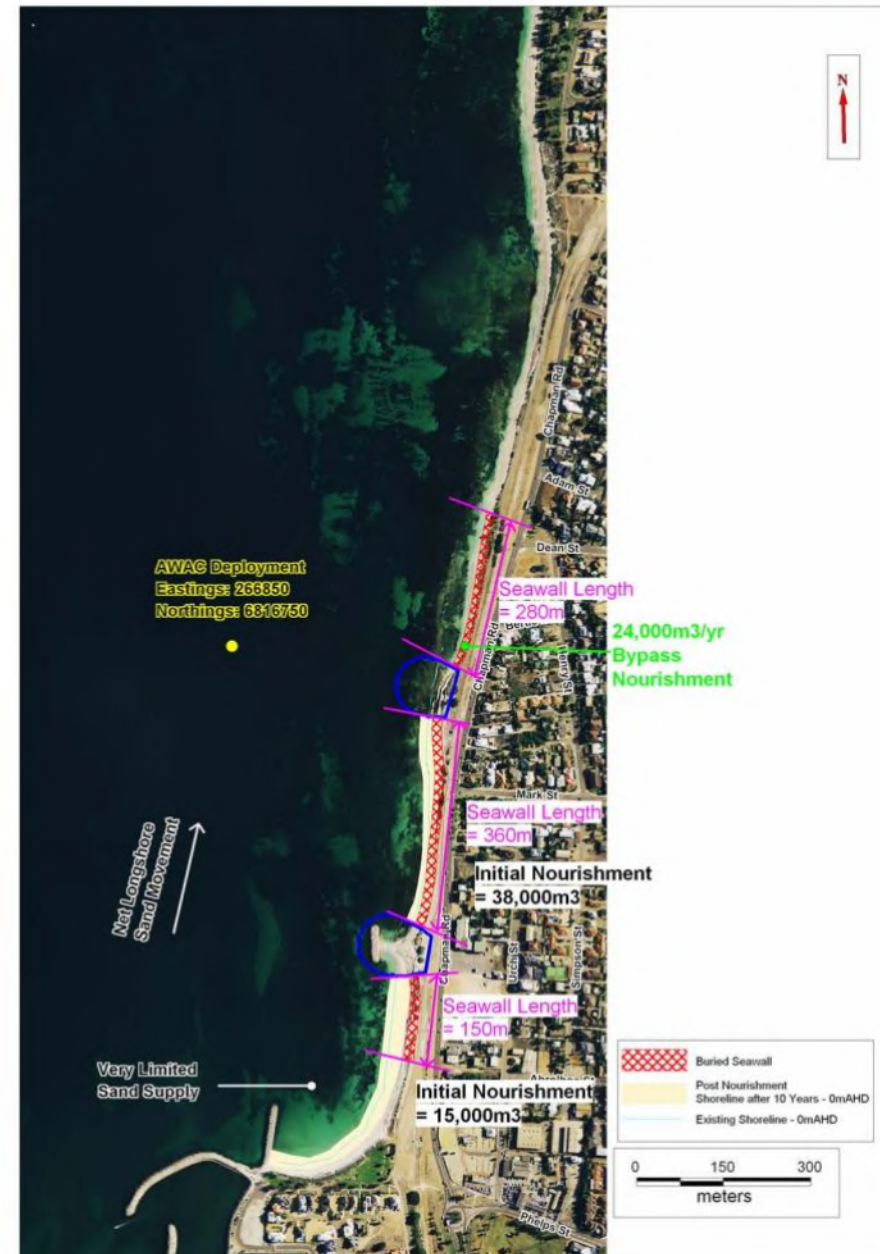
Study Components: Coastal Engineering

- Compile and review existing data
- Develop wave model and simulate a hindcast data set
- Develop sediment transport models
- Based on preliminary investigations, optimize concepts for the study site coastal processes
- Undertake investigations for the three concept options and prepare design criteria
- Report outcomes



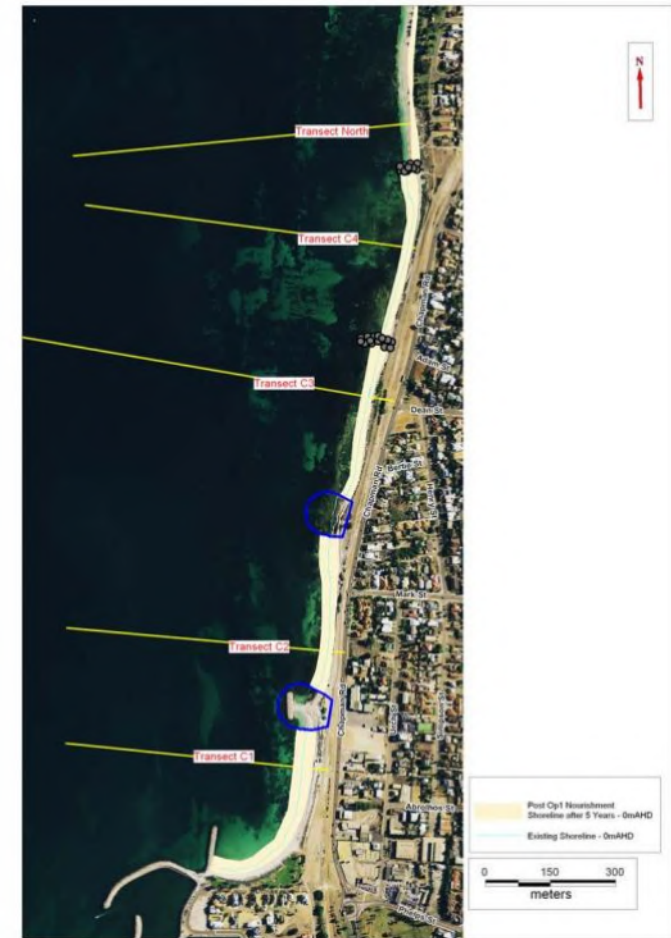
Coastal engineering design

- City of Greater Geraldton required a robust design and life cycle costing of a selected shoreline protection system that would enhance the Beresford foreshore.
- The design must be adaptable to future climate change, not adversely affect other shorelines (particularly beaches north of the study area), and consider overall sedimentary processes.



Inputs for Landscape Design

- Southern two structures provide stable, long-term beach compartments
- Storm protection provided by sand in the beach compartment
- Northern two compartments have reduced nourishment which may require buried seawalls to manage extreme storm erosion
- Headlands elevation results in some wave overtopping
 - Managed by drainage behind seaward structure
 - Crest Level \approx 4.8m AHD
- Northern structures are low crest, \approx 2.8m AHD
 - Sand bypass
 - Over-topped during storms
 - Final design layout is flexible and can be adapted within landscape design
- Design Criteria based on 100-year ARI conditions
- Structures built to 2060 SLR conditions but are adaptable to 2110 through retrofit as part of wider upgrades to infrastructure, i.e. road and drainage upgrades



Community input: *the City was listening*

City of Greater Geraldton know the foreshore is important to the community so the foreshore design includes elements from comments previously made by the community to the City.

Community & Stakeholder Concerns and aspirations for the Geraldton coast

Summary from NACC 2010: City of Geraldton-
Greenough Coastal Communities Study



Recreational Use

- *Toilet & shower facilities are lacking.*
- *Be more proactive about dogs on beaches / parks .*
- *“Poinciana Trees grow very well here, provide fabulous shade and lose leaves in winter when the shade is not required. Why, why, why have they planted useless trees on the foreshore? Several families could picnic under a grown Poinciana tree and shade sails don't last long enough. Geraldton is a windy place - how about some wind breaks? Try eating your dinner on the foreshore on a typical summer's eve - it is crazy. The public toilet situation is terrible - it's a long way to drag a toddler.”*
- *More shade sails or anything in that frame of mind, as it is getting stronger sun, heat wise! So more shade, more people using the beach with families and kids.*
- *More toilet facilities on the foreshore and throughout the town and could they be kept cleaner. Maybe some more seating around the areas would help a lot of us older persons and seniors, not all of us are fit and healthy as we would like to be and have some problems medically.*
- *More toilets, showers & parking desperately needed & shaded areas - please grow big trees.*

Landscape Amenity Values

- *Beach along Chapman Road needs significant aesthetic work – looks very ugly presently.*
- *Rock groynes are ugly – need planting on them.*
- *Geraldton's beaches are beautiful*
- *Geraldton foreshore is looking very nice.*
- *Council's ugly groynes have completely ruined the beaches.*
- *Essential that everything possible is done to protect this beautiful coastline.*
- *Sincerely hope there will not be any more groynes as they take away the natural beauty of the ocean and the bay.*



Ecological Values

- *Champion Bay is inundated with rabbits.*
- *There should be more trees planted along beaches.*
- *Dune vegetation should be protected.*
- *The rock spits on Chapman Beach has interfered with the ecosystem.*
- *Spinifex coastal vegetation with fencing should be used not salt- dropping tamarisk & sheoak trees.*
- *Golden Crown Beard is an invasive poisonous weed that everyone should be aware of.*
- *Dunes need more planting of local plants.*
- *Rabbits seem abundant, more & more everyday, should be eradicated.*
- *Stop the council weed controller from killing all the vegetation so that dust blows off the old rail line and ugly verge along Chapman Road.*
- *We need the rabbits eradicated in scrub near the beach.*
- *Use our "local" tree Melaleuca lanceolata for shade and shelter on our coast - dense shade, small leaves, little leaf litter grows under power lines, doesn't drop limbs once established, long living. Most importantly they are "air conditioners" for our beaches, parks, paths and car parks.*
- *The African Box Thorn could become a major problem.*
- *A fisherman put a fine net in the beach at the bottom of Phelps St and cleaned out every whiting and other small species. There were no fish for weeks. I assume he was a professional? They should be made to go further North or South to give the poor amateur who only wants 1/2 doz for brecky.*

Coastal Erosion

- *Sand erosion is getting worse, sand dumping will not solve it but will cause problems further down*
- *Why is new path along Chapman Road eroding away? No more groynes*
- *Need more permanent mechanisms to stabilise beach along Chapman Road*
- *Erosion along Chapman Road is a big worry*
- *Dumping sand to counteract erosion is not a long term or wise solution. The sand drifts north burying reefs and erosion still occurs in the next storm – need a more scientific/engineering solution.*



More about Coastal Erosion

- *Foreshore erosion happens with each winter storm no matter how much sand is replenished, removal of vegetation for sewerage pipeline exacerbated erosion.*
- *Runoff from the cycle path causes erosion & strong winds in summer erode gullies.*
- *Sea walls are the only way to go or steps of concrete down to the beach, which people could sit on too.*
- *Artificial reefs are better at controlling erosion than ugly rock groynes.*
- *A frightful error of judgement constructing the Mitchell & Brown groyne – huge erosion effects along Beresford, Bluff Point & Sunset Beaches. Strongly recommend serious consideration be given to an artificial reef.*
- *The city should not remove sand from Pages Beach & should cost providing a rock wall.*
- *Need to break up surge with groynes or structures.*
- *Need a scientific study of beach erosion by analysis of long term photo record & experiment.*
- *Groynes have increased erosion*
- *Dumping sand is a waste of money – need a more permanent solution.*
- *It troubles us to see council plonk truckloads of sand into the shoreline – set up rocks into concrete.*
- *Man made groynes have disrupted the natural flow, escalated erosion and deposited excess sea weed.*
- *More rocks where erosion is happening.*
- *I strongly object to the use of rock or rock wall as barriers on beach.*

Even more about coastal erosion

- *Rock groynes are not an option for any management.*
- *A low solid wall would solve the problem & still allow swimming.*
- *Past practices have been quick fixes – rock groynes, sand dumping, removal of sea weed etc.*
- *Replacement of sand to the beaches ceased with the making of the harbour. Post-war opposite Mitchell & Brown there were two businesses & a shed on the sea side of the railway.*
- *The groyne running parallel to Champion Bay Beach is a good thing - it has created a barrier which has collected a large amount of beach sand. These types of groynes should be all along to protect the coast from sand and water erosion. Sink old steel cages or wire sculptures to encourage marine life and intrigue snorkelers and divers. More diving platforms (dolphins) at town beach. Really like to see a new jetty built out over water for walking and fishing purposes and for children's swimming lessons. The jetty could incorporate platforms in the shallows and in the deeper water for older swimmers. The same design as the much loved and used previous jetty.*

Coastal access

- *Need more boat ramps.*
- *Need more foot paths.*
- *There needs to be more freedom for recreational drivers to utilise the beach, perhaps larger areas dedicated.*
- *Beach access is poorly serviced – car parks are inadequate.*
- *Access to the rock wall next to the port is needed for people to fish off.*
- *More walkways near the coast with a lot more vegetation between paths and the beach. Information signs (about native vegetation, traditional uses, animals to be seen etc) along walkways. Educate beach goers. Incite an interest in coastal area .*
- *Needs to be better beach access & parking for non 4WD; more shade sails on beaches, better lighting around car parks & better pathways leading to beach access for wheelchairs & prams.*
- *Keep up the good work with cycle paths please.*
- *Need to get more use of beach areas i.e. Boardwalks, small grassed areas*
- *Walkways to beaches need to be of permanent structure.*



Coastal facilities

- *To be more family oriented we need more toilets in the beach area, maybe locked up at night to keep out undesirables, and bins need to be attended to at least once a week.*
- *We need more life guards on all beaches.*
- *Possibly a boardwalk or path with ecological & historical info for schools, tourists & locals.*
- *more toilets where people frequent the beaches.*



Coastal management

- *Facilities are poor – beautiful beaches but no grassed areas to sit & enjoy*
- *Beresford beaches would be used more if we could prevent the white sand washing away – any really workable ideas?*
- *Clean up seaweed from beaches to make it easier to walk along, & more patrols to keep bikes & vehicles off the beach*
- *Who is responsible for beach clean ups?*



Coastal zone sustainability

- *City should manage the impacts of climate change on coastal infrastructure.*
- *Do not drain storm water into the ocean.*
- *Sand replacement along Chapman Road is not a sustainable solution.*
- *Our beaches would be more family friendly if we had a long term realistic sustainable approach.*
- *Plant more trees, clean up beach, add facilities for leisure.*



“Life’s a beach”- the 2029 & beyond project

2011 public consultation feedback – what you said

- *Concerns over access to beach through private property.*
- *Agree that a combination of solutions and site specific designs are required.*
- *Understand community values.*
- *Happy with or semi-permanent structures, not permanent, on dunes /beach. e.g. fast food vans in parking area.*
- *Ensure disability access to ocean front.*
- *People’s beach- Cottesloe/Claremont transportable facilities e.g. umbrella/shade & chair hire for tourists.*
- *Seaweed recycling (stockpiling in foredunes, brushing).*
- *Agree with hierarchy of beach uses.*
- *All structures should have multiple uses including submerged reefs. Nothing permanent.*
- *Submerged coastal defences.*
- *Love the dune path idea especially with boardwalks.*
- *Wants to be able to drive on beach- keep Southgate open for 4WD.*

“Life’s a beach”- the 2029 & beyond project

2011 public consultation feedback – what you said

- *Canoes and surf-ski hire on beach and wind surfing or scuba courses etc.*
- *Bar on eastern breakwater (cocktails at sunset) between old port and foreshore.*
- *View binoculars/telescopes*
- *Mobile digital guides e.g. downloadable podcast tours, audio stations along trail.*
- *Beach erosion- build up reefs to make a sea wall to arrest surge e.g. North of the marina and south of the lighthouse.*
- *Like the idea of walks over the dunes also idea of adaptable buildings.*
- *Small retain strip from Gull to African Reef to encourage beach access at the stable part of the beach*
- *Sacrifice an area for people to drive on the beach/dunes*
- *Places to fish e.g. On groynes & from beach with cleaning stations provided.*

There is no debating the fact that Beresford Beach is experiencing significant erosion. The City of Greater Geraldton has a responsibility to implement coastal protection measures in order to protect the road and other assets along Beresford beach and to defend private properties from continued foreshore erosion.



So how do we manage sand movement and protect our coast?





An engineering solution

In order to remedy the existing problem of erosion along this section of foreshore, it is necessary to construct a series of headlands at suitable intervals, to manage sand movements and retain sand on the beach.



Overview:

Based on wave and shoreline modelling, Cardno assessed options for shoreline protection for the Beresford foreshore. The preferred concept features two headlands at the southern end and two smaller structures further north, providing shoreline protection and additional public open space.

Option 1 (Recommended Option):

Two southern headlands & two smaller structures further north, spaced approximately 400m apart:

- Headlands extend to “close to the depth of closure” (where sand moves along shore) to provide two relatively stable compartments in the long term;
- Beaches between the headlands will have the highest beach amenity (wide beaches with sand in summer);
- Two smaller northern structures will trap longshore drift but over time sand will bypass them - they are needed to protect beaches north of the headlands;
- Some regular sand bypassing will be required to protect the foreshore north of Compartment 4.

Option 2:

Two southern headlands and one smaller structure further north, spaced approximately 400m apart:

- Headlands extend to “close to the depth of closure” (where sand moves along shore) to provide two relatively stable compartments in the long term;
- Beaches between the headlands will have the highest beach amenity (wide beaches with sand in summer); and
- One smaller structure further north will only trap longshore drift but over time sand will bypass it.

This option will require a larger volume of regular sand bypassing to the north of Compartment 3 and shoreline revetments to protect assets to the north.

Option 3

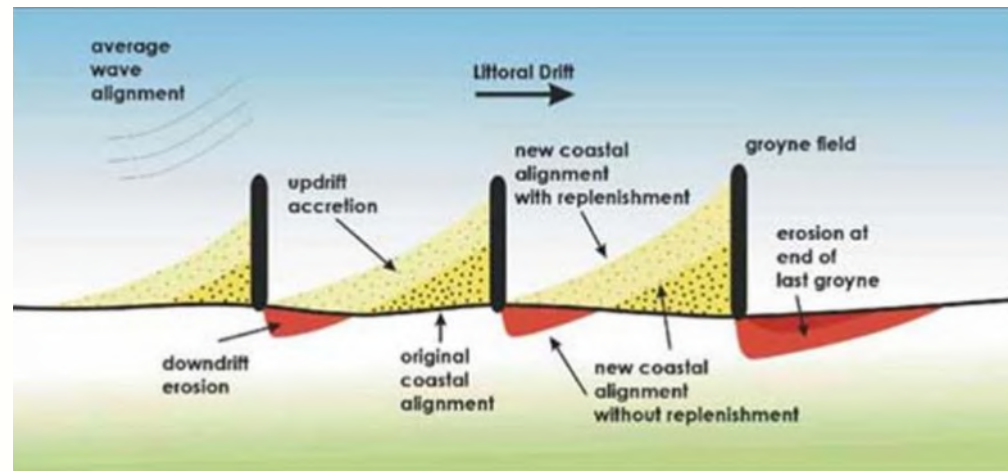
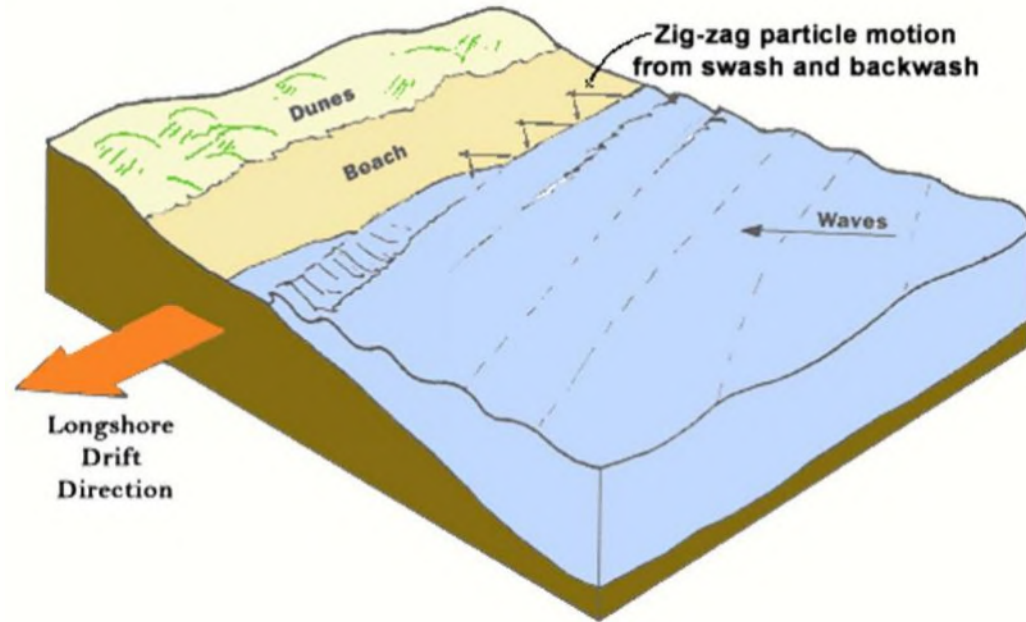
Two southern headlands and no other structures, with headlands spaced approximately 400m apart:

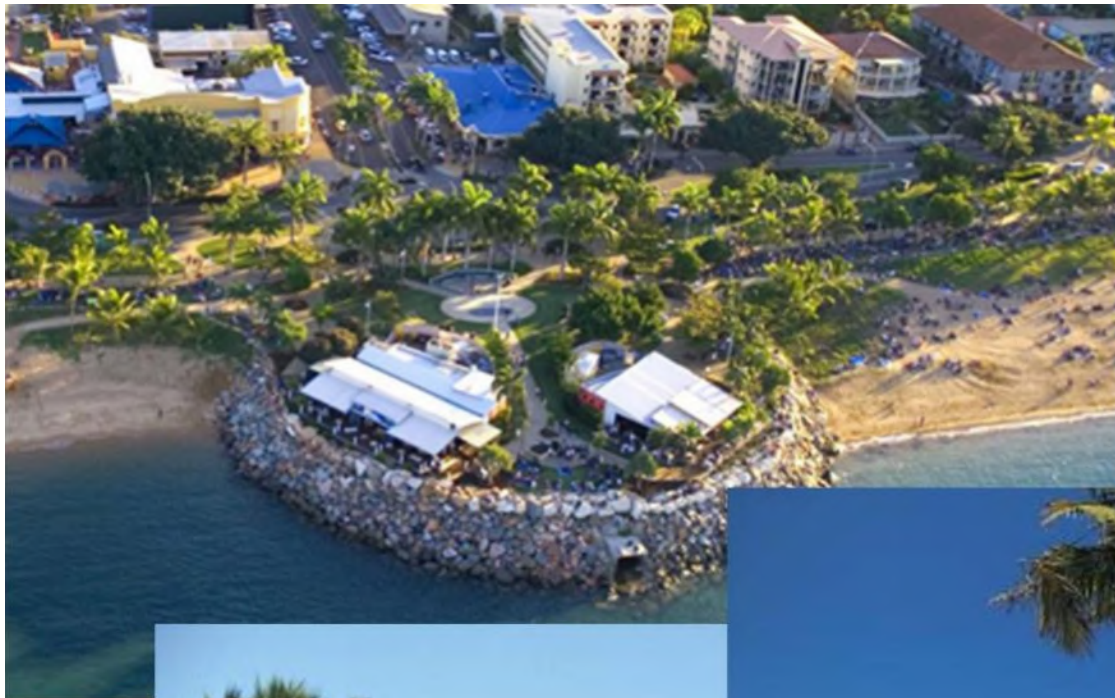
- Headlands extend to “close to the depth of closure” (where sand moves along shore) to provide two relatively stable compartments in the long term;
- One structure further north will be smaller and will only trap longshore drift.

This option will require a large volume of regular sand bypassing to the north of Compartment 2 and shoreline revetments to protect assets to the north.

Constructed headlands

The headlands will act as barriers to northerly sand movement in the nearshore area. Sand will accrete on the the southern side of the headlands until the beach width reaches a point where sand is diverted around the headland to the section of beach to the north. It has been calculated that 4 of these headlands will be required to balance sand erosion and deposition and maintain beach widths.



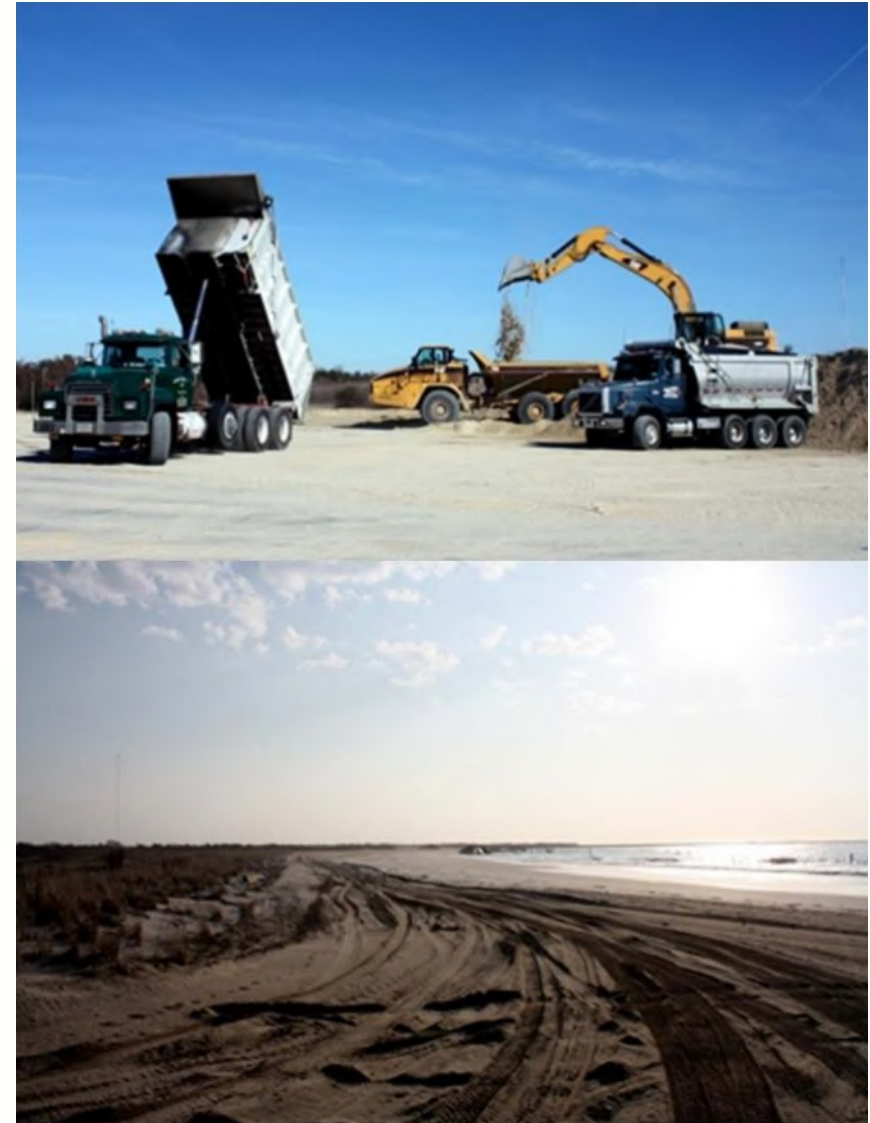




Beresford Foreshore Coastal Protection Project

Beach nourishment

Construction of the southern headlands will *minimise* longshore drift and the need to replace eroded sand. However, some *ongoing beach nourishment* will be required along the northern sections to offset the impacts of disruptions to sediment flows south of Beresford and maintain a suitable beach width. It is anticipated that beach nourishment will be required on a bi-/tri-annual basis.



New opportunities

The construction of these headlands will both protect the Beresford beach from continued erosion, and also provide the CoGG with an opportunity to improve facilities and increase amenity values along the foreshore - both along the existing foreshore and on top of the new headlands.



Beach for everyone

The construction of the headlands will effectively divide the existing Beresford beach into four coves. This enables the CoGG to create a hierarchy of beaches to cater for different user groups and reflect the community diversity captured during earlier consultation.



Connectivity

Upgrades to Chapman Road and the existing pathway will be undertaken as part of the proposed coastal foreshore works. This will include a dual-use pathway for recreational cyclists, joggers and walkers and a designated cycle lane on Chapman Road for more serious cyclists.





Pedestrian amenity & access

Footpath and road treatments along Chapman Road will be modified to improve pedestrian access to the foreshore from Beresford homes and commercial premises.



Local Plants

Landscape design and planting will focus on the use of Western Australian native and local native flora because of their low water, nutrient and maintenance requirements as well as providing food and habitat for local fauna.





Trees for Shade & Amenity

Tree retention and planting will form an important part of the foreshore works. Trees beautify the landscape and provide shade, shelter from strong winds, habitat for wildlife.

The trees on Beresford beach need to be tolerant of strong, salt-laden winds and have good drought tolerance.

Suitable species may include

- Horsetail sheoak
- Cook Island pines
- Rottnest Island pines
- Rottnest Island tea trees
- Tuckeroo
- Beach Hibiscus





Beresford Foreshore Coastal Protection Project

Improved facilities and parking

The large area of undeveloped land at the southern end of Beresford Beach provides an opportunity to improve parking and potentially construct important facilities such as public toilets & showers, shade, picnic tables, and play equipment.

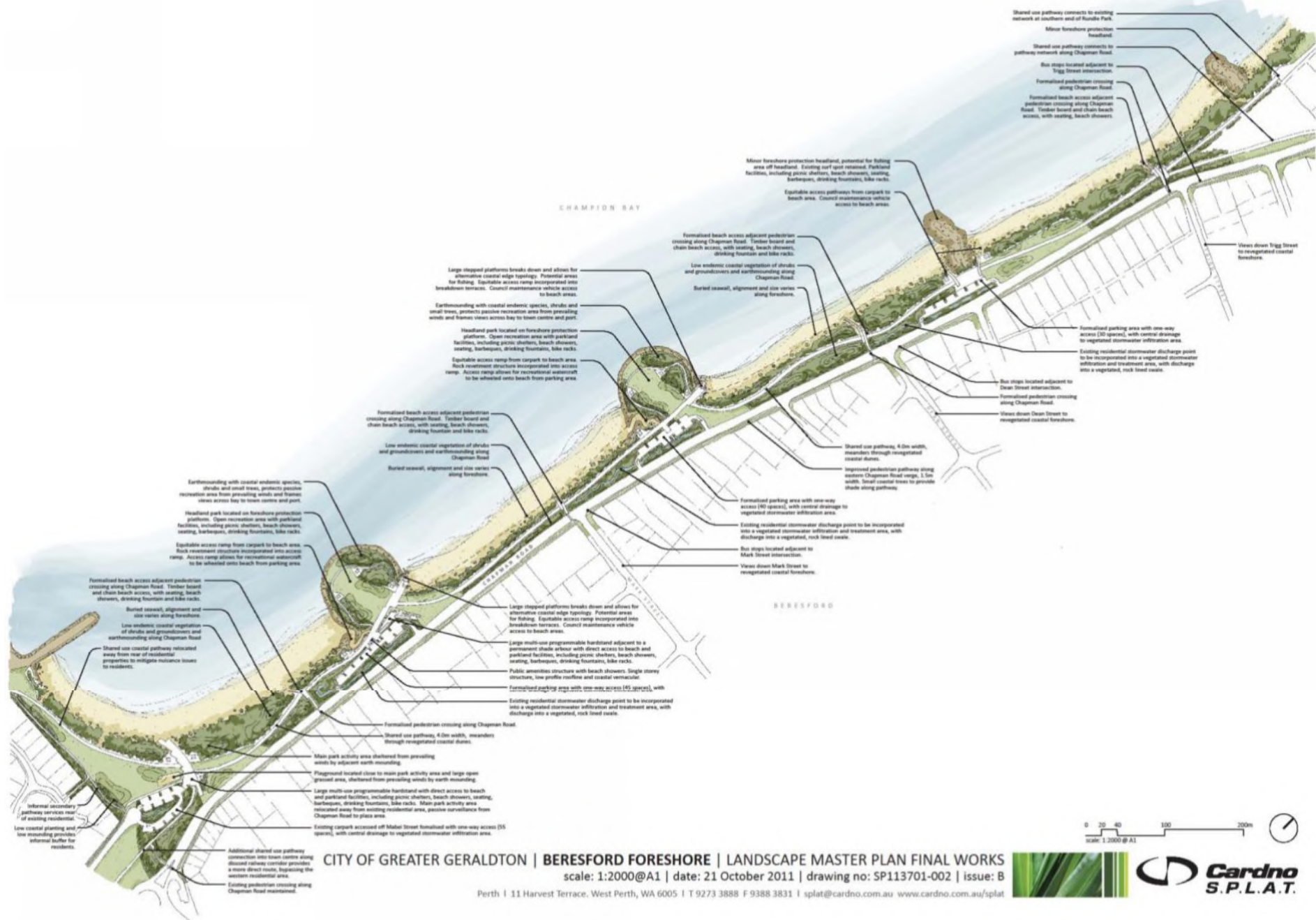




Stormwater management

Elements of water sensitive urban design (WSUD) will be incorporated into the design to reduce stormwater runoff, support landscaping and stop channelization on the beach.





Where to from here

- Report for CoGG on your comments about draft Landscape Masterplan
- CoGG to consider coastal engineering report, your comments and assess options to feed into detailed design
- Detailed design anticipated to be completed 2012



Appendix B

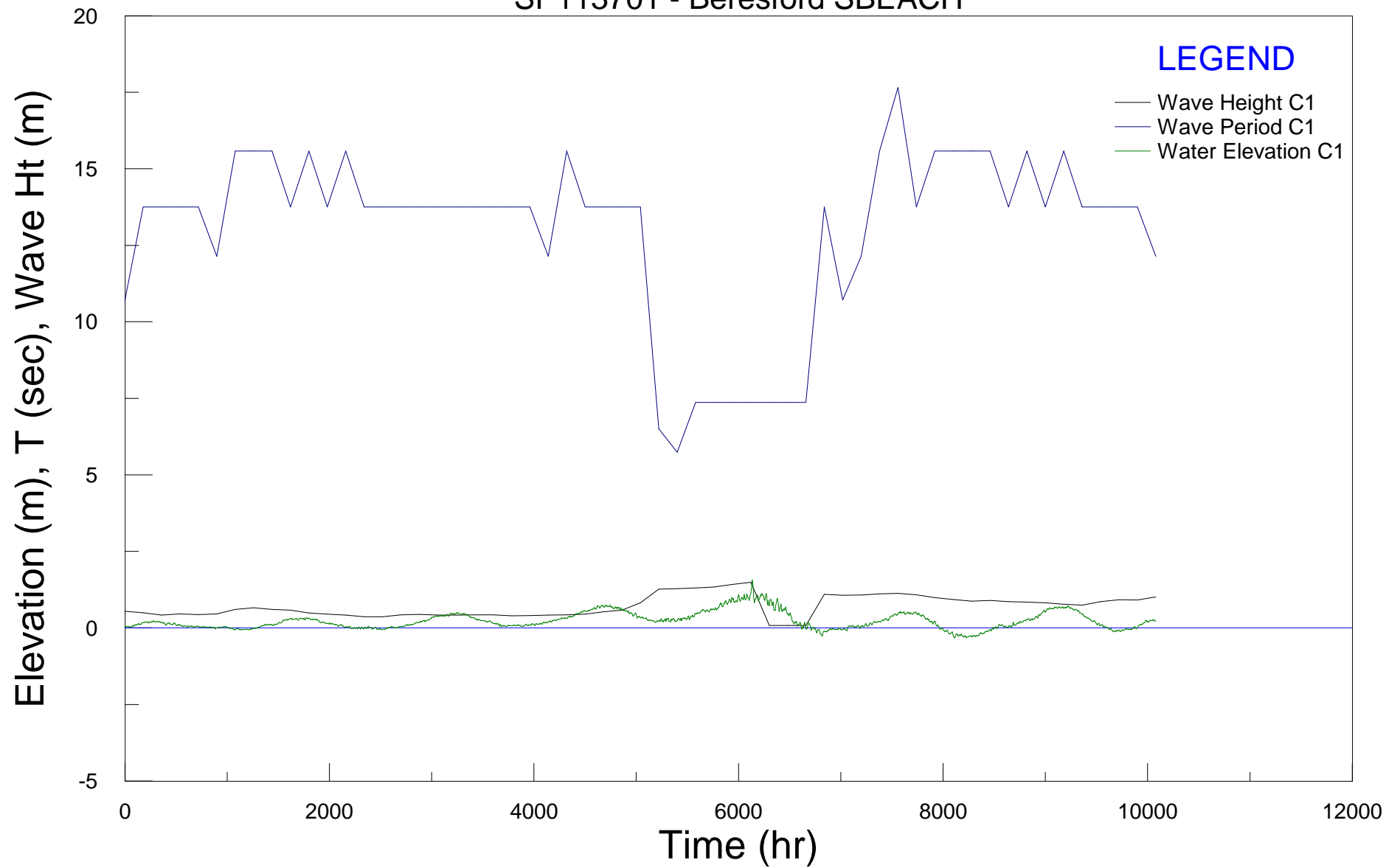
Summary of Shoreline Wave Conditions – Existing Condition

| Profile at 3mAHD | Effective Wave Height He (m) | Weighted Mean Wave Direction (°TN) | Closure Depth (m) |
|------------------|------------------------------|------------------------------------|-------------------|
| 1 | 0.6 | 326 | 2.3 |
| 2 | 0.5 | 278 | 2.2 |
| 3 | 0.6 | 281 | 2.4 |
| 4 | 0.6 | 276 | 2.3 |
| 5 | 0.7 | 280 | 2.7 |
| 6 | 0.5 | 278 | 2.2 |
| 7 | 0.7 | 275 | 2.6 |
| 8 | 0.6 | 274 | 2.4 |
| 9 | 0.6 | 266 | 2.7 |
| 10 | 0.6 | 275 | 2.6 |
| 11 | 0.6 | 277 | 2.7 |
| 12 | 0.7 | 283 | 2.7 |
| 13 | 0.7 | 279 | 2.7 |
| 14 | 0.6 | 280 | 2.4 |
| 15 | 0.7 | 278 | 2.9 |
| 16 | 0.7 | 278 | 2.9 |
| 17 | 0.6 | 278 | 2.6 |
| 18 | 0.6 | 277 | 2.6 |
| 19 | 0.6 | 275 | 2.5 |
| 20 | 0.7 | 273 | 3.0 |
| 21 | 0.7 | 268 | 3.1 |
| 22 | 0.8 | 260 | 3.3 |
| 23 | 0.8 | 261 | 3.4 |
| 24 | 0.8 | 274 | 3.6 |
| 25 | 0.9 | 272 | 4.0 |
| 26 | 0.9 | 271 | 3.9 |
| 27 | 1.0 | 269 | 4.3 |
| 28 | 0.9 | 263 | 3.7 |

Appendix C

Time Series of Wave and Water Level Conditions for SBEACH Model – July 2010 Hindcast

SP113701 - Beresford SBEACH



Appendix D

Community Consultation Feedback

| Number | Status | Interest | Comments |
|--------|---|--|--|
| 1 | Acting on behalf of organisation (NACC) | | List of questions re: project presented to CoGG & Cardno |
| 2 | Private Citizen | "I have a profound interest in having this area "Saved" for future generations, developed and enhanced for the enjoyment of residents and tourists alike | (Esp. South end) Brilliant concept- beach development (if erosion allows) and all the social requirements and facilities are covered except: <ol style="list-style-type: none"> 1. Toilet facilities (?) - towards north end 2. An area for bus parking (tourist). Also local sports groups etc. 3. Special caravan, motor home parking with drive through angle 1-way parking. 4. Could the car parking bays also be made into angle parking. It is so much more easy [sic] for all to manage (as in Forest St west.) 5. Trees of course for shade not sheoak as they drop nuts by the thousands. These are sharp on children's bare feet and a menace to young children riding scooters, plus the area beneath becomes useless as roots protrude (shade is minimal) plus nothing grows under them- check the area near the disabled fishing landing. 6. Could the local tourism promotion body market this area as viewing area for our beautiful sunsets as does Broome 'staircase to the moon'? On balmy evenings we have a "stairway to the sun" effect as well as many beautiful dust and cloud enhanced sunsets. Eastern states visitors are amazed at their beauty. 7. Please protect the Dean St (South & North of) reef. Many people use these at low tide for observing marine life with children. Also snorkelling along this reef is a common activity. |
| 3 | Private Citizen | Concerned rate payer | Disputes the need for foreshore protection works citing historical aerial photographs and argues against the use of City funds for the undertaking of foreshore protection works. (Extensive comment & numerous questions in attachment) |
| 4 | Private Citizen | To learn and interested! | Supportive of concept plan CoGG should provide sufficient parking to encourage visitors and capitalise on 'stairway to the sun' Suggest sand-pumping from channels for renourishment. Suggest establishment of a youth-oriented facility on land between Dean St & round-a-bout |
| 5 | Acting on behalf of organisation (Elected member) | "I am very interested in the design and believe it looks at the long term | |
| 6 | Private Citizen | Interesting | "Hmm..... Not sure, complex problem. Erosion is a natural process- pity we didn't built [sic] further away from coastline." |
| 7 | Private citizen | Concerns as a long-time resident seeing our beaches disappear due to erosion and development (wharves, harbour improvements, marina, rock groynes) | While the onshore improvements & facilities look great- the real concern is what's happening at the water line, beach and beyond. Unfortunately like those who have already attempted to rectify before, I don't have any answers. History and current situation indicates that continually filling Champion bay with rocks provides an isolated temporary relief and creates other issues elsewhere. It appears a buried seawall on this section is unfortunately the only option. Would it be constructed of loose quarry rock or more of an engineered concrete cushion type? I think the proposal offers the following positives: <ul style="list-style-type: none"> • More parking; • More and improved access pathways to the beach; • Additional public amenities; • Perhaps more "usable" beach- although some sections may be only temporary due to high tides and storms. Some concerns: <ul style="list-style-type: none"> • Will the planned work push the problem further north and create issues at other beaches? • Will it affect reef areas close to shore? • There are already very few suitable swimming spots between the marina and Saint George's beach due to submerged rocks on the shoreline. (most areas unsuitable for kids to access the water). The plan appears to have the waterline out further, which may eliminate existing accessible sandy pools. Is it possible at low tide to use the an excavator to remove 50m shoreline rocks a few passage ways to safely wade to existing natural sandy bottom spots, suitable for swimming? (or clear some rocks to create some swimming holes- I don't mean destroy live reef areas- only shoreline rocks create or access shallow pools). Thanks for the info, explanations and opportunity to view the propal [sic], |

| Number | Status | Interest | Comments |
|--------|-----------------|--|---|
| 8 | Private citizen | Because I live at St. Georges Beach and would not like to see our surf break destroyed by some rock walls. | <ol style="list-style-type: none"> 1. Position of the surf break on the plans in the wrong spot.. 2. A lot of money to shift the same problem up eth coast? 3. Nobody has studied the impact of the rock walls in regards of St George's beach surf break, a spot which is <u>already</u> hugely used by a wide community of surfers, paddle boarders, windsurfers and 'kajackers'!! [sic] <p>It is hard to understand how plans can be so advanced without anybody raising the question on what impacts they will have on the coast further north in future.</p> <p>At the open day I got told that the dumping of sand will have to continue. The location will shift from Champion Bay to St. George's beach. So why going through the trouble? Just some coarser sand might do the job?</p> <p>Remember: you can't change the course of nature. You fix one problem here, you create another one there.</p> <p>Good Luck ☺</p> |
| 9 | Private citizen | Personal interest & interest in seeing constant improvement to our beautiful City. | I like the concept and would support whatever can be done to stop the erosion and improve the aesthetics. |
| 10 | Private citizen | | <p>Note that the intertidal reef at the end of the cycle track could be impacted by overuse of groynes etc.</p> <p>We support the use of the headland, but not of crude rock, groynes, as they are unsightly.</p> <p>We support native plantings and would encourage this to start early as part of a cheaper "stage 1" if possible. We do not oppose the use of taller trees & in fact would encourage the use of any structures that provide shade and shelter.</p> <p>The shade shelters in the main City foreshore area are too small. They provide no wind break and only temporary sun shade. They can effectively be taken up by jut 2 or 3 people. They are inappropriate for Ger, as the main issues here are always sun & wind. Larger shelters, much larger if possible, including wind breaks, are required.</p> <p>We would like to see shade & BBQ's adjacent to each car park area.</p> <p>We understand that, due to funding constraints, the project may not be completed until 2014, 9 years since eth rail line was decommissioned. This foreshore is somewhat of an eyesore & would become a great asset for the town. The project should be brought forward if possible.</p> |
| 11 | Private Citizen | | <p>"Landscaping looks good"</p> <p>Worried about absence of Marine engineering drawings or sustainability assessment.</p> <p>Witnessed erosion from beach over 32 years at Chapman Road.</p> <p>Does not like sand blowing onto property following renourishment.</p> |
| 12 | Private citizen | I'm concerned about the cost and management of manmade beaches. | <p>I think a solid stone wall would stop the erosion.</p> <p>Man made beaches, I think will fail and need ongoing care.</p> |
| 13 | Private citizen | I live to the north of the project are & was interested to know what effect it would have on the coast to the north & why the whole coastal area of the City wasn't covered. | <p>Need at [sic] lot more information- what effect will it have on the coast north or south?? What is the cost? what alternatives are there & what do they cost??</p> <p>Doesn't appear to be any less such budget than now??</p> <p>Doesn't appear to be any coarse sand within a cost effective distance?</p> <p>None of the sand bypassing is sustainable?</p> <p>Need to have more scenarios on projected sea level rise and cost benefit?</p> <p>If the current infrastructure is lost what cost to write off? (actual not replace)</p> <p>Who is paying for what, what is Dept. Of Planning, Transport, CoGG paying for?</p> <p>Who makes a decision on why the maintenance budget for a unique environmental asset such as Chapman ____ park has a zero maintenance budget and a project like this which is high risk at least has millions or ratepayers dollars thrown into the sea.</p> <p>I was told the other day this has not been costed but have since been told that it has been? I would like to have this clarified?</p> <p>I would like to see at least 2 other alternatives to this proposal?</p> |

| Number | Status | Interest | Comments |
|--------|--|---|--|
| 14 | Private citizen | 1. A concerned citizen. I have been on the boards of both MWDC & NACC. 2. A member for >12 years of "friend of Bluff point". | <p>a. I look for minimising groynes.</p> <p>b. I accept that sand feeding is a necessary consequence of having a port and marina.</p> <p>c. I feel that the stretch between Hungerford Road & St. Georges Park beach is the best protection on our coast.</p> <p>d. A series of groynes up to St. George's would be a disaster (just passing the problem north).</p> <p>e. I find the proposal for 2 artificial 'headlands' with regular sand feed acceptable.</p> <p>f. I like the thought of using bigger grain sand</p> <p>g. I like the plan to use dredged sand for the new beaches (will it be clean enough?)</p> <p>h. I would much prefer the government fund a bypass piping of sand from south to north past the Port etc.</p> <p>i. I would like to a professional geomorphology 3rd party to be asked for their opinion of this design before Council makes a decision.</p> <p>j. I do not like the options of stage 2 & 3 which simply create more groynes further north. Where do you stop, Kalbarri?</p> |
| 15 | Private citizen | Protection of road from beach on Chapman Road. | <p>Looks good. Get it repaired before we lose the road.</p> <p>Not too sure about the hidden sea wall- something more permanent and visible?</p> |
| 16 | Private citizen | Resident affected by changes | <p>Looks fantastic & certainly beautifies the area, Will stabilise existing walk path and road.</p> <p>Big concern we are just moving the erosion problem to Bluff Point.</p> <p>Consultants confirmed that were the last rock wall is there will be a need to cart sand.</p> <p>Issue here is that the final groyne is proposed near St. Georges beach- relegating it to 'vertical' beach status like we currently have at magic Beach?</p> <p>Concerned that in 5 years there will be another consultation to stabilise Bluff Point.</p> <p>Sunset not such an issue as there are dunes that will help stabilise the area.</p> <p>But: aesthetically it looks good.</p> |
| 17 | Private Citizen & 'Friends of Bluff Point' | To look at Councils latest effort | <p>It merely moves the problem north- at great cost</p> <p>Sand feed is not averted –it has to continue.</p> <p>Beautiful headlands are optimistic- very exposed site- hard to grow trees- look at the survivors on the DUP</p> <p>Even if beautiful headlands are created are created and usable beach is extended there is a risk of destroying or damaging St George's beach- which is a beautiful usable beach. (Robbing Peter to pay Paul?)</p> <p>Species list has some very strange & unwise choices.</p> <p>Look ahead – do not allow building opposite latitude- long-term cost will be huge.</p> |
| 18 | Private citizen | To find out what is happening along Chapman Rd before Chapman Road is washed away. | Looks good. Something needs to be done and this would be a good thing. |
| 19 | Private citizen | Have witnessed continual erosion of coast along Chapman Road. Have raised concerns but feeling | <p>Congratulations on identifying the problems.</p> <p>This is a beginning and essential to happen ASAP before next winter- before we lose another pathway. This is much improved solution to transport sand in which ends up either in the channel or on properties across Chapman road.</p> <p>The earlier it starts the better.</p> |
| 20 | Private citizen | From a ratepayers interest | <p>1. Are headlands the most effective solution to mitigate coastal erosion/sand movement at Beresford?</p> <p>2. Why only one day to provide feedback?</p> <p>3. Why not present different possible scenarios to mitigate/stop erosion at Beresford?</p> <p>In short not convinced if 'solution' will solve the issue.</p> <p>Also not convinced this is the best solution. Would have been nice to have seen different options presented to the community e.g. different scenarios based on</p> <p>1. Mitigate/solve coastal erosion</p> <p>2. Cost effectiveness long-term costs</p> |

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| 21 | | My concern about coastal management/ protection. | <ul style="list-style-type: none"> I would like to see some alternative method that could achieve the desired objective to protect the beach frontage- the capital. I would like to be more confident of the probability that these structures will do the job. If this coastal frontage was my body needing major reconstruction I would be getting a second opinion from experts before committing to "the surgery". Aesthetically and for community services etc. I can see the development as appealing. Could I suggest that the pathways are designed to ensure there is no conflict between bike riders & walkers? |
| 22 | Private citizen | Myself and my family lived at henrys t for 20 years and use this area all the time walking our dog, paddle boarding and skin diving. The area has always suffered from erosion so I am keen to find out what will be done about it. | <p>Overall the proposed project looks great. The 2 mini-headlands great idea offering public access for BBQ's etc.</p> <p>Points to consider.</p> <ul style="list-style-type: none"> Using local beach plants will look good and flourish in this area. But palms also give the scene a sense of a tropical paradise and they also grow well in this area. One is already established on the beach opposite Dean St. Toilets are needed if you are to attract more people as the only toilets are at St. Georges and at the boat ramp in the marina. The major point here is erosion, To simply construct seawalls, headlands and backfill with sand to create beaches I believe will not work, The City is spending a lot of money here to beautify this great bay with a great public area but to simply allow this project to be battered by our winter storms without added protection would be a crime. What do I mean by added protection? I firmly believe that a low profile 'sea wall' much like the height at 'seal rocks' in the harbour needs to be built at least 50-100m out from eth tips of the headlands asn as long in length as the whole 4 headlands. This sea wall would be low enough to be just visible on a high tide and would have gaps every so often to allow access through it by small craft to the inside of the lagoon area and to allow water flow (restricted) to eth beach. Waves and the oceans energy needs to be slowed as much as possible before it reaches the beach and this proposed structure otherwise a lot of money and hard work will go to waste. |
| 23 | Private citizen | To determine if you are going to address to problem of just bandade [sic] as has repeatedly happened. | <p>The project is not addressing the issue; you are proposing to push the issue further up the coast without addressing the original problem. ie. The port sand trapping and causing the erosion issue.</p> <p>The landscaping does not and will not help the issue; it will only provide an alternative focus to the major problem, being port, without providing a long-term solution.</p> |
| 24 | Private citizen | I live nearby and am concerned by ongoing erosion. | <p>Stabilising the area with headlands sounds and looks ok.</p> <p>The beautification project is great.</p> <p>I have concerns that the headlands will be effective and recommend sand slurry pipe from Point Moore be considered in preference to trucking operation to replenish lost sand. A continuous supply will maintain the area more effectively, in my opinion.</p> <p>After the headlands are built. Bluff Point residents might find that theirs is then the beach that disappears each winter when adequate sand is dumped to replace it.</p> <p>In my opinion, the most sustainable solution would be to replace the previous natural flow of sand from the south. If collected & piped from Pt. Moore perhaps the shipping channel might require less maintenance dredging.</p> |
| 25 | Private citizen | Concern over beach erosion two streets from residence. | Would like to see the beach kept and in natural state, if the sand can be built up around Mark Street at Beach by another groyne so the beach doesn't wash away that would be good. |
| 26 | Private citizen | To gain first hand information regarding the Beresford foreshore and enhancement project. | <p>Being invited to view the excellent plans as well as having them explained by Michael (GoGG) and Jeff (Cardno) was very much appreciated.</p> <p>We now look forward to the work being carried out in the near future.</p> <p>If possible, can a large scale plan as shown on Thursday be provided please?</p> <p>Many thanks to the organisers.</p> |
| 27 | | I live close by the erosion zone | <ul style="list-style-type: none"> It will not work Totally exposed to northwest storms which will wash beach away overnight!!! If you pursue this plan you are wasting your money. What is required is a submerged reef similar to what exists at St. George's beach. <p>(sketch provided)</p> <ul style="list-style-type: none"> Artificial submerged reef fringing protection approx 1-2m below the surface allows <u>break</u> up of wave energy& dissipation of force. This works in nature and it will work here!!! |
| 28 | Private citizen | Worried about erosion | <p>Talk 2 the fishermen.</p> <p>Don't worry what it looks like as long as the erosion and planting in dunes stop erosion dunes, and try to make it as natural ass [sic] possible.</p> <p>Cray fishermen, scallop fishermen (on boats), long and wet liners have got records of what's happening under eth water with Dep [sic] sounders & records.</p> |

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| 29 | Private citizen | Interest- I live on foreshore Want to know something is going ahead. | <u>About time.</u> Please start as soon as possible. <u>Put it online- information</u> |
| 30 | Private Citizen & Acting on Behalf of an organisation | A concerned rate payer, property owner on Chapman road & Chairman of Point Moore Coast Care | Growns [sic] should be flexible and easily modified to accommodate design errors, GPA changes & ocean changes. It seems little consideration has been given to the enhanced problems further north these works will have. Do the consultants prior projects that have been successful in similar situations? In principle the proposal seems reasonable, but should remain flexible as to the best of my knowledge there has not ever been a project like this on the coast that has not just moved the problem elsewhere. Know one [sic] could tell me what these works were intended to do, or the expected outcomes, slow erosion? Halt it? Move it elsewhere? |
| 31 | | | How does this address the problem of sand being eaten away? Is the bush being planted along the path going to be high enough to be a security concern? I think there could be a children's playground along there somewhere |
| 32 | | Foreshore study | |
| 33 | Private Citizen & Acting on Behalf of an organisation | As a resident on the foreshore further north – query as to what effect all this will have on foreshore to the north | Good. Database as to which trees will successfully grow with our winds in Geraldton |
| 34 | | Very interested in our foreshore | We will wait and see the finer details. More explanation of continuing sand replenishment |
| 35 | Private Citizen | To find out what will be happening in my local area that I utilise every day. | The Council need to consider the following 1) <u>Need to control</u> the traffic flow (lights) along Chapman Road. Due to development of Drummond and suburbs out to there, traffic has become very heavy and it is impossible to get out of a side street this development will increase traffic and thus cause a greater problem. 2) <u>Need to maintain / develop cycle lane on road</u> for serious riders to keep them off the dual use path. 3) Need to allow for lights along the path for safety. 4) Need to consider path crossings as it is difficult to cross the road during peak hours (before / after work). Need to either control traffic flow (lights) or have overhead passes. 5) Many people (including myself) walk dogs on leash regularly. It would be disappointing if this was banned similar to the main street foreshore path. 6) Consider another playground at the northern most node. 7) Ensure environmental monitoring (vegetation, fauna, sand coastal and reef beaches) is put into place immediately (base line) and into the future. 8) <u>With pedestrian access to foreshore / beach please make them suitable for kayak movement</u> |
| 36 | Private Citizen | I live one street back from the beach concerned, and am a Coastal monitor for both Mark St and Dean St. I have lived there for 7 years, walk on that stretch of beach and / or pathway everyday and am local artist focusing on the area. | - Keep structures / poles / signs / built areas to a minimum in a quest to retain some 'openness' to the area - I think the planned pathway is too wide at 4m. Try to keep like a path rather than a roadway for council vehicles! - Buried structures to retain + protect beach sound good but I have some concern for the reefs there now. - I hope the planning of the area is planned to begin after initial, broad landscaping of 'naturally vegetated' areas = asap. To encourage community engagement. Native plants could be ordered through the Geraldton Community Nursery and planted during Community Days @ designated sites. There is a 1 year lead – time for Comm. N. Orders and a very small window in the weather here (late winter) for planting to survive. Enhance what's there all ready. - I encourage putting the electricity along Chapman Rd. Underground to further enhance the visual impact + amenity of the vision. - Please don't over develop the area ~ too many signs, poles, etc, etc - Concern re storm water drains, erosion + pollution - PS. Loathing for obvious rock groynes |

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| 37 | Private Citizen | I wanted to see + hear about the foreshore plans, how council expects to save the beach, prevent further erosion. I wanted to hear that the destructive groynes + breakwater would be removed | I want to know whether this will work! I don't want sand to be continually shifted onto this area by trucks from the Port. That isn't a solution. The whole area needs to be stabilised. Brining in sand is just putting gravel + stone debris into the ocean. It's washing up onto the beach further down. This looks nice, but will the new round groynes really bring sand back to the beach. Or will this cause further erosion up towards Bluff Pt beaches. We don't want the problem of erosion to keep moving up the beach. The reefs need looking after. After talking with Mike I was much more reassured that this might be the best way to achieve something decent. And the old railway line area has a lot of potential. This plans for making a lot more out of the area. |
| 38 | | We live in the area and have done so for the last 20 years. We have watched the beaches deteriorate dramatically wondering what the future will be. | Landscape Master Plan Stage One looks impressive |
| 39 | Private Citizen | I am very interested in the development because I have lived near and used this area all my life. Beach walkway cycling (with grandkids) yatching, snorkelling and reef walking with grandchildren on "discovery" (of sea-life) at low tide. They love it. | I would appreciate if the little reef off (and to the south of) Dean St could be preserved as this is a very valuable educational (sea life) tool for children. The Museum has conducted walks previously. The project is great. However I am a little sceptical – erosion wise- that the areas immediately to the north of the "headlands" will follow the pattern following the placement of the offshore groyne. That area eroded immediately that the groyne was finished. I have walked that area since the 1980's and ersosion exists to the north or east of any of the groynes built in the harbour. And the groyne which was north from the disabled fishing access ramp. Even on so called calm days sometimes the erosion is obvious. My other "plea" is to consider the dual use path to be constructed or sealed with bitumen. The concrete paths are great however the joins are poorly done in some instances and riding along them gives a feeling one is riding along a train track- clunk, clunk etc. Some of our paths have been well constructed & that sensation is minimal, so it obviously depends on the care that the ground workers take. I assume the paths will be sealed for the public to ride cycles, children on scooters, prams, gophers etc. Gravel would be unacceptable. |
| 40 | | Interest in the area, concern serious erosion + wish to see area improved without adjusting tidal flow too much. | I know that coastal erosion is a cyclical issue – look at Spurn Point (?) at the top of Humber U.K. + Happisburgh in Norfolk UK. Unfortunately when you have a built up area + road as we have these things have to be protected. This seems a good scenic way to do this – how much noise disturbance would there be to the local residents and effects on the beaches further north. On the whole I approve of this. |

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| | Negative comment | | Neutral comment | | Positive comment |
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