



Coastal Management in WA A Local Government Perspective

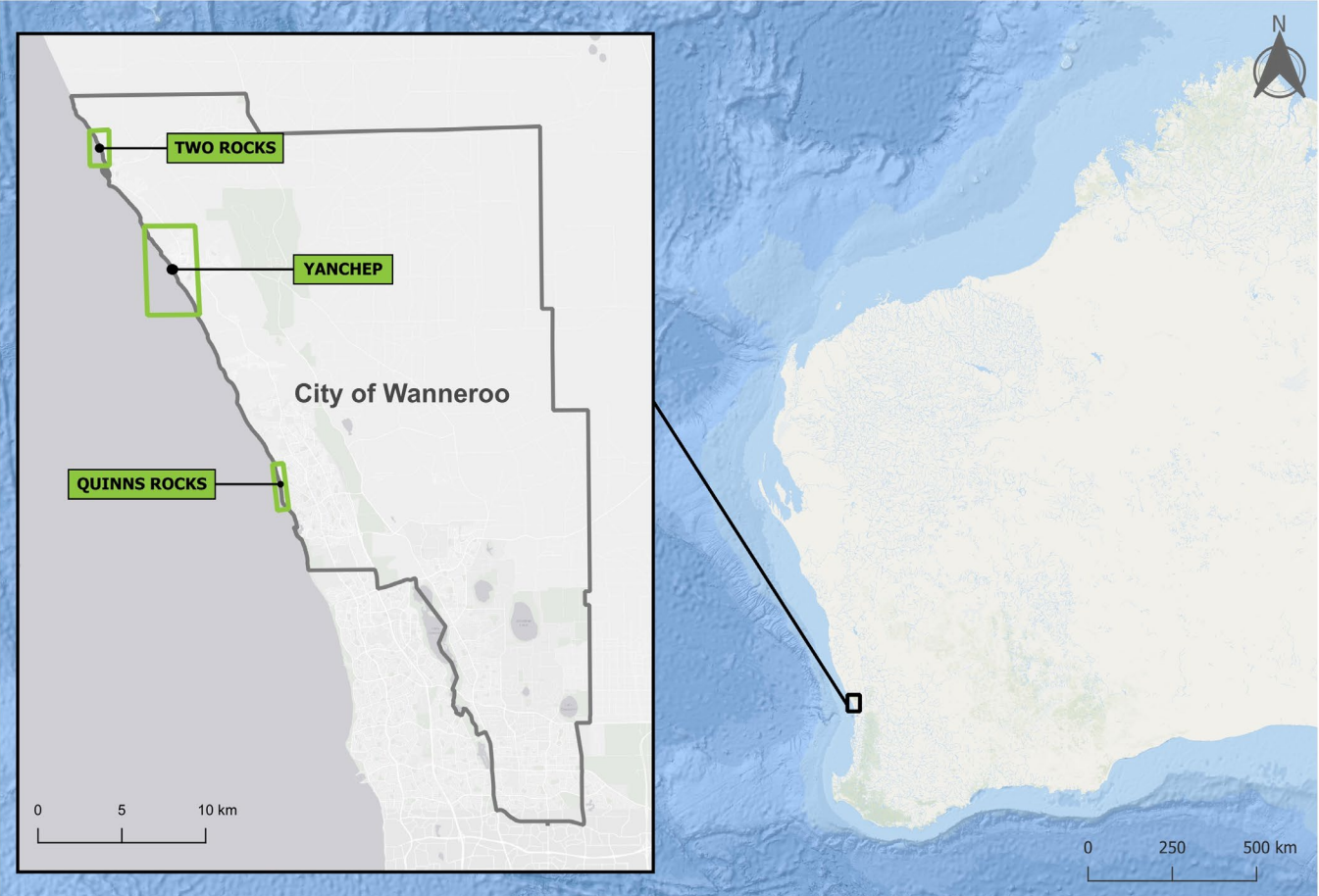
Rory Ellyard – Principal Coastal Engineer

Outline

1. City of Wanneroo Coastal Overview
2. City of Wanneroo CHRMAP
3. CHRMAP Collaboration and Communication
4. Quinns Beach Coastal Management Case Study
 - 4.1 Project Site
 - 4.2 Historical Erosion and Coastal Works
 - 4.3 Quinns Coastal Management Study
 - 4.4 Community Engagement
 - 4.5 Staged Construction
 - 4.6 Project Benefits



City of Wanneroo Coastal Overview



City of Wanneroo Coastal Overview



Beach Access Structures

Coastal Protection Structures

City of Wanneroo Coastal Overview



Beach Renourishment Program

www.wanneroo.wa.gov.au/beachrenourishment



Coastal Monitoring Program

www.wanneroo.wa.gov.au/coastalmonitoring

City of Wanneroo CHRMAP



Example Coastal Management Recommendations:

- R7** *Initiate/continue targeted beach nourishment in vulnerable areas.*

- R8** *Undertake a detailed options assessment for management of coastal vulnerability at Yanchep.*

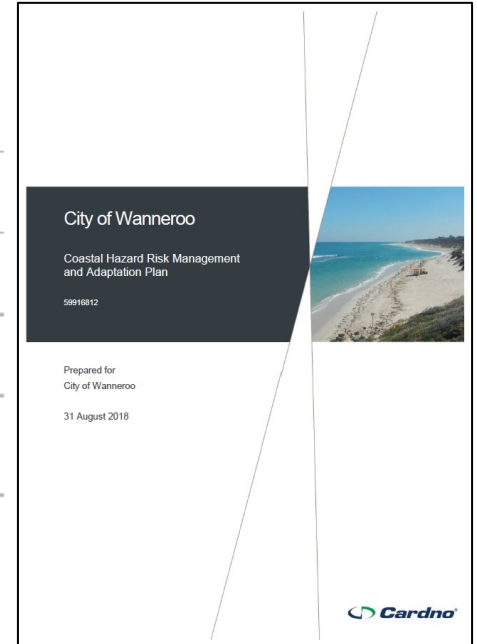
- R9** *Undertake a detailed cost-benefit analysis to accompany the existing options assessment at Two Rocks.*

- R10** *Set up a coastal asset inventory and emergency/damage response plan to respond to potential coastal impacts.*

- R11** *Initiate a long-term coastal monitoring program, incorporating ad hoc storm and metocean monitoring, and coastal asset condition assessments.*

- R12** *Undertake an investigation to identify suitable sediment sources and determine available volumes for use in ongoing beach nourishment.*

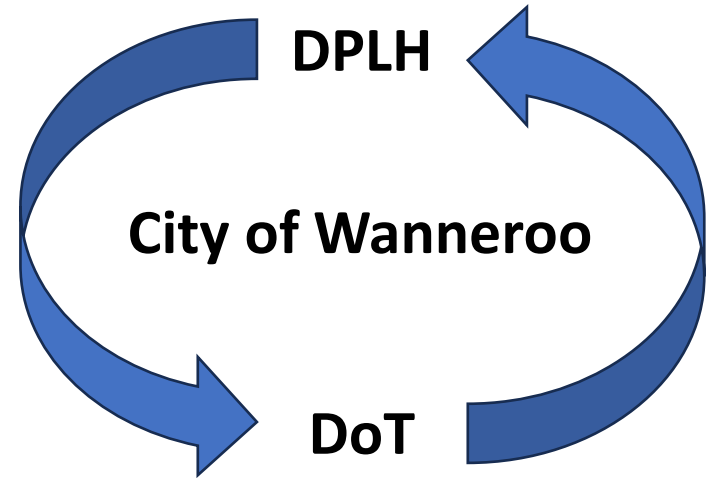
www.wanneroo.wa.gov.au/info/20041/environment/236/coastal_management/3



CHRMAP State Government Collaboration



- CHRMAP – Technical Support and Funding from the Department of Planning Lands and Heritage (DPLH).
- Site Specific Coastal Engineering Studies and Implementation of Coastal Adaptation Measures – Technical Support and Funding by the Department of Transport (DoT).



CHRMAP Community Consultation



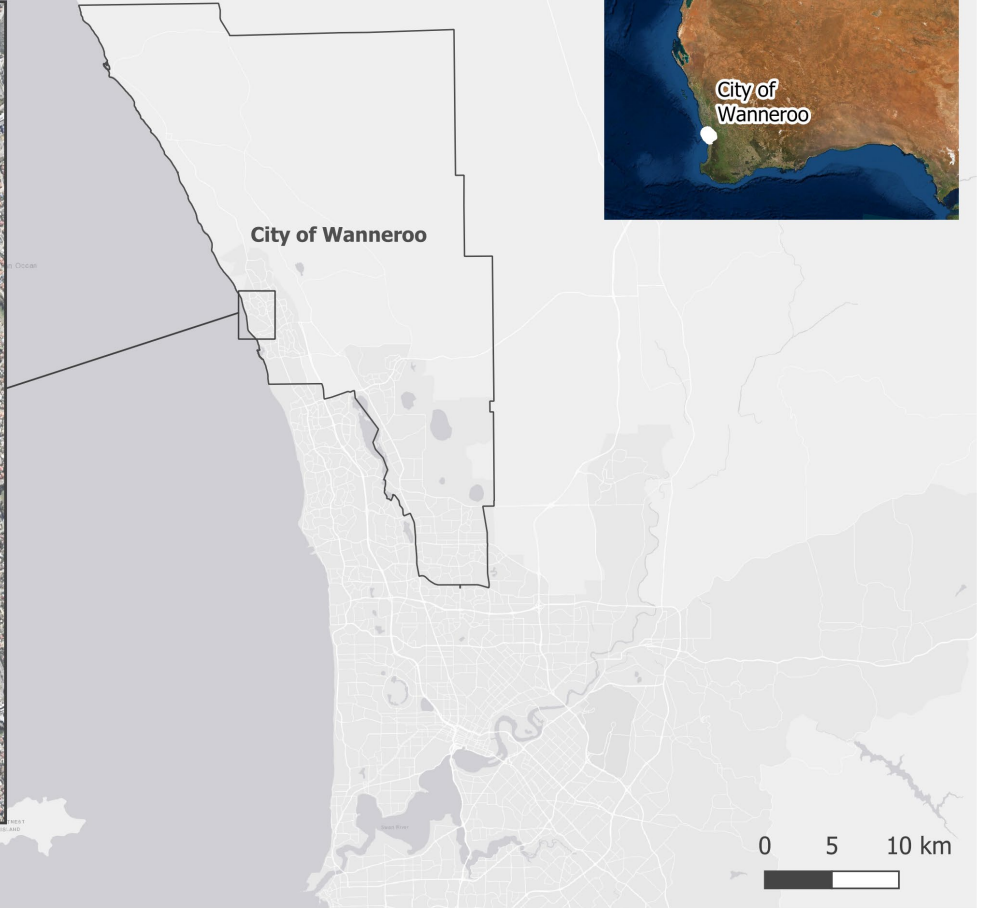
- City of Wanneroo CHRMAP Consultation
 - Community Survey – low no. of responses.
 - Community Information Sessions – low attendance/interest.
- Recent WA CHRMAP Communication Issues
 - Misinterpretation of coastal hazard lines.
 - Misinterpretation of coastal adaptation option recommendations.
- Community understanding and input into the development of options is critical for success.





Quinns Beach Coastal Management Case Study

Project Site



Ongoing Erosion Issues



Historical Coastal Management Works



Construction of 3 Groynes: 2002 to 2004



Beach Re-Nourishment: 2002 to 2006



Rock/GSC Revetment: 2014



Quinns Beach Coastal Management Study



- 2014-2017 coastal engineering study (Cardno/Stantec).
- Aim - To understand local coastal processes and sediment transport and determine a long term management approach to address the ongoing coastal erosion issues over a 50 year timeframe.
- Study Staging:
 - Stage 1 – Detailed Coastal Processes Assessment
 - Stage 2 – Concept Options Assessment
 - Stage 3 – Detailed Design



Quinns Beach Community



Emotive

Passionate

Opinionated

Active

History

Culture

Vocal

Knowledgeable



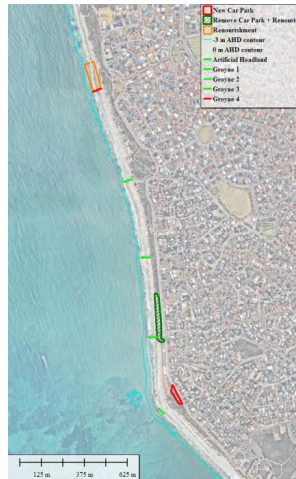
Quinns Beach Coastal Management Study



- 20 options assessed / modelled.
- Reduced to 5 options for Multi-Criteria Assessment (MCA).
- Workshops with Community Reference Group → Refined MCA.
- Top 2 options presented to community for comment/vote.
- Community feedback presented to Council for decision on the preferred option.

OPTIONS CONSIDERED

- Shifted Groyne 1
- Managed Retreat
- Headlands (new, extended, shifted existing)
- Extended groynes & offshore breakwaters
- Modified groynes & offshore breakwaters
- Long groynes, offshore breakwaters & shifted artificial headland
- Groyne 4
- Groyne 5
- Car park revetment
- Dog Beach revetment
- Artificial Reef
- Ocean Pool
- Submerged Wave Power Devices
- Sand trap Devices
- Multiple configurations of offshore breakwaters, long groynes, Y-shaped groynes



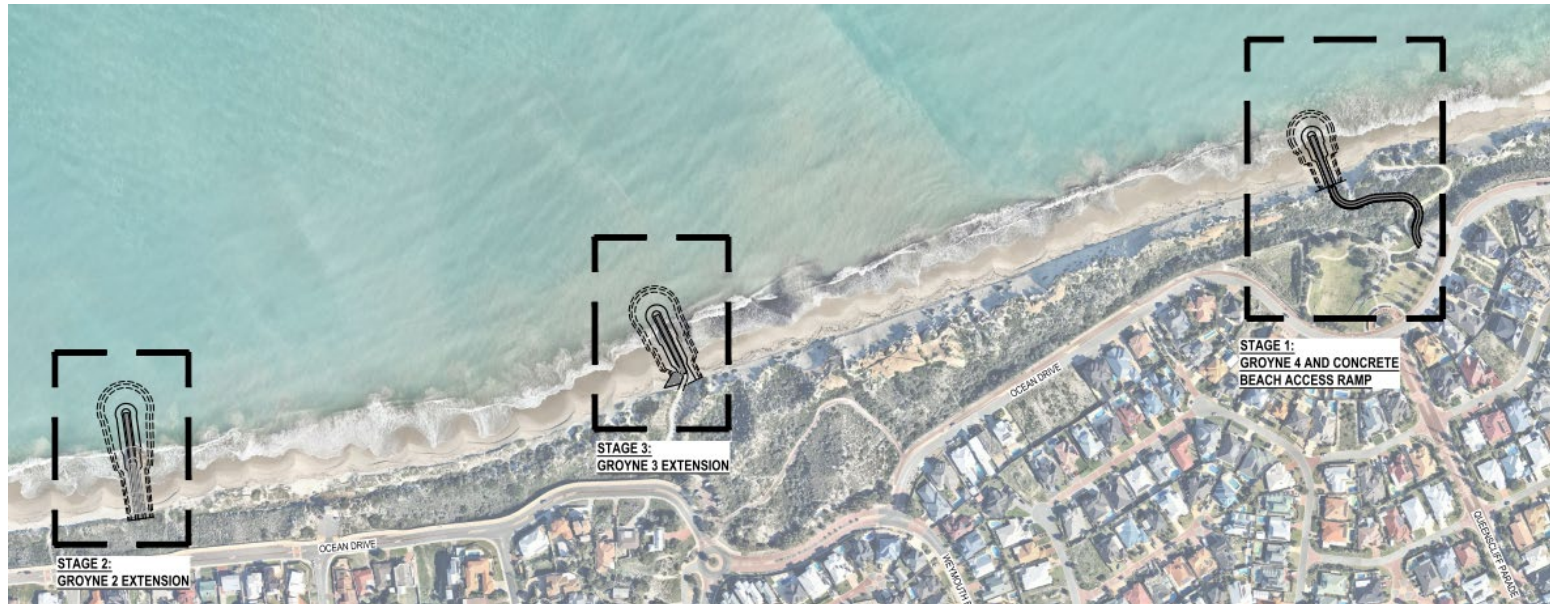
Quinns Beach Coastal Management Study



Stage 1 (2017/18): New Groyne (4), Beach Access Ramp and Beach Renourishment

Stage 2 (2018/19): Groyne 2 Extension/Upgrade and Beach Renourishment

Stage 3 (2019/20): Groyne 3 Extension/Upgrade and Beach Renourishment



Stage 1 Works (2017/18)



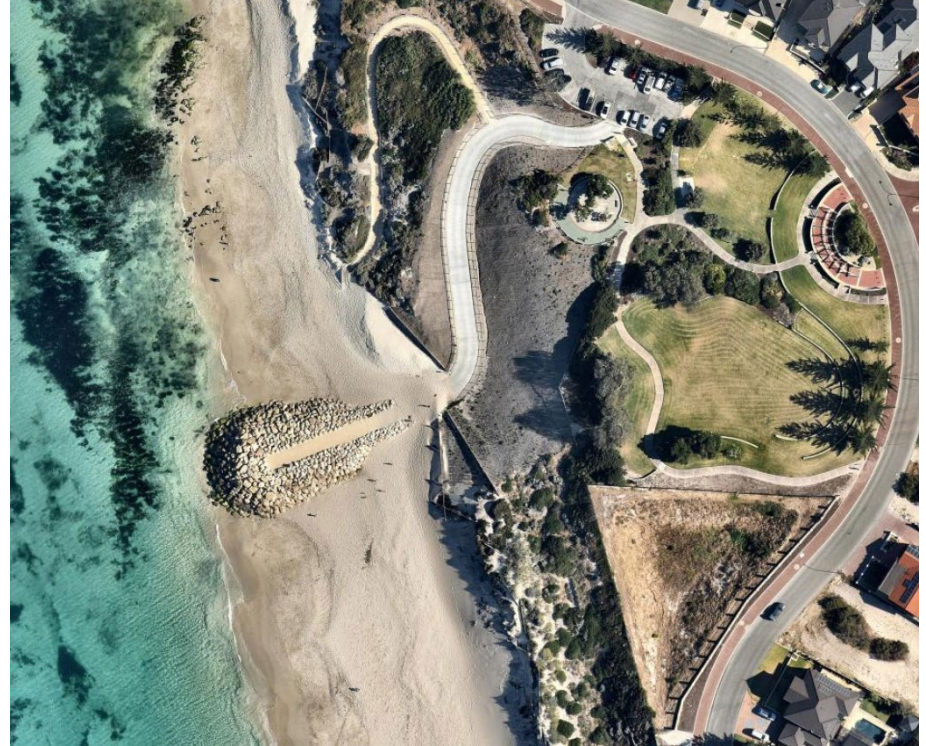
Groyne 4 (60m length), Beach Access Ramp (5m width), Dune Rehabilitation and Beach Renourishment (11,000 tonnes)



Stage 1 Works (2017/18)



October 2017



December 2018

Stage 2 Works (2018/19)



Groyne 2 Upgrade/Extension (105m length), Beach Renourishment (19,000 tonnes)



Stage 3 Works (2019/20)



Groyne 3 Upgrade/Extension (75m length), Beach Renourishment (14,000 tonnes)



Project Benefits



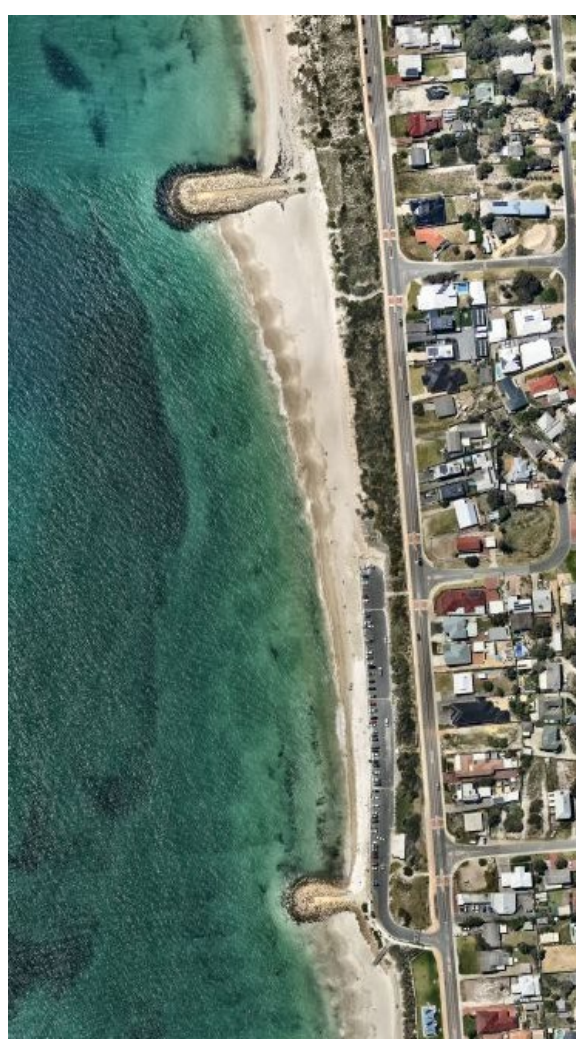
- Reduced groyne maintenance.
- Reduced public safety risks.
- Access to the beach for maintenance/construction works.
- Increased beach amenity.
- Protection to coastal infrastructure and dunes
- Reduced beach renourishment (long term)



Groyne 4 (new northern groyne)

Project Benefits

- Reduced groyne maintenance.
- Reduced public safety risks.
- Access to the beach for maintenance/construction works.
- Increased beach amenity.
- Protection to coastal infrastructure and dunes
- Reduced beach renourishment (long term)



Questions?



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