

Report for South Australia Coastal Councils Alliance

'FUNDING THE FUTURE'

NEEDS ASSESSMENT & LITERATURE REVIEW

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EDGE



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EXECUTIVE SUMMARY

All tiers of government (local, state, national) have roles in decisions related to coastal management, but insufficient coordination between these tiers has long been a concern. In South Australia (SA), many aspects of coastal management and adaptation works have been conducted by local government. The South Australia Coastal Councils Alliance (SACCA) is leading calls for better integration with other tiers of government.

This document aims to provide SACCA with a high-level summary of the need for diversified funding for coastal management, a review of existing funding mechanisms and potential funding pathways, and suggestion on a preferred 'narrative' and associated approach that demonstrates the most pragmatic and realistic option for securing future funding.

This document is split into three core sections:

- 1) Needs assessment
- 2) Literature Review
- 3) Next step

Key findings from each section are summarised in the following text.

Key findings from needs assessment:

There are numerous coastal threats to the SA coastline. An increased frequency and intensity of inundation and shoreline erosion associated with sea level rise and storm surge will continue to threaten infrastructure and assets, causing disruption to multiple sectors and requiring protection, accommodation or relocation.

The total replacement cost of assets when the SA coast is exposed to a 1.1 m sea level rise (by 2100) is estimated to be around \$46 billion. In the absence of adequate protection measures, it was estimated that 60,000 or more built assets along the coast are likely to be at risk. This can cause damage to up to 30% of each Council's housing stock.

The impacts have seen not only physical damage to public and private assets, but also flow-on effects on property values and the risk of materially impeding regional development and investor confidence in the regions. Restricted access to beaches, jetties, boat ramps, caravan parks, tourist accommodation and other infrastructure on the coast due to flooding and erosion can cause adverse consequences on the tourism and recreation sector and people's health and well-being - not only in the regions but across the State.

The challenges confronting local government are associated with meeting the demands for coastal risks management and the needs of vulnerable coastal communities. Maintaining community infrastructure, public access and continuity of services is particularly important.

There has been a growing gap between the costs of coastal management and revenue at the local government level. The current funding mechanisms for coastal management and protection strategies have focused on short-term and ad-hoc response rather than long-term sustainability.

Effective coastal management and adaptation is hampered by a lack of coordination with other tiers of government, short-term funding of coastal protection works and adaptation implementation, legal liability risks, political sensitivity around climate change, and limited capacity and resources. These barriers coupled with changing climate trigger the need for secured funding, long-term forward programs of work, multiple benefit generation and bi-partisan approach to coastal management.

A new perspective to managing coastal risks induced by climate change and a new method of prioritising projects and engaging stakeholders in funding arrangements are required.

This year protecting the coast from coastal flooding and erosion associated with sea level rise is a top priority for ALGA, ACCA and Infrastructure Australia. Opportunities may arise from the recognition of co-benefits the coasts can provide, and from greater interest from industry and developers. Better coordination and partnership between all tiers of government as well as other key stakeholders is an enabler to achieving long-term commitment for coastal management and protection of the SA coasts.

Key findings from literature review:

To build a case for government to commit funding it is important to **change the narrative**. While this project is about exploring alternate funding options, our review has found that this will only be feasible if the narrative of the issue is shifted in a manner that addresses the following points:

- **Opportunities:** that could be realised if the Australian and State Governments invest into to support outcomes such as regional development, diversification and supporting transport and cross-border outcomes
- **Commitments:** initiatives and commitments that are already in place but haven't been implemented (drawing on the concept of backlog).
- **Constraints to development:** that investment is being impeded through a lack of both planning and action on coastal zone management.

The need for a new narrative is particularly important because **beneficiary pays** is a key principle that underpins funding considerations across all reviewed jurisdictions. The principle recommends recovering costs from stakeholder who directly benefit from a mitigation activity which can include private and public stakeholders. The funding models state that only in the event stakeholders cannot be charged¹ taxpayers or ratepayer (i.e. Local, State and Federal Government) should bear the cost. The consequence of the principle is that significant public benefit (such as through benefits associated with tourism, regional service hub, infrastructure) needs to be demonstrated if a significant subsidy is to be accessed, beyond minimum threshold levels. The importance of this principle and the threshold between beneficiary pays and equity considerations will be raised in the consultation phase of the project.

The review has found that Commonwealth funding has only been used sporadically for coastal projects, with no ongoing funding arrangements for coastal management evident. Reflecting this where funding was on offer a few years ago for coastal the focus of the Australian Government has more recently shifted towards natural disaster management rather than mitigation, and there is a stronger emphasis toward recent natural disasters such as bushfires and drought. However, the Metropolitan Coast and a number of regional coastal locations have critical infrastructure assets of regional, state and national significance (e.g. Port Augusta, Port Lincoln, Port Pirie, Whyalla). The significance of smaller coastal settlements will likely be more varied given their history, economic activity and location, with many unlikely to demonstrate a state or federal significance. Demonstrating a compelling case for investment will need to consider the significance of coastal assets, the direct and indirect beneficiaries of risk mitigation action, and the capacity of beneficiaries to pay for mitigation work. By considering SA's coastal management needs as a portfolio of work and the strategic opportunities that may present, funding could be prioritised based on a series of assessment criteria to ensure the funding responsibility is equitably weighted between private and public beneficiaries. We propose to consider these criteria further in the subsequent stages of this project because they will be informed by the outcomes of the interviews.

¹ This could be the case if (1) individual stakeholders cannot be identified, (2) stakeholders are too dispersed to efficiently charge, (3) charging stakeholders would be inequitable or inefficient.

Based on our analysis we summarise three key examples of how SACCA could engage with the Australian Government to receive funding. Consideration should be given to these options as well as a more targeted approach from the SA Government similar to the approach used for Stormwater Management.

1) Regional growth funding

Coast protection works could intentionally be positioned for regional growth funding. This would seek to highlight the social, economic and environmental benefits of protection works particularly if they can be integrated with other priority projects for instance projects that support enhanced service outcomes, tourism, business development or regional connectivity rather than focusing primarily on coastal protection, which instead would be a co-benefit. SACCA would develop a strategy on how to position projects for this type of funding from the early planning stages. For example, storm surge levees can be used for elevated walking and cycling tracks or part of coastal trails.

2) Double down on natural disaster reliance funding

– Some funding for coastal hazard projects in SA has come from Natural Disaster Resilience Program funding, although this is understood to have been limited in scope. SACCA could develop an advocacy paper and actively lobby the Australian Government to expand the scope of this Program. This would likely require support from other state jurisdictions and could be informed by the outcomes of this project. A key in this will be to demonstrate that mitigating is less expensive than reactively responding to coastal impact events – because once the damage is done the recovery is much slower and more expensive.

3) Alternate Federal funding

Federal funding is provided for infrastructure initiatives that are considered to be of national significance, such as roads. There are generally agreed funding ratios that apply to such projects. This would require SACCA to develop an advocacy paper and actively lobby the Australian Government to establish a new Program.

This consortium believe that these three opportunities should form the basis of on-going stress testing and interviews throughout the project.

Key suggested next steps

Effective and well framed engagement is going to be important. Ahead of engaging with the Australian Government we need to set out the case for a broader framing of the opportunity, through some specific case studies (informed by Council analysis).

These case studies will help to illustrate the direct and indirect benefits that can emerge by supporting the development of coastal zones. With the range of benefits likely to include:

- Improved investor confidence
- Increased diversification benefit
- Supporting regions to develop their industrial, tourism and service markets
- Employment in regions (which often suffer for a lack of employment opportunity)



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1. INTRODUCTION

South Australia has a large number of regional and metropolitan councils that have responsibilities associated with providing, managing and maintaining a wide range of coastal assets. The SACCA is looking to develop new funding model(s) for coastal councils in response to a growing gap between the costs of coastal management and revenue at the local government level.

This needs analysis and literature review is a key input into the funding model creation, identifying best practice funding mechanisms for coastal protection and management across Australia, the United States and the United Kingdom. It is first important to acknowledge the existing governance structures in place who are currently responsible for addressing coastal protection.

1.1 Local council responsibilities

Local Councils in SA have responsibilities associated with providing, managing and maintaining a wide range of coastal assets that are exposed to coastal hazards such as erosion and inundation. Illustrating the breadth of responsibility, coastal management responsibilities include maintaining public use of beaches and recreational infrastructure, maintaining coastal biodiversity, and ensuring appropriate planning for future coastal development and existing coastal development occurs.

As described in the Local Government Act 1999, councils have responsibilities for adapting to and addressing climate risks. Councils may be liable if damage to the coasts occur as a result of their negligence, misinformation or overstating of risks.

1.2 Coastal Protection Board

The South Australian Coast Protection Board was established in 1972 to oversee and manage the protection of the coastline with establishment of the Coast Protection Act 1972. The functions of the Coast Protection Board (the Board) (as stated in the Act) are to:

- protect the coast from erosion, damage, deterioration, pollution and misuse
- restore any part of the coast that has been subjected to erosion, damage, deterioration, pollution or misuse
- develop any part of the coast aesthetically, or to improve it for those who use and enjoy it
- manage, maintain and develop those coast facilities that the Board is responsible for
- report to the Minister where required
- carry out, or be involved in, research into the protection, restoration or development of the coast.

Under the Act the Board has the power to:

- carry out works
- remove sand
- acquire coastal land, with the approval of the Minister
- deal with its land, with the approval of the Minister
- enter land (any member of the Board or an authorised person).

Of relevance to this project, the Board is responsible for managing Adelaide's extensive beaches (under the Adelaide's Living Beaches Strategy 2005-2025) and protecting the coastal environment through ongoing activities and strategies and monitoring programs (through \$52.4 million grant funding to regional councils over 4 years and \$5.2 million implementation of the New Life for our Coastal Environment Policy).

Under the Planning, Development and Infrastructure Act 2016 (PDI Act 2016) a new land use planning framework is established. Under this Act, the Board have direction on all coastal development applications referred to it via the Planning and Design Code "Coastal Overlay".

2. NEEDS ASSESSMENT

2.1 Coastal hazards and challenges facing local government

The 5,000km coastline of South Australia stretches from the Eyre Peninsula bordering with Western Australia to the Limestone Coast bordering with Victoria. The coastal landscapes range through rocky cliff coasts, submarine canyons, high wave energy sandy beaches and estuarine environments to tidal dominated coasts with sandflats and mangroves².

Future sea level rise together with storm surge are likely to cause inundation and accelerated erosion of many beaches and cliffs around the coasts. With 90% of South Australians living within 50km of the coast and half of SA councils located on the coast, significant economic and social costs as a result of climate change are inevitable.

Coastal hazard risks may vary from Council to Council, but hazards types are common. These include coastal flooding, erosion of beaches, cliffs and dunes, sand loss or sand accretion, sand dune drift and ecological hazards (Figure 1).

Figure 1 Coastal hazards facing local governments across the SA coasts.



² R. P. Bourman, C. V. Murray-Wallace and N. Harvey, Coastal Landscapes of South Australia, Adelaide, South Australia: University of Adelaide Press, 2016.

Other hazards include Coastal Acid Sulfate Soils (CASS) and stormwater management related issues - such as stormwater effluents damaging seagrass in the Gulf St Vincent, backflow of floodwater into coastal townships through drainage outlets in the Limestone Coast region.

The state-wide data from Council supplementary returns collated by the Local Government Grants Commission shows an upward trend in Councils' expenditure on coastal protection and management works (both operating expenses and purchases/construction of fixed assets) over the past 10 years. On the contrary, the average operating income remains stable over the same period, worth only 10-16% of the expenditure.

The main areas of Councils expenditure on coastal management to date have been on infrastructure development and maintenance, coastal protection works, risk analyses, the preparation of adaptation strategies or plans, and legal opinions, as well as capacity building (staff education and development) and community information and engagement. The expenditure on coastal management may range from thousands of dollars on internal staff education activities through to over \$10 million on coastal protection works.

While considerable resources have been set aside in some larger local governments to provide for coastal management, in smaller areas, implementation of action is limited by resource constraints. Of total operating and capital expenditure, small Councils tend to spend considerable resources on consultant studies and on the preparation of coastal adaptation strategies or plans, in addition to resources in staff time on these projects. Kingston District Council for example has average coastal operating costs representing 37% of total operating expenditure over the period of 2017-2019.

Future climate change will impact coastal areas differently and its financial implications for coastal Councils will vary significantly according to local context. Based on the Port Adelaide Seawater Stormwater Flooding Study published in 2005, an estimated cost of a clean-up can reach \$30 million if a major flood hit (1 in 100 years), and would rise to more than \$70 million by 2050 if nothing was done and sea levels rose by 0.3m.

Data collected at Port Stanvac shows that sea levels have risen at an average rate of 5.1mm/year between 1992 and 2012³. These observations are slightly higher than average global sea level rise observations recorded in IPCC 2013 for a similar period of between 2.8 and 3.6mm/year between 1993 and 2010.

2.2 Valuation of climate change impacts

Potential impacts of coastal climate change threaten a range of sectors, including tourism and recreation, emergency management, and insurance and finance. Disruption of local communities and increasing levels of stress and tension, would have implications for the health sector. Across the state, damage to critical infrastructure, property, agricultural land and natural environments could cost billions of dollars in losses. Coastal landowners and lenders in the banking and finance sector face significant losses from inundation or erosion of land by rising sea levels.

The Supplement to the 2011 *First Pass National Assessment of Climate Change Risks to Australia's Coast*⁴ provides an estimate of the number of assets exposed to the combined impacts of inundation and erosion risks as a result of a sea-level rise of 1.1m. The total estimated replacement cost of assets when the SA coast is exposed to a 1.1m sea level rise, predicted by 2100, and based on data sourced in 2011, is expected to be around \$46 billion.

Coastal ecosystems, including estuaries, coastal vegetation, wetlands and reefs, will also be vulnerable, as will land adjacent to the coast used for primary production, industry and residential purposes. Increases in coastal erosion will pose a risk for sea grass, which is an important source of carbon sequestration and a nursery for many fish stocks⁵.

2.2.1 Risks to built assets

The consequences of infrastructure and asset exposure to coastal inundation and shoreline erosion will be felt at different scales and across different time frames. Impacts of storm surge and coastal flooding may be experienced first, followed by damage to building structure and contents which can result in temporary relocation.

It was estimated that 60,000 or more buildings along SA's coast are likely to be at risk in the absence of adequate protection measures⁶.

The Cities of Charles Sturt and Port Adelaide Enfield contain the highest numbers of residential buildings at risk of inundation from a 1.1m sea level rise. Between 8,500 and 14,100 buildings in Charles Sturt and between 5,500 and 10,500 buildings in Port Adelaide Enfield are at risk which represent up to 30% and 23% of each Council's housing stock⁷.

3 Bureau of Meteorology, "The Australian Baseline Sea Level Monitoring Project - Monthly Data Report," 2012.

4 Efficiency, Department of Climate Change and Energy, "Climate Change Risks to Coastal Buildings and Infrastructure: A Supplement to the First Pass National Assessment," Commonwealth of Australia, 2011.

5 CSIRO, "Adelaide Coastal Waters Study," <http://www.clw.csiro.au/publications/acws/>

6 Department of Industry, Science, Energy and Resources, "Australia's climate change strategy" <https://www.industry.gov.au/strategies-for-the-future/australias-climate-change-strategies>

7 Department of Climate Change, "Climate Change Risks to Australia's Coast: A First Pass National Assessment," Commonwealth of Australia, 2009.

The City of Port Adelaide Enfield also contains the highest number of commercial and light industrial buildings that may be affected by the combined effects of coastal inundation and shoreline recession. Between 265 and 506 commercial buildings, and 200 and 692 light industrial buildings are identified at risk⁸.

The District Council of Yorke Peninsula and the Coorong Council contain the highest lengths of road exposed to sea level rise with between 670 and 765km and 595 and 730km exposed respectively. The City of Port Adelaide Enfield and Port Pirie Regional Council have the highest rail lengths exposed with between 38 and 48km and 30 and 38km exposed respectively⁹.

As sea levels continue to rise, low lying coastal areas may become frequently or permanently inundated, requiring relocation of infrastructure. Shoreline erosion has been and will continue to threaten infrastructure and assets across South Australian coasts. Some buildings have been abandoned and replaced further inland, including Surf Life Saving SA club rooms at Semaphore and Moana. Landward migration of the coast may threaten the structural integrity of buildings, roads and railways, requiring additional repair, maintenance and possibly relocation. Disruption to public infrastructure including road and rail networks can disrupt transport of goods for local and export markets⁹.

2.2.2 Risks to the community

Climate change impacts on coastal communities are likely to be a significant and enduring feature of South Australia's future. Typically, climate phenomena do not occur in isolation. For example, a bushfire event is usually combined with very hot weather conditions; similarly, an extreme coastal storm event typically combines storm surge with intense rainfall. Changes in the intensity and frequency of such events may be compounded when they occur together. In addition, the impacts of climate change often have flow-on effects and cause a range of additional issues. Comparable climate change impacts are likely for many coastal settlement types. However, the diversity in patterns of settlement, industrial activity, ecological systems, infrastructure and community expectations provide important distinctions for how impacts will be experienced. Climate change impacts in cities are likely to cause the most significant damage in financial terms because of the location, extent and intensity of infrastructure, businesses and residences. For peri-urban areas where many services such as medical facilities and specialist shops tend to be accessed over distances and necessitate private motor vehicle use, coastal climate change impacts are likely to affect mobility and may effectively disassociate communities from their

places of employment, education and health needs for unknown periods of time¹⁰.

In regional and rural areas, where settlements include temporary residents through tourism and second homeowners, climate change impacts are likely to require a high proportion of these communities' financial capital to rectify and responses are likely to depend on financial decisions made in other locations to subsidise investment. However, of all the settlement types, the livelihoods of those living in rural areas are often most directly affected by climate change impacts¹⁰.

In addition to the risks to houses and built assets valued by the community, the displacement of people from their homes, disruption to businesses and health and safety concerns can have large social consequences, including potential loss of life. The severe weather events in September 2016 was one of the most intense storm to impact SA in 50 years. This storm resulted in 80,000 lightning strikes, golf-ball sized hailstones and damaging winds gusting up to 120km/h, causing 900,000 homes and 1.7 million people without power^{11 12}. The disruption cost of this storm to businesses was an estimated \$367 million (with median losses of \$5000 per business)¹³.

Loss of or damage to beaches and associated facilities as a result of sea level rise may have a significant impact upon recreation activities and heritage and amenity values. The use of recreational assets including boat ramps, picnic facilities, jetties, walking and cycling paths and coast parks is likely to be restricted due to direct inundation and more frequent damage. As beach areas reduce, there may be conflict over the space available to different groups of beach users⁹.

Coastal hazards also pose risks to indigenous community and heritage sites across the State. There are many Aboriginal heritage sites associated with coastal dunes, springs, wetlands and estuaries including the Tjilbruke coastal springs, and areas within the Coorong National Park and Yalata Indigenous Protected Area.

8 Department of Climate Change and Energy Efficiency, "Climate Change Risks to Coastal Buildings and Infrastructure: A Supplement to the First Pass National Assessment," Commonwealth of Australia, 2011.

9 URPS, "Defining the Sea Level Rise Problem in South Australia," Prepared for Local Government Association of South Australia in partnership with Climate Change Unit, Water & Climate Change Branch, Department for Environment Water and Natural Resources and Coast Protection Board, 2014.

10 T. Smith, "Climate Change Impacts on Coastal Communities," CoastAdapt.

11 M. Sutton, "Climate change an influence behind rare SA storm and NSW coastal damage," ABC News, 2016 <https://www.abc.net.au/news/2016-11-14/sa-and-nsw-storms-attributed-to-climate-change/8023046>

12 Climate Council of Australia, "Super-charged storms in Australia: The influence of climate change," 2016 <https://www.climatecouncil.org.au/resources/stormsreport/>

13 Business SA, "Blackout Survey Results: Understanding the Effects of South Australia's State-Wide Blackout on Wednesday 28 September 2016," <https://www.business-sa.com/getmedia/>

2.2.3 Risks to the coastal environment

Sea level rise can change the angle at which waves strike the shore, leading to changes in rates of littoral sand drift and the locations at which beaches build up or erode. Sea level rise can also affect the size of areas flooded and increase the frequency of widespread flooding. This will not only have impacts on infrastructure and community, but also the location and species mix of coastal ecosystems and habitats¹⁴.

Climate change impacts threaten the blue carbon ecosystems, including mangroves, saltmarshes and seagrass, and the ecosystem services they provide. These ecosystems are highly productive, providing habitat and breeding areas for local and migratory birds, crustaceans and fish and commercially important fish species. In addition, they are very effective in sequestering and storing CO₂ and act as carbon sink¹⁵. In many areas along the South Australian coasts, these habitats are attractions for visitors.

Temperature increases create harsh conditions and affect biophysical processes. Southward shifts in distribution range of plants and animals due to increasing sea surface temperatures are expected. Increases in coastal erosion may increase offshore sediment deposition, smothering seagrass and inhibiting growth¹⁶.

Based on the predictions and consequences of climate change on coastal ecosystems by CSIRO and BOM 2015, many coastal habitats will be flooded. Mangroves and other tide dependent communities have ability to migrate landward. However, the success depends on the rate of sea level rise, elevation and land use. Barriers to landward migration of these ecosystems include natural features and human developments such as roads, bunds and seawalls which pose a significant threat to their resilience to sea level rise¹⁷.

Providing the space for landward migration of coastal ecosystems such as dunes in response to future sea level rise is of critical importance to the ongoing survival of these important ecosystems.

2.3 Current funding mechanisms for coastal management

The SA State government through the Coast Protection Board has played a significant role in providing grants support to both metropolitan and regional Councils around the State. The Board works with local councils to identify areas at risk and to develop mitigation strategies and provide grants for up to 80% of the total cost of studies and works. The Board's support also includes dune restoration and revegetation.

Other sources of fund available for Councils include recreational fishing and boating facilities grants, stormwater management fund and natural disaster resilience programs. Table 1 outlines key grant programs from various sources and their conditions to fund coastal adaptation works in South Australian coasts.

GRANT PROGRAM	FUNDER	WHO CAN APPLY	FUNDING
Securing the future of our coastline	Coast Protection Board	Coastal councils	A total of \$4 million over 4 years to improve both metropolitan and regional coasts.
New Life for our Coastal Environment			A total of \$5.2 million to implement the New Life for our Coastal Environment policy, with a focus on Adelaide's coasts – prioritise sand replenishment, seagrass restoration, Gulf St Vincent wetlands and artificial reefs.
Stormwater Management Fund	Stormwater Management Authority (SMA)	Local government, groups of local government authorities and regional subsidiaries	There is no upper or lower limit - the SMA funds 50% of the cost to assist with the costs of stormwater management planning.
Natural Disaster Resilience Programs (NDRP)	SA Fire Emergency Services Commission (SAFECOM)	Local government, business and non-government organisations	A total of \$16 million over 5 years to address disaster resilience and to reduce risks and limit the impact of disasters associated with natural hazards on SA's communities and economies.
Disaster Risk Reduction Grants			

14 Department for Environment and Water, "How sea level rise impacts coastal development," <https://www.environment.sa.gov.au/topics/coasts-new/coastal-development-applications/>

15 L. Wylie, A. Sutton-Grier and A. Moore, "Keys to successful blue carbon projects: Lessons learned from global case studies," *Marine Policy*, vol. 65, p. 76–84, 2016.

16 R. Paice and J. Chambers, "Climate change impacts on coastal ecosystems," *CoastAdapt*.

17 E. S. Poloczanska, A. J. Hobday and A. J. Richardson, "Marine Climate Change Impacts and and Adaptation Report Card for Australia," 2012.

These funds contribute to parts of the expenditure on coastal management, the remaining come from other sources including rates, charges and reimbursements. The Board's grants were spent, in priority order, by Councils on coastal engineering works (e.g. seawalls, groynes, breakwaters, levees, embankments), beach replenishment and storm damage repairs, with less spending on studies, development and implementation of strategies/plans, new or upgraded public coastal facilities, and community education and awareness¹⁸.

The SA coastal Councils have conservatively estimated capital works and operating expenses required to manage the coast will cost in excess of \$200 million over the next 10 years. Despite an increase in funding from the Board in 2019 from \$350,000 to \$1 million per year for the next four years, this is still insufficient to address the growing funding gaps for coastal management protection works. Of total State's budget to coastal management, approximately three quarter has been given to provide protection and amenity of 30km of Adelaide's metropolitan beaches. This is because Adelaide's beaches are of State Significance where 75% of SA's residents live and a large proportion of tourism income derive from. Regional councils and remote townships continue to feel a funding imbalance, and cost shifting by State government in relation to marine structures, particularly jetties, remains a great challenge.

Funding from State government for coastal management in SA beyond four years is unknown.

Similar funding uncertainty was felt for stormwater management until 2006 when the Local Government Association of South Australia (LGASA) entered into a 30-year Agreement with State government for the provision of funds for stormwater projects. The Stormwater Management Agreement recognises the need for managing stormwater for achieving multiple outcomes including flood mitigation, amenity, environmental and potential reuse. As a result of this Agreement, the Stormwater Management Authority was created and established in legislation and the Stormwater Strategy was developed. Local councils have been receiving financial support to undertake flood studies, stormwater management plans and mitigation works¹⁹. The SA's Stormwater Management model has seen various stakeholders move towards delivering projects that meet multiple objectives notwithstanding the prioritisation of many projects has seen a focus on risk mitigation. A state-wide strategic approach to stormwater investment to attract a long-term funding arrangement with the Australian Government through Infrastructure Australia and a funding commitment commensurate with the real costs (and that proportions costs reasonably across stakeholders) are fundamental to its success. Further work would be needed to determine whether this model could be adopted to coastal management and protection works of South Australia.



¹⁸ South Australian Coastal Councils Alliance, "Situation Analysis of Coastal Management in South Australia," Prepared by A Crisp and P Wongthong, 2019.

¹⁹ <https://www.dpc.sa.gov.au/documents/rendition/B19386>

2.4 Gaps and opportunities

Coastal inundation from sea level rise is brought into the national spotlight since it is listed by Infrastructure Australia as a top five Infrastructure Priority List 2020. The new Infrastructure Priority List reflects the diversity and urgency of Australia's future infrastructure needs. This means there is opportunity for investment and coordinated action from industry and government.

The section of the priority list dealing with coastal inundation states: "The initiative is for a proactive infrastructure strategy in advance of the inundation risks materialising. Involving engagement with all levels of government, the strategy will need to consider which areas should be protected for continued use, modified to accommodate floods, or withdrawn from altogether."²⁰

Infrastructure options could include man-made and green infrastructure such as seawalls, buffer zones and other physical assets to protect populations, or infrastructure to facilitate early flood warnings and evacuations. Figure 2 outlines challenges to meeting the demand for coastal management and protection and opportunities to better manage coastal risks and adapt to coastal climate change.

Proximity to the coast generally has a positive impact on property values and opportunities for employment, tourism and recreation, transport and infrastructure. Many Councils and communities have been at the front foot in tackling coastal impacts in a way that can stimulate economic growth and gain efficiencies in the management of their assets. Financial assistance and additional resources will help Councils to undertake adaptation planning and implement local projects.

Figure 2 Challenges and opportunities for better management of coastal risks.



The Australian Local Government Association (ALGA) Strategic Plan 2020-23 identifies 'funding for coastal protection' as one of the ALGA's policy priorities. Whilst greater priority has been given to coastal protection, the funds to address coastal issues are still inadequate. There is an opportunity for SACCA to coordinate with the ALGA to advocate for local government and establish a strategy that could leverage funding and support from Infrastructure Australia.

Councils that suffer or will suffer significant damage to infrastructure from storm surge and severe weather events should be able to access the Australian Government's natural disaster resilience and disaster relief and recovery funding arrangements. A holistic approach to coastal management is needed to deliver multiple coastal protection objectives that support economic growth and social capital in coastal communities. Diversified funding can result in regional development, local employment, improved services, regional growth associated with investment, more connected communities and lower insurance premiums. These co-benefits will accrue even in the absence of storm surge or sea level rise.

²⁰ <https://coastalcouncils.org.au/infrastructure-australia-lists-coastal-inundation-as-high-priority-national-initiative/>

3. LITERATURE REVIEW

In this section we discuss the approaches that are being used in other jurisdictions to support the funding of coastal zone protection.

3.1 Key concepts

Funding is different from financing

This project focuses on funding options, which are different from financing options:

- **Funding** is how infrastructure is paid for. There are two key sources of funding for coastal zone revetment infrastructure, government investment or user/beneficiary charges
- **Financing** refers to how debt and/or equity is raised for the delivery and operation of an infrastructure project²¹.

Impactors are different from beneficiaries

The analysis refers to both impactors and beneficiaries, for the purpose of the analysis the impactors create the risk, whereas the beneficiaries realise benefits from the coastal management actions.

Where coastal zone management issues are concerned impactors typically cannot be specifically identified (as the source of the risk includes climate change and storm impacts) so most programs focus on beneficiary pays.

Focus of beneficiary pays is on equitable cost attribution

The beneficiary pays principle recommends those who benefit from a mitigation activity should be charged for the activity in proportion to the benefit they receive. Beneficiaries can include private and public stakeholders. The principle could also be considered as beneficiary contributions, however for the purpose of consistency with existing literature we will employ the beneficiary pays terminology.

The primary purpose of the principle is to equitably distribute the cost of risk management across the community. Distributing the costs is necessary because the scale of funding required is often prohibitive for a single stakeholder.

The case for government intervention (such as provision of funding) often centres thus around situations where it is difficult to directly attribute benefits to specific beneficiaries or where it is not equitable or efficient. In this case taxpayers a case can be built for tax payers shouldering the cost.

3.2 Scope

In accordance with the project brief, Marsden Jacob Associates (Marsden Jacob) has undertaken a literature review on current funding mechanisms and best practice in coastal protection and management globally, including an analysis of the comparative application to South Australia.

The outputs of our analysis include:

- Identification of the roles and most appropriate cost-sharing, co-investment and resourcing contributions towards future coastal management by all levels of government
- An understanding of the principles and thresholds for triggering Government financial support rather than a default market driven response, and
- An understanding of cost apportionment principles that should be used to allocate public funding when there are benefits gained for both private and public stakeholders.

3.3 Key findings

Based on the literature review undertaken, Marsden Jacob has identified a number of key findings that will inform the next stages of the project.

Key Finding #1

Beneficiary pays is a key principle that underpins funding considerations

Across all jurisdictions that we have reviewed a consistent theme is that governments have a strong preference for application of the beneficiary pays principle. The consequence of this is that significant public benefit needs to be demonstrated if the public purse is to be used, beyond minimum threshold levels. For instance, NSW will fund up to 10% of the cost of infrastructure that protects private property for a location identified as having significant open coast hazards.

The importance of this principle and the threshold between beneficiary pays and equity considerations will be raised in the consultation phase of the project.

21 Infrastructure Australia, Infrastructure Finance and Funding Reform, http://infrastructureaustralia.gov.au/policy-publications/publications/files/IFWG_Report_FINAL.pdf

Key Finding #2

NSW is leading the way, and much can be learned from their approach, but access to funding is constrained due to the beneficiary pays framework being used

Where funding is concerned there is a grants program in NSW that is supporting coastal management projects. Projects need to be justified in the context of the broader coastal management framework and program guidelines which prioritise a beneficiary pays approach.

However, coastal works in NSW are anticipated to cost significant more than is available under the funding programs. Cost benefit analysis and distribution analysis are used to determine the impact on stakeholders and the main beneficiaries of implementation actions. Private beneficiaries are going to need to be a significant contributor if projects are to be implemented, unless there is a clear and demonstrable public benefit case. The guidelines include a hierarchy of funding mechanisms:

- 1. Fee for service** (special rates and charges, development contributions, negotiated funding arrangements and partnerships) where there are clear private benefits to an identifiable party.
- 2. Rates and levies** used where it is not efficient, effective and feasible to charge a fee. Ordinary rates may be preferred if it is not efficient, effective, or feasible to charge a fee. Also, in the case of funding a public good.
- 3. Government funding** might be available if a government agency is the primary impactor or there are significant public benefits. To this end a grants program has been established, called the Coastal and Estuary Grants program²² which provided funding to local councils, joint organisations, local land services, county councils and public land managers.

Key Finding #3

Grants and special levies are the most common funding types

The review of the international literature has identified that more innovative instruments are being considered, such as impact bonds, however we have not been able to identify any examples where these funding approaches are being used to support coastal management in Australia.

However, a scan of the mechanisms being used in other sectors has identified that a range of more innovative approaches are being used in other sectors, that might be worth considering for coastal management, such as various bond types and rolling finance models.

These alternative mechanisms will be raised in the consultation phase of the project.

Key Finding #4

The Australian Government interest and funding for coastal management issues needs to be tested

The Australian Government has led a number of whole of government projects into coastal zone management and has provided funding support for some coastal management projects. The funding opportunities are no longer available, and the most recent analysis appears to date back several years, so it of face value it appears that the Australian Government is not committed to funding coastal management issues.

But it may be that the Australian Government is ready to engage and is looking for a clear way forward on the issue, which is currently not available because there is a lack of clarity around the magnitude of the problems, the benefits that could flow from funding support and the opportunity pathways.

This willingness to engage on coastal management issues at a National level will be a key issue that needs to be tested in the interviews with Australian Government agencies.

²² <https://www.environment.nsw.gov.au/topics/water/coasts/coastal-and-estuary-grants>



Key Finding #5

The structure of a program of works should consider a break down across multiple initiatives to better align with funding opportunities

As noted, there is no current funding mechanism from the Australian Government that was identified in the literature review that would be suitable for more than a handful of nationally significant coastal projects (Metropolitan Coast, Port Augusta, Port Lincoln, Port Pirie, Whyalla). Significance in this context refers to the importance of the infrastructure assets.

However, there is a significant backlog and future works program needed for coastal management and Coastal inundation protection has been listed as a High Priority Initiative of national significance by Infrastructure Australia²³.

Other sectors such as regional economic development and transport present strong precedent for the Australian Government becoming involved in funding locally and regionally significant projects. We consider the NRMA's "Funding Local Roads: Addressing the infrastructure backlog"²⁴. NSW regional and local roads" prospectus and the Australian Government's "Roads to Recovery Program" as strong examples of the Australian Government taking an active investment role in projects of regional significance that could be mirrored for coastal management.

Demonstrating a compelling case for investment will need to consider the significance of coastal assets, the direct and indirect beneficiaries of risk mitigation action, and the capacity of beneficiaries to pay for mitigation work.

By considering SA's coastal management needs and regional development opportunities as a portfolio of work, funding can be prioritised based on an eligibility criteria to help enable the funding responsibility to be more broadly spread between private and public beneficiaries.

Further, framing unfunded or unfinanced coastal protection works as part of a backlog may be a suitable way to attract investment from higher tiers of government.

²³ Infrastructure Australia [2020] Infrastructure Priority List. Accessed: 19/11/2020 https://www.infrastructureaustralia.gov.au/sites/default/files/2020-03/2020_infrastructure_priority_list_low_resolution_-_updated.pdf

²⁴ A backlog is where a council has an infrastructure deficit that is higher in dollar value than the existing recurrent funds received from the Australian and NSW governments (i.e. ratio is less than 1).

3.3.1 How do the arrangements compare?

We have used a traffic light system to compare coastal governance and funding mechanisms across various jurisdictions, mapping against the expected outcome criteria for this project, Table 2: Jurisdictional comparison against expected outcome criteria. The criteria that have been used align with those that are included in the project scope:

- The roles and most appropriate cost-sharing, co-investment and resourcing contributions towards future coastal management by all tiers of Government
- Establishment of a rolling, long-term forward program of works, rather than the current ad hoc or year to year grant arrangements and considering adaptation planning and long-term asset and financial management planning
- More streamlined funding and investment mechanisms to encourage and facilitate multiple outcomes for our coast, including protection, tourism, health, recreational and environmental benefits
- Appropriate cost-sharing and proportion of public vs private benefit gained from investment of public funding into coastal management and protection, and
- Principles and thresholds for triggering Government financial intervention/support vs default market/insurance driven response.

The traffic light approach clearly identifies when a jurisdiction has arrangements in place (green), when arrangement clarity could be improved (amber) or where there appears to be a gap (red). 4.4 Jurisdictional comparisons

CRITERIA	NSW	QLD	WA	VIC	TAS	USA	UK	SA
Are coastal governance arrangements clearly defined?	Green	Green	Green	Red	Green	Green	Amber	Amber
Are coastal management models in place?	Green	Green	Green	Amber	Amber	Green	Green	Amber
Are funding models for coastal management in place?	Green	Green	Green	Amber	Amber	Amber	Green	Amber
Are coastal funding arrangements long-term?	Amber	Amber	Amber	Red	Red	Amber	Green	Red
Are cost apportionment principles clearly defined?	Green	Amber	Amber	Red	Green	Green	Red	Red
Is there a trigger point for Government financial investment?	Green	Green	Green	Amber	Green	Red	Green	Red

3.4 Jurisdictional comparisons

The following sections provide an overview of the coastal governance arrangements in place across a range of jurisdictions and the funding mechanisms that are used to manage the coastline (as of October 2020). Case studies have been used show how funding mechanisms are implemented.

3.4.1 Australian experience

Australian Government

The Australian Government recognises that coastal erosion and shoreline recession from sea-level rise is a significant risk to coastal Australia. Individuals, businesses and local governments undertake coastal risk assessments to understand how they might be affected now and in the future²⁵. Reflecting this the Australian Government has implemented a range of initiatives to support decision making, such as the Coastal Compartments Project which aims to help users undertake or commission best-practice risk and erosion assessments using a consistent approach based on the physical characteristics of the coastal environment.

²⁵ <https://www.environment.gov.au/climate-change/adaptation/australias-coasts/coastal-compartments>

The Australian Government position is that the management of coastal resources is largely the responsibility of the States and Northern Territory, despite the Australian Government has responsibilities for many coastal issues, including defining maritime boundaries, overseeing national conservation goals and maritime safety²⁶.

The Australian Government's key role in coastal management is to ensure the *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)* is upheld, provide policy direction and support State and Local government with research and national scale datasets.

The Australian Government has periodically taken a stronger interest in coastal management and adaptation, for instance:

1. Developing a national coastal adaptation agenda in 2010: <https://www.environment.gov.au/climate-change/adaptation/publications/developing-coastal-adaptation-agenda>
2. Developing the National Climate Resilience and Adaptation Strategy in 2015: <https://www.environment.gov.au/climate-change/adaptation/publications/national-climate-resilience-and-adaptation-strategy>

But, thus far this engagement on the issue appears to have been episodic and while funding has previously been available the government has recently changed its focus away from coastal issues and instead is focusing more on other issues such as drought, fire and Covid-19 impacts.

Table 3 summarises Federal grant options that have been available to coastal councils across Australia for coastal management. Currently, the opportunities available for Federal funding for coastal protection are minimal, leaving Councils more reliant on state funding. In response, SACCA could further explore one or more of the following strategies:

- Regional growth funding – Coast protection works could intentionally be positioned for regional growth funding, similar to the Building Better Regions Fund. This would seek to highlight the social, economic and environmental benefits of protection works rather than focusing primarily on coastal protection, which instead would be a co-benefit. SACCA would develop a strategy on how to position projects for this type of funding from the early planning stages. For example, storm surge levees can be used for elevated walking and cycling tracks and thoroughfares, or part of coastal trails.
- Double down on natural disaster reliance funding – Some funding for coastal hazard projects in SA has come from Natural Disaster Resilience Program funding, although this is understood to have been limited in scope. SACCA could develop an advocacy paper and actively lobby the Australian Government to expand the scope of this Program. This would likely require support from other state jurisdictions and could be informed by the outcomes of this project.

Alternate Federal funding - Federal funding is provided for infrastructure initiatives that are considered to be of national significance, such as roads. There are generally agreed funding ratios that apply to such projects. This would require SACCA to develop an advocacy paper and actively lobby the Australian Government to establish a new Program.



²⁶ <https://www.ga.gov.au/scientific-topics/marine/coasts-estuaries#:~:text=The%20management%20of%20coastal%20resources,conservation%20goals%20and%20maritime%20safety>

Table 3: Grant options currently used

PROGRAM NAME	FUNDING SOURCE	DESCRIPTION	ALIGNMENT
Building Better Regions Fund – Infrastructure and Community Investments Streams ²⁷	Australian Government	The Round 4 Infrastructure Projects Stream supports projects which involve the construction, upgrade or extension of infrastructure in drought-affected areas. Through these projects, it aims to provide both economic and social benefits.	Low – drought affected region focus, with a focus on creating jobs, driving economic growth and building stronger regional communities
Community Development Grants Program ²⁸	Australian Government	The intended outcomes of the program are: to construct and/or upgrade facilities to provide long term improvements in social and economic viability of local communities to create jobs in the delivery of projects and ongoing use of the infrastructure to improve social amenity, increased health and wellbeing and social cohesion by utilisation of the infrastructure by community groups	A total of \$5.2 million to implement the New Life for our Coastal Environment policy, with a focus on Adelaide’s coasts – prioritise sand replenishment, seagrass restoration, Gulf St Vincent wetlands and artificial reefs.
National Stronger Regions Fund ²⁹	Australian Government	The National Stronger Regions Fund (NSRF) invests in infrastructure projects which deliver economic benefit and address disadvantage	Not applicable – replaced by the Building Better Regions Fund
Regional Growth Fund ³⁰	Australian Government	The Regional Growth Fund will provide grants of \$10 million or more for major transformational projects which support long-term economic growth and create jobs in regions, including those undergoing structural adjustment.	Low/Medium – Some foreshore improvement projects have been funded, but they all appear to have had a public amenity focus.

New South Wales

Governance

The *Coastal Management Act 2016 (CM Act)*³¹ provides the legislative framework, strategic framework and objectives for managing coastal issues in NSW. The purpose of the act is to ensure ecologically sustainable development occurs in a way that protects and enhances the unique coastal environment and ensure valuable public assets are available now and into the future for public use. The CM Act establishes specific roles and responsibilities for relevant Ministers, the NSW Coastal Council, public authorities and local councils.

The State has set up the Coastal and Estuary Grants Program to provide financial support and technical advice for local government to help them manage the coastal zone³². \$83.6 million has been allocated from 2016-17 to 2020-21 that goes towards coastal and estuary planning projects and the implementation of works.

²⁷ <https://www.regional.gov.au/regional/programs/building-better-regions-fund.aspx>

²⁸ <https://www.regional.gov.au/regional/programs/community-development-grants.aspx>

²⁹ <https://www.regional.gov.au/regional/programs/national-stronger-regions-fund.aspx>

³⁰ <https://www.regional.gov.au/regional/programs/regional-growth-fund.aspx>

³¹ <https://www.legislation.nsw.gov.au/view/html/inforce/current/act-2016-020>

³² Coastal and estuary grants program, <https://www.environment.nsw.gov.au/topics/water/coasts/coastal-and-estuary-grants>

Local Councils are responsible for completing a Coastal Management Program (Previously Coastal Zone Management Plan) which sets the long-term strategy for coordinated management of the coast. The plan includes the following:

- Identification of coastal management issues
- The actions required to address the issues identified
- How and when the actions are to be implemented, and
- The cost of implementation actions, proposed cost-sharing arrangements and other viable funding mechanisms.

The CMP may be prepared by adjoining councils working together where coastal processes or features cross local government boundaries.

Coastal planning is administered under the *State Environmental Planning Policy (Coastal Management) 2018*, giving effect to the objectives of the Coastal Management Act from a land use planning perspective³³.

Funding sources

The source of funding for the implementation of coastal management activities follows the approach applied by the Independent Pricing and Regulatory Tribunal (IPART). IPART has specified a hierarchy approach for determining who should be paying for an investment³⁴:

1. Impactor pays – the party causing the adverse impact should fund the activity.

2. Beneficiary pays – Parties that benefit from an activity should pay for the cost, allocated based on the proportionate benefit.

3. Taxpayer pays – Funding of last resort applies where risk creators or beneficiaries have not been identified.

In the case of coastal management, the impactor is usually the coastal process and climate change. The beneficiary pays principle is therefore most commonly used in NSW, except where there are equity issues which falls funding back onto the taxpayer.

Funding mechanisms

As part of the coastal management framework, DPIE released a draft paper in 2016 that outlined the preferred approaches for local councils to take for funding coastal implementation actions³⁵. The guidelines provide a hierarchy of funding mechanisms which outlines the type of mechanism and under what circumstances it should be applied.

1. Fee for service (special rates and charges, development contributions, negotiated funding arrangements and partnerships) where there are clear private benefits to an identifiable party.

2. Rates and levies used where it is not efficient, effective and feasible to charge a fee. Ordinary rates may be preferred if it is not efficient, effective, or feasible to charge a fee. Also, in the case of funding a public good.

3. Government funding might be available (see grants program mentioned earlier) if a government agency is the primary impactor or there are significant public benefits from the activity. The framework also notes that government may be a funder of last resort if it is inequitable to charge using other mechanisms, but we have not been able to identify any precedents for this having occurred.

BOX 1 Collaroy-Narrabeen Beach case study

Collaroy-Narrabeen Beach. NSW³⁶

Funding source: private beneficiary contribution, local council and NSW Government

Funding mechanism: negotiated funding arrangement

Collaroy-Narrabeen Beach is the beach most vulnerable to erosion from coastal storms on the Northern Beaches. It is ranked Australia's third most at risk area from coastal processes. Intense storms in June 2016 caused severe erosion on Narrabeen-Collaroy beach. The area is considered an erosion hotspot and, during the storms, up to 50 metres of beachfront was lost and a number of homes were damaged.

In June 2017, residents submitted a development application (DA) to Northern Beaches Council for a privately-owned seawall to be built on the beachfront, which is Crown land. The DA is for a sloping rock revetment seawall, around 210 metres in length and 15 metres wide. The proposed structure, if approved, would encroach on Crown land by around 15 metres from property boundaries, but much of the structure will be buried under sand.

In a first for NSW, Council has now successfully obtained a State Government grant for contributions towards private coastal protection works. And at its meeting of 26 March 2019 Council also resolved to provide funding assistance to all eligible property owners.

Eligible residents can apply for up to 20% of the value of protection works – funded 10% each by Council and the NSW Government, with available funding capped at \$3.46 million (more).

33 Coastal Management, <https://www.planning.nsw.gov.au/Policy-and-Legislation/Coastal-management>

34 IPART https://www.ipart.nsw.gov.au/files/sharedassets/website/trimholdingbay/draft_report_-_review_of_funding_framework_for_local_land_services_nsw_-_september_2013.pdf

35 DPIE (2016) Coastal Management Guidelines Part C, <https://www.environment.nsw.gov.au/resources/coasts/150873-cmt-funding-mechanisms.pdf>

36 <https://www.northernbeaches.nsw.gov.au/environment/coast-and-waterways/coastal-erosion>

BOX 2 Kingscliff Revitalisation case study

NSW, Kingscliff Foreshore Revitalisation³⁷

Funding source: Private (35%), local council (18%) and Australian Government (46%)

Funding mechanism: Council funded through loans, developer contributions and operations budget³⁸.

The Kingscliff Foreshore Revitalisation, a three-stage \$21.8 million project being undertaken by Tweed Council to protect and enhance facilities along the Kingscliff CBD coastline.

Stage 1 involves the construction of a permanent sea wall to protect the Cudgen Headland Surf Life Saving Club, Kingscliff Beach Holiday Park and Kingscliff Beach Bowls Club from erosion caused by storm events and projected sea level rises.

Stage 2 will refurbish and modernise the facilities and services at Kingscliff Beach Holiday Park, to better meet the demands of the visitors to the town, including a greater emphasis on cabin accommodation.

Stage 3 will create a Kingscliff Central Park, a community hub linking the Kingscliff central business district with the beach by providing oceans views from CBD businesses on Marine Park and establishing paths for improved beach access.

The Australian Government announced in December 2015 it would provide \$9.81 million towards the project through Round 2 of the National Stronger Regions Fund (NSRF). Tweed Coast Holiday Parks Reserve Trust will contribute \$7.52 million to the redevelopment, while Council will provide \$3.87 million, for a total investment of \$21.2 million in Kingscliff.

Unfortunately, there will be no further funding rounds under the NSRF program. It is also noted that the grant funding and eligibility criteria have changed as a result of the NSRF being converted into the BBRF.

BOX 3 Kingscliff Revitalisation case study

NSW, Verons Estate (Sussex Inlet) road upgrades³⁹

Funding source: private and public beneficiaries

Funding mechanism: special rates and operating budget.

In late 2016, Shoalhaven City Council asked landowners to provide feedback on a proposed funding arrangement whereby Council would borrow \$2.13M to upgrade the Verons Estate roads, with 83% of the repayments to be met by special rates levied on Verons Estate properties, and Council would meet 17% of the cost based on the potential benefit derived by the broader community.

Landowners were asked to provide feedback on two loan period scenarios: 10 years and 20 years, noting that the special rates would apply for the life of the loan. Just over 40% of respondents indicated that they may or will be able to pay the special rates under the 20-year loan scenario, compared to just under 30% for the 10-year loan scenario.

On 13 June 2017, Shoalhaven Council resolved to adopt the Special Rate Variation of 13.2% approved by IPART for the 2017/18 Financial Year. The Verons Estate Road Upgrade Special Rates commenced from 1 July 2017 and will be in place for 20 years, in line with landowner feedback.

The rate is applied to the benefiting owners within the subdivision area, based on average property values across those properties with dwelling entitlements and those without, with the following proportioning:

- Properties with dwelling entitlements: 79%
- Properties without dwelling entitlements: 4%
- Council contribution of 17% based on potential road use by others

³⁷ <https://www.yoursaytweed.com.au/KingscliffForeshore>

³⁸ Tweed Shire Council (2014) National Stronger Regions Fund Grant application business case Kingscliff Foreshore Protection and Revitalisation Project. <https://www.tweed.nsw.gov.au/Controls/Projects/Documents/FundingApplication.pdf>

³⁹ <https://shoalhaven.nsw.gov.au/Planning-amp-Building/Strategic-planning/Paper-subdivisions/Verons-Estate>

Queensland

Governance

The Queensland Government shares the coastal management responsibilities with local government⁴⁰. The coast is managed under two acts: *The Coastal Protection and Management Act 1995*⁴¹, and the *Planning Act 2016*⁴². The Planning Act outlines the states interest for the protection of coastal environment and management of coastal hazards, including legislated tools to trigger development for assessment. The Coastal Act informs planning decisions by providing technical information, including the declaration of erosion prone areas and coastal management districts.

The Queensland Coastal Plan 2011 provides an overview the states policies for coastal management and state planning policy for coastal protection⁴³. For built infrastructure in erosion prone areas, the preferred management solution is to undertake beach nourishment of foreshores or remove or relocate structures where coastal erosion threatens the beach or structure. Engineered control structures are only considered where beach nourishment or landward retreat of infrastructure is not practical or cost effective.

The Queensland Government has also set up the QCoast2100 Program which supports coastal councils in planning and implementation of coastal hazard adaptation planning. The State Government has committed \$13.2 million in funding to the program from July 2016 to April 2021. The goals of the program are for councils to develop defensible, timely and effective local adaptation decision-making to support areas of planning and operations.

Local Governments are responsible for preparing and implementing a Coastal Hazard Adaptation Strategy (CHAS), with guidance and assistance from the QCoast2100 Program⁴⁴. The CHAS will assess medium and long-term climate change risks, propose adaptation measure to mitigate the impacts, and establish an implementation program for the mitigation measures.

Local Governments are also encouraged to write a Shoreline Erosion Management Plans (SEMPs) in conjunction with the community to proactively plan for erosion management⁴⁵. It is encouraged to develop long-term management strategies for areas through a SEMP. The document enables the following:

- Plan for erosion management in a proactive way
- Investigate and address the underlying cause of erosion and how it is expected to progress in the future, and
- Determine cost-effective and sustainable erosion management strategies that maintain natural coastal processes and resources which considering the needs of the community in the short- and long-term.

Funding source

A review of cost apportionment principles found there is no advice regarding who the funding source should be for coastal management in Queensland. We refer to the Principles and Methodology for Setting Local Government Charges Under the Building Act (2000)⁴⁶ to gain an understanding of approach taken to setting charges for local government functions in the State.

The approach taken in the Building industry is that the community should pay for reasonable cost of a statutory service process, but not for an excessive level of the service. If a community places a higher value on a local amenity criterion, they need to take the costs into account.

The approach is trying to balance the **user pays principle**, where the community should pay according to the level of benefit they accrue, with the **public good effect** if the service provision is for the whole community or identifying the beneficiaries and 'public good' component is problematic.

We consider this to be recognition that the funding should come from the stakeholders who benefit from a project, even though this may be the whole of community.

40 Coastal Management, Queensland Government, <https://www.qld.gov.au/environment/coasts-waterways/plans/coastal-management/about-coastal-management>

41 State of Queensland (2019) Coastal Protection and Management Act 1995, <https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-1995-041>

42 State of Queensland (2020) Planning Act 2016, <https://www.legislation.qld.gov.au/view/pdf/inforce/current/act-2016-025>

43 Dep. Environment and Resource Management (2011) Queensland Coastal Plan, <https://www.cabinet.qld.gov.au/documents/2011/feb/queensland%20coastal%20plan/Attachments/qcp-web.pdf>

44 The Local Government Association of Queensland and the Dep. Of Environment and Heritage Protection (2016) Developing a Coastal Hazard Adaptation Strategy: Minimum Standards and Guideline for Queensland Local Governments, <https://www.qcoast2100.com.au/downloads/file/55/minimum-standards-and-guideline>

45 Dep. Environment and Heritage (2014) Coastal Management Plan, State of Queensland, https://www.qld.gov.au/__data/assets/pdf_file/0029/67961/coastal-management-plan.pdf

46 https://www.hpw.qld.gov.au/__data/assets/pdf_file/0020/4961/setting-local-government-charges.pdf

Funding mechanisms

The funding mechanisms recommended for use are documented in the Compendium Report (2012)⁴⁷. Funding mechanisms identified as available for Local Government revenue raising include:

- **Rates and charges** applied where there is a clear plan of works covered by the rate and properties benefitting from the works
- **Environmental levies** funds collected for landholders specifically designated to environmentally relevant projects, separate from general revenue.
- **Developer contributions/infrastructure agreements** if infrastructure is required related to the project.

The report identifies that external funding sources might be available to LGAs, but they can only be provided for limited purposes, and are dependent on the availability of funds from the administering body. External funding mechanisms identified include:

- **Government borrowing** long-term debt, usually in the form of bonds, can provide funds in the short-term. Additional revenue is required in order to service the debt.
- **Growth Area Bonds** can be used to finance infrastructure that is tied to a specific area, paid by future tax revenues collected in the defined area (promoted by Property Council of Australia).
- **Business improvement districts** have a defined area where stakeholders make a collective contribution towards the maintenance and promotion of the area.
- **Local Government grants** and subsidies used to provide financial support for LGAs that demonstrate their capacity to self-fund is limited.

Box 4: Toogoom seawall case study

QLD, Toogoom seawall⁴⁸

Funding source: private beneficiaries

Funding mechanism: special rates

Fraser Coast Council levied a special charge for the purposes of funding the costs for a Kingfisher Parade, Toogoom revetment seawall aimed at protecting private properties and 20 metres of Esplanade on properties within the defined benefited area, charged at different levels according to the degree of benefit to which the owner of the land is deemed to derive.

The Toogoom seawall cost approximately \$1.1 million and the cost was charged to the owners of the 16 protected properties through a special rate as payable over 10 years using the following formula as a basis:

$$\frac{\text{Construction cost} + \text{Interest}}{\text{Seawall Length}} \times \text{Property Frontage}$$

Western Australia

Governance

The WA Coastal Zone Strategy provides an overview of the planning and management frameworks in place for the long-term management of the WA coastline⁴⁹. The framework is underpinned by the State Planning Policy 2.6 – Coastal Planning Policy, Seal level change in Western Australia - application to coastal planning, and the Coastal planning and management manual⁵⁰.

The State Planning Policy has a clear hierarchy how managing coastal hazards in the long-term, with the focus being on avoiding future development in areas at risk from coastal hazards. The planning approach is as follows:

- **Avoid** development within areas identified as at risk during 100 year planning time frame.
- **Planned or managed retreat** for existing development where possible.
- **Accommodate** where retreat is not possible.
- **Protect** is the last resort based on beneficiary pays principles that minimise risk to public funds.

47 Griffith University and GHD (2012) Coastal Hazard Adaptation options. A Compendium for Queensland Coastal Councils. Dep. Of Environment and Heritage. https://www.townsville.qld.gov.au/__data/assets/pdf_file/0015/10725/Coastal_Hazard_Adaptation_Options.pdf

48 Ware and Banhamli-Zakar (2017) Funding coastal protection in a changing climate: Lessons from three projects in Australia

49 Dep. Planning Lands and Heritage (unknown) WA Coastal Zone Strategy. https://www.dplh.wa.gov.au/getmedia/a608b7f4-85c6-414e-b370-c3c2c0c28102/CST-WA_Coastal_Zone_Strategy

50 Dep. Planning Lands and Heritage (2019) State Planning Policy 2.6 – Coastal Planning. <https://www.dplh.wa.gov.au/spp2-6-coastal-planning>

Most of the coastline in WA is unallocated Crown Land and the areas are not actively managed. Crown Land within conservation reserves and waters within State marine reserves are the responsibility of the State. The roles and responsibilities of stakeholders are clearly defined and outlined below.

- **Commonwealth Government** provides technical information, data and guidance for decision making.
- **State Government** agencies deliver services, administer legislation and manage natural and built assets and public infrastructure. They provide support for local governments to implement coastal planning and management. The Dep. of Planning, Lands and Heritage (DPLH) administers the Coastal Management Plan Assistance Program (CMPAP) which assists land managers to develop management plans for coastal areas⁵¹. The Dep. of Transport administers the Coastal Adaptation and Protection (CAP) grants program (formerly the Coastal Protection Grants) provides financial assistance to land managers for monitoring, investigation, asset management, coastal adaptation and maintenance works relevant to the coast⁵².
- **Local Government** have a facilitator role communicating community needs with State and Australian Government whilst communicating directly with communities and responding to local circumstances. They are responsible for the planning, care, control and maintenance of coastal foreshore reserves.
- **Private organisations** are responsible for managing risks to private assets. New development should be sympathetic to the mixed uses of the coastal landscape, providing sufficient safe public access, recreation and conservation facilities for continued enjoyment of the assets for current and future communities.
- **Natural resource management groups** have a community leadership role to mobilise regional effort and ensure priority needs are addressed.

Funding source

Protection works are only to be undertaken as a last resort when justified in the public interest to protect high value property and infrastructure, with public funds directed to highest priority areas. The funding arrangements must use user pays principles, those who benefit the most should make the greatest financial contribution⁵³.

The WA Coastal Zone Strategy makes clear that private property is not the responsibility of the state or local government, and that they are not required to protect these properties from coastal hazards⁵⁴.

Funding mechanisms

There is minimal guidance given regarding funding mechanisms for coastal management. The following is a shortlist of ad hoc funding mechanisms identified throughout various coastal management documents with regard to WA:

- **Developer contributions** and Special Area Ratings are recommended for new developments where user pay principles have been applied and the project demonstrates a public benefit and positive return to the State⁵⁵.
- **Grants** are available from a range of sources and are summarised specifically for WA in WA Coastal Zone Strategy: Appendix 5⁵⁶.



51 Dep. Planning, Lands and Heritage (2020) Coastal Management Plan assistance program. <https://www.dplh.wa.gov.au/cmpap>

52 Dep. Transport (2020) Coastal Adaptation and Protection (CAP) grants. <https://www.transport.wa.gov.au/imate/ceastal-adaptation-and-protection-cap-grants.asp>

53 Dep. Planning Lands and Heritage (unknown) WA Coastal Zone Strategy. https://www.dplh.wa.gov.au/getmedia/a608b7f4-85c6-414e-b370-c3c2c0c28102/CST-WA_Coastal_Zone_Strategy

54 Ibid

55 Ibid

56 Dep. Planning Lands and Heritage (unknown) WA Coastal Zone Strategy: Appendix 5. https://www.dplh.wa.gov.au/getmedia/2cd1d806-ce01-443e-b63a-0b252fa74084/CST-WA_Coastal_Zone_Strategy_Appendices

Victoria

Governance

The Victorian Coastal Strategy (2014) sets the long-term framework for coastal management in Victoria. The Department of Environment, Land, Water and Planning (DELWP) have developed an Implementation Plan (2017) that outlines how the state has progressed since releasing the strategy given several organisations changes have occurred in relation to coastal managers in Victoria.

Responsibility for coastal management is shared across a number of organisations including DELWP, the Marine and Coastal Council (replaced the Victorian Coastal Council in 2018), the Office of the Commissioner for Environmental Sustainability, Regional Coastal Boards, Parks Victoria, Local Governments, Local Committees of Management and a range of other coastal management bodies.

Marine and coastal Crown Land managers have a defined process for identifying funding needs and future demand for managing these assets.

Victoria's governance of coastal assets is going through a period of review and modification. The responsibility lines between state and local government have not been clearly enunciated, and assets are being managed on an ad hoc basis. A recent Audit of Victorian Coastal Management by the Victorian Auditor-General found the following⁵⁷:

- 96% of the coast is public land overseen by DELWP. of this land,
- Parks Victoria manages approximately 70%, mostly providing conservation protection
- Councils, local port managers and committees of management (CoM) manage 20% of the land, which is reserved for recreation and conservation purposes, and
- DELWP directly manages the remaining 6% that is not reserved for a particular purpose.
- Poorly integrated planning and fragmented responsibility for assets across agencies is working against a cohesive and strategic perspective.
- Assets are not adequately protected from current and future hazards, partly because not all agencies have a complete knowledge of all the assets, they are responsible for or their condition.
- There are significant amounts of unfunded maintenance backlogs that are not being addressed by the scarce funding that is currently available.

Funding source

Beneficiaries pay: private parties should, In general, meet their share of the costs of providing goods/services that confer private benefits, but cost recovery charges should not be applied to costs incurred by the Government from meeting public interests or providing public goods/services.

The Cost Recovery Guidelines (2013) provide a useful summary of the who should be the source of funding for different types of goods and services, Table 4.

Funding mechanisms

The available funding mechanisms and how they apply to coastal protection and management is described in Chapter 13 of the Marine and Coastal Policy 2020. The key points relevant to this review are summarised below.

- **Fees and charges** for uses and activities that occur on Crown land should be directed towards maintaining the environment and infrastructure. If the funding requirement exceeds day-to-day management and maintenance, alternative funding options and opportunities should be identified. These should be charged consistently with State Cost-Recovery Guidelines⁵⁸.
- **State investment** should favour works of state-wide importance. Assets on Crown land should be prioritised using a risk-based approach. Funding options that can distribute costs and spending burden overtime should be considered to allow for inter-generation equity.
- **Co-investment** should occur between those that share the risk and benefit from an asset. The contribution should be proportionate to the benefit gained from an asset and their capacity to contribute.

⁵⁷ Auditor General (2018) Protecting Victoria's Coastal Assets. Victorian Auditor-General's Office. <https://www.audit.vic.gov.au/sites/default/files/2018-03/20180329-Coastal-Assets.pdf>

⁵⁸ Dep, Treasury and Finance 2013. Cost Recovery Guidelines. Incorporating the information formerly published in the Guidelines for Setting Fees and User Charges Imposed by Departments and Central Government Agencies

Table 4: Types of goods, government regulation and charging considerations

DESCRIPTION	EXAMPLES	FUNDING CONSIDERATIONS
<p>Pure' public goods display the following characteristics: they are non-excludable, which means that anyone can have access to them once they are provided; and</p> <p>they are non-rivalrous, which means that any person can benefit from them, without diminishing anyone else's enjoyment.</p>	<ul style="list-style-type: none"> • Beaches • Roads 	<p>Strong case for funding pure public goods from the community as a whole through general taxation because the benefits are wide-ranging and non-exclusive.</p>
<p>'Selective' public goods are public goods that benefit specific groups.</p> <p>For example, the groups may be differentiated by area of interest (e.g. all Victorian beef producers); or geographical region (e.g. wine grape growers in the Yarra Valley).</p>	<ul style="list-style-type: none"> • Basic strategic research • Development of new crop varieties 	<p>A number of policy initiatives have been introduced to enable these types of public goods to be funded by the beneficiaries – e.g. legislation that allows compulsory levies to be introduced on identifiable groups that benefit from research and development.</p> <p>Funds may come from the budgets of the government departments responsible for the relevant activity/benefit group, where there are external benefits to society.</p>
<p>Club goods are those where people can be excluded from its benefits at low cost (unlike a public good) but its use by one person (within the 'club') does not detract from its use by another (at least until congestion becomes an issue).</p> <p>The key difference between club good and (selective) public goods is that the ability to exclude implies the feasibility of charging for use.</p>	<ul style="list-style-type: none"> • Cable television • Private schools • National parks (where entrance fees can be charged) 	<p>Club goods may be provided (and funded) by member-owned collectives (such as an industry organisation).</p> <p>In some cases, the public sector may also provide club goods, in which case charging the members of the 'club' can be an efficient way of recovering costs.</p>
<p>Private goods display the following characteristics: they are excludable – it is physically, technically and/or legally possible to prevent use by another party; and</p> <p>they are rivalrous, which means consumption/benefit by one party rules out consumption/benefit by another.</p>	<ul style="list-style-type: none"> • Birth certificate • Research and development tailored to a specific party 	<p>There is a strong case for recovering the costs of a private good from those who benefit from it.</p>
<p>Merit goods have the property that the community as a whole desire a higher use of the output than would be likely than if they were charged at full cost. Similarly, some goods display POSITIVE EXTERNALITIES because they also benefit unrelated third parties.</p>	<ul style="list-style-type: none"> • Education • Healthcare • Exercise • The arts 	<p>There may be a case for charging at less than full cost – i.e. providing a government subsidy – because there may be both private and public benefits.</p>
<p>There is often a need for Government regulation in order to reduce the risk of harm or damage that may arise to consumers, the whole community or the environment.</p>	<ul style="list-style-type: none"> • Regulation to address: <ul style="list-style-type: none"> • Negative externalities • Inadequate information • Market power 	<p>On economic efficiency grounds, there is a case for the administrative costs of regulation to be internalised into the cost structure of the regulated industry.</p> <p>Practical considerations normally mean charges are imposed on businesses (but may ultimately be shared with consumers with costs shifting along the production line).</p>

Source: Modified from Dep. Treasury and Finance (2013)⁵⁹

59 https://www.dtf.vic.gov.au/sites/default/files/2018-01/Cost-Recovery-Guidelines-Jan2013_0.pdf

BOX 5 Wellington Council case study

The Honeysuckles to Paradise Beach, Wellington Council, VIC

A large number of lots were sold by developers in the 1950's and 60's on land that is in flood-prone areas or sand dunes. Council has updated their development zoning for much of this land and classified many lots (some with residents some without) as unsuitable for development based on the land classification. As a result, Council has not built supporting infrastructure to enable future development and many of the vacant lots are now worthless. An options assessment was undertaken, and Council agreed to the Acquisition of land. This has occurred voluntarily and compulsory, depending on the zoning and accessibility of land holders. The State Government committed \$6million in funding in 2011 to support the scheme which has been extended until 2021⁶⁰.

Property buy-backs funded through State government allowed Council to prioritise enabling infrastructure investment in suitably zoned land. The most recent report does not indicate what funding mechanism was used for the future development of the land, but it was expected to be met by a funding mix of landowner levies, government subsidy and private sector infrastructure organisations prefunding infrastructure to establish a return through rates and charges⁶¹.

Tasmania

Governance

The State government appears to have an advisory role in providing technical support and evidence to support decision makers in managing coastal assets. Coastal management is guided by the State Coastal Policy 1996, the Mitigating Natural Hazards through Land Use Planning project (2011) and the Coastal Hazards in Tasmania Technical Report (2016)⁶². The documents define the role of the state government, identify the approach to risk management are communities at risk from climate change.

Our review found a significant amount of work was completed in the coastal space up until 2015/16 however we have not found documentation of the updated planning direction since then. We will continue to review this.

Funding source

The State government initiated the Tasmanian Coastal Adaptation Pathways project⁶³ in response to Coastal Hazard mapping and the findings from the Climate Futures for Tasmania project. The project outlined the steps required by local councils and communities to consider adaptation options for vulnerable coastal areas. Local Government's nominating areas vulnerable to climate change and identify and analysis the coastal risks for each coastal community using the flexible planning pathways.

Funding for Local Governments to complete the TCAP project is not permanently allocated. Funding has previously come from Australian Government grants and local governments.

Funding mechanisms

It is generally accepted in Tasmania that contribution to costs for a project should reflect the benefit gained from the project. However, there is not a clear state principle directive and historically risk management costs have been funded by the broader community, not just those directly benefiting from a project⁶⁴.

The cost principles applied are for an equitable allocation of costs to those who benefit the most, with consideration given to:

- Who directly and indirectly benefits
- The role of government in meeting costs
- The capacity of stakeholders to pay, and
- Respective contributions to costs.

60 Victorian Ombudsman (2019) Investigation into Wellington Shire Council's handling of Ninety Mile Beach subdivisions https://www.parliament.vic.gov.au/file_uploads/Investigation_into_Wellington_Shire_Councils_handling_of_Ninety_Mile_Beach_subdivisions_-_Victorian_Ombudsman_v9H5m6hr.PDF

61 GHD (2017) Wellington Coast Subdivision strategy, the Honeysuckles to Paradise Beach. https://assets-global.website-files.com/5d3aa33f5216e339f691d9ee/5d919da97115f90ffad7bd00_Wellington-Coast-Subdivision-Strategy-Honeysuckles-to-Paradise-Beach.pdf

62 Dep. Premier and Cabinet (2016) Coastal Hazards in Tasmania. Summary report of coastal hazards technical report. Tasmanian Government. http://www.dpac.tas.gov.au/_data/assets/pdf_file/0016/312145/Coastal_Hazards_report_Version_7_20161201_-_Summary_report.pdf

63 Dep. Premier and Cabinet. Tasmanian Coastal Adaptation Pathways. http://www.dpac.tas.gov.au/divisions/climatechange/Climate_Change_Priorities/climate_risks_and_opportunities/coastal

64 SGS (2012) Models for funding and decision making for coastal adaptation pathways. <https://www.ccc.tas.gov.au/wp-content/uploads/2018/10/Models-for-Funding-and-Decision-Making-for-Coastal-Adaption-Pathways.pdf>

The funding mechanisms that have traditionally been used in Tasmania are summarised below :

- General rates and land taxes
- Varying general rates
- Service rates or charges (user pays fee)
- Separate rates or charges
- Development contributions, and
- Grants, donations and sponsorship.

The states Draft 30-Year Infrastructure Strategy (2019)⁶⁶ expands by including alternative approaches including:

- Public Private Partnerships (PPP) - if investable assets can be created. Share the risk with private participants, reducing exposure risk to government offset by increased government costs.
- Value Capture - leverage the increase in real estate valuation to fund infrastructure development. Based on the principle that land and property values can increase when they benefit from adjacent infrastructure.

3.4.2 International

United States

The structure of funding arrangements in the United States is different to the Australian system, however there are interesting learnings that can be taken away from a review of the system.

Homeowners are charged a property tax (among other tax instruments) which is calculated as a proportion of the market value of their residence⁶⁷. The revenue generated provides substantial funding to local governments and creates a mechanism for local government to fund large capital costs of infrastructure upgrades that are financed through the property tax.

For wealthy coastal regions with high value coastal assets, such as Miami, New York and Boston, Local Governments can issue general obligation bonds, or municipal government-issued bonds to pay for coastal infrastructure.

These bonds are then backed by the property tax revenue and/or stormwater and electricity utility rate payers. Such instruments are used when there is a whole of community benefit as a result of the investment.

The issuing of bonds is seen as a traditional funding mechanism in the US, noting there are barriers such as:

- If the Local Government already a high amount of debt, they may be nearing a state ceiling on how much debt they can have at one time
- Bond investors will have a limit on how much debt a city can handle as a result of concerns for their ability to repay

- Given the range of competing demands for funding, there will be competing demands for whatever additional money could be raised using the mechanism
- A tax-increment mechanism requires significant growth in property value to be able to generate sufficient additional funding, and
- The community will be reluctant to use a funding mechanism that increases the cost of living across the board, because a lack of affordability raises policy and political issues.

Alternatively, the use of special rates is still being explored as an innovative finding mechanism to target the beneficiary of publicly financed infrastructure. For example, Miami beach is considering a special taxing district to support future beach re-nourishment projects. The tool has floated as a type of insurance against the loss of tourism spending and related local tax revenue as a result of coastal hazards.

United Kingdom

Governance

England's coast is managed through the Department of Environment, Food, and Rural Affairs and the Environment Agency. Seven Coastal Groups (consortium of local councils and the Environment Agency) have developed Shoreline Management Plans (SMPs) which outline the strategy for managing individual sections of the coastline. Stretches of coast are divided into "management units" which have one of four management policies applied: no active intervention, maintenance of current defences, managed realignment of the shoreline, and actively advancing the line by building new defences.

Funding mechanisms

In the UK there are three main funding mechanisms used for coastal flood and erosion management:

- Federal grants via the Flood Defence Grant in Aids which is designed to better protect homes from all flood risk and coastal erosion
- Local levy, council tax, is raised for local priorities which deliver flood or erosion risk reduction, and
- Government partnerships with private sector sources as well as other public sources such as Local Authorities, Local Enterprise Partnerships, Highways Agency and previously, EU funding.

A recent review of coastal flooding and erosion found that the current funding position of the government does not facilitate adaptation to climate change through measures such as relocating properties further inland.

66 Infrastructure Tasmania (2019) Our Infrastructure Future. 30 -year Infrastructure Strategy. Consultation Draft. Tasmanian Government. <https://www.ccc.tas.gov.au/wp-content/uploads/2018/10/Models-for-Funding-and-Decision-Making-for-Coastal-Adaption-Pathways.pdf> https://www.stategrowth.tas.gov.au/__data/assets/pdf_file/0011/199019/Our_Infrastructure_Future_-_30_year_Infrastructure_Strategy_Consultation.pdf

67 Tax Policy Center briefing book, The State of state (and local) Tax Policy <https://www.taxpolicycenter.org/briefing-book/how-do-state-and-local-property-taxes-work>

4.4.3 Alternative funding mechanisms used in other sectors

A number of other funding mechanisms might also be considered by SACCA, including:

- Bonds
- Rolling finance models, and
- Low interest loans

These funding mechanisms are summarised in Table 5.

Table 5: Alternative funding mechanisms

NAME	DESCRIPTION
Social impact bond	<p>Social Impact Bonds (SIBs) are issue by governments and allow private investors to provide the capital to pay for the delivery of a project and receive a rate of return linked to the project’s success. Project success will be measured through clearly defined objectives that focus on social outcomes for individuals and communities.</p> <p>Social Impact Bond being used for Aspire program for homelessness and a new partnership to impact outcomes for children and young people in out-of-home care, and after leaving guardianship⁶⁸.</p> <p>A significant investment of time and resource would be required to get this type of initiative up and running, but it is important to acknowledge that the South Australian Government, and the Australian Government, does have an appetite for innovative financing approaches that reduce the financial burden on government budgets.</p>
Green bond	<p>Green bonds are targeted to fund projects related to climate change or the environment. They are chosen as an investment because of the environmental purpose of the project that the bond is intending on supporting. Green bonds have been in use since 2007 and is well established.</p> <p>Green bonds have been used in Victoria to fund low carbon buildings, transport, renewable energy and water. The criteria for whether a project is suitable to be funded through a green bond is approved through a not-for-profit in the UK, Climate Bonds Initiative. The sector criteria most applicable is Land Conservation & restoration which falls under the Forestry Criteria. Requirements are as follows:</p> <p>Mitigation component – Carbon stocks of forests or other habitats are maintained through good management practices</p> <p>Resilience component – impacts that climate change may cause to the resilience of the forest, land or surrounding ecosystem are understood and mitigated; and general health of forests or other habitats are maintained through good management practices</p> <p>Free, Prior and Informed Consent – FPIC must be sought when property right is potentially affected, or projects may lead to the removal or relocation of habitation or activities</p> <p>In the case of most coastal management works, especially those that involve asset protection, these bonds will be unsuitable. In the event the works could be undertaken to improve the ecosystem health of the coastal environment there could be a case for such an approach.</p>
Blue bond	<p>The success of green bond instrument has led to the development of similar bonds such as Climate bonds and Blue bonds. Specifically, Blue Bonds support activities focusing on coastal ecosystems including sustainable management of living natural resources, terrestrial and aquatic biodiversity conservation, sustainable water, wastewater and wastewater management and climate change adaptation. The concept of blue bonds is fairly new but has been used in other countries</p>

68 SA Department of Treasury and Finance <https://www.treasury.sa.gov.au/Growing-South-Australia/social-impact-investment>

Table 5: Alternative funding mechanisms (continued)

NAME	DESCRIPTION
Resilience bond	<p>Resilience Bonds are designed to help manage the financial risk from a catastrophe and promote investment in infrastructure that mitigates physical risk. Theoretically, the efforts reduce the exposure of assets to risk resulting in cost savings through lower insurance premiums. For the bonds to be successful, the cost savings accrued need to be modellable before investment. The use of resilience bonds as a funding mechanism in Australia is a novel approach, however given the scale of funding required to manage our vast array of coastal assets it should certainly be part of the mix.</p>
Rolling finance model	<p>The NSW Government has recently used the rolling finance model for the WestConnex project because it can be built and opened in a number of discrete stages, and because demand forecasts are well understood as the M4 is an existing government owned motorway. The funding model is implemented in the following way:</p> <p>The government invests in the first segment of the project.</p> <p>Once the first segment is completed, a user charge is introduced to generate revenue back into the project and finance the development of subsequent segments.</p> <p>The government can then issue debt against the user charge to fund subsequent sections without it being government guaranteed.</p> <p>After a period of time, the Government then sells equity into the project to generate funding for the subsequent project segments.</p> <p>This approach is being employed because it means:</p> <p>the project is kept “off balance sheet”, preserving the Government’s credit rating and ensuring funding is available for other projects.</p> <p>A multi-billion-dollar project can be funded with a smaller budget commitment, because funding sources (revenue from tolls, debt financing and equity sales) are hypothecated back into the project.</p> <p>Perverse incentives and uncertainties associated with private financing of road infrastructure financing are addressed.</p>
Low interest loans	<p>Loans that are below the current interest rate to incentive particular actions, these are emerging in the emissions and environmental space to support uptake more energy efficient technology.</p> <p>For instance, the Clean Energy Finance Corporation is working with financial institutions to provide access to low interest loans to homeowners and developers.</p> <p>The Clean Energy Financial Corporation undertakes direct investment, establishes investment funds, support debt markets (including being a leading investor in green bond markets) and works with banks and co-financiers to deliver discounted finance to businesses, farmers and manufacturers for their clean energy investments.</p>

4. SUGGESTED NEXT STEPS

Outlined below are suggested next steps to advance this project.

4.1 Questions for government stakeholders

Following this review, a final list of stakeholders for further interview must be identified. We have identified a number of questions for different stakeholder groups to either further our understanding or aid in the identification of most appropriate options.

4.1.1 SA Local Councils

- How are assets that require a coastal management strategy identified and prioritised?
- Is this process undertaken in conjunction with the Coastal Protection Board?
- Do funding requests go through the Coastal Protection Board or do you approach the relevant state government department?
- Has any analysis been undertaken on the public versus private benefit case for coastal assets?
- What is the appetite for alternative funding mechanisms?
- How do Councils build coastal assets into long term asset management and financial management plans

4.1.2 State Government

- Does the state government differentiate between metropolitan Adelaide and regional areas when making decisions about coastal zone management?
- How is funding shared between metropolitan and regional priorities?
- Do Metropolitan Council's or local stakeholders (business owners, private property owners etc) contribute funding directly to the beach renourishment strategy? Have alternative funding mechanisms to government grants been explored?
- Is there a recommended management action for coastal public or private assets?
- Is the beneficiary pays principle in place, and are equity considerations considered when prioritising public funding?
- What is the appetite for alternative funding mechanisms?

4.2 Australian Government

- What is the Australian Government position on the funding of coastal zone management?
- Why has the Australian Government previously provided funding for some coastal management projects, and why is that funding is no longer available?
- What types of coastal projects are deemed to be of national significance with beneficiary's nation-wide?

4.3 Undertake cost benefit analysis and distributional analysis

Land managers, local councils and other stakeholders should consider what type of coastal management option is most appropriate for the location given the coastal hazard and asset types. In the first instance, we must consider what the impact (direct and indirect) would be of continuing with current management and activity, the base case.

Consideration will be given to the following:

- The current and potential future value of assets that are directly exposed to the coastal hazard
- The direct social and economic value of the coastal assets themselves, and
- The indirect social and economic contribution of the above assets to the regional economy.

A cost benefit analysis (CBA) can be then used to compare the costs and benefits of the base case to how they would change if an alternative form of coastal management occurred. In general, alternatives will be some form of defence or retreat.

- **Defence** – where an engineered structure is built for the purposes of protection of asset/s.
- **Retreat** – where a plan is put in place to remove assets from the coastline to allow natural processes take place, often replacing built assets with parks and reserves.

For the next phase of our analysis, we propose to summarise the coastline into three distinct asset classes based on the scale of benefit that is likely to be achieved from coastal management. By grouping based on the scale of benefit, we are considering the range of direct and indirect benefits that can be achieved from coastal management. Where the benefit is larger in economic terms, there will be more funding options available. Where the benefit is smaller, there is likely to be less funding options available.

We propose coastal management is broken into three categories:

1. Metropolitan.

2. Regional hub – These sections of coastline will be medium to large towns that are exposed to coastal hazards. Coastal management may have benefits to the local economy by protecting transport routes, supporting tourism or enabling other industries.

3. Small community – There will be sections of coastline that are home to very small communities with a small number of rate payers and small number of beneficiaries from coastal management.

The purpose of the economic analysis would be to inform illustrative case studies regarding the potential to demonstrate situations in which a project may be economically beneficial, along with identifying the range of beneficiaries and how the framing of the analysis can affect the distribution of these benefits. For instance, a coastal revetment project in isolation will deliver benefits to the protected assets which will typically be a narrow set of beneficiaries with a large proportion being private benefit. Whereas a regional development initiative such as improving coastal amenity, connectivity to the town centre and supporting investment into asset development (such as tourism or industrial) that are supported by both revetment and other initiatives (street scape improvement, road network improvement, etc) could deliver benefits a significantly broader set of stakeholders and thus make a stronger case for government investment.



