Coastal Communities

Protection Alliance-Wooli Inc



Position Paper – February

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**Executive Summary**

The Coastal Communities Protection Alliance – Wooli Inc (CCPA) has prepared this paper in order to present a community position to all levels of government with respect to the Draft Wooli Village Coastal Zone Management Plan (the Plan) and associated documents. This executive summary outlines the key points presented in the document.

**What is the CCPA?**

The CCPA was formed in response to Wooli ratepayers’ notification in September 2010 of the issuance of the Draft Wooli Village Coastal Zone Management Plan (the Plan) prepared by Worley Parsons on behalf of Clarence Valley Council (CVC). The CCPA currently has over 125 registered members and is an incorporated body. Attendance numbers at meetings and petition signatures indicate widespread local support. For further information, please refer to our website: [www.protectwooli.com](http://www.protectwooli.com/).au.

**Legislative Framework**

It is CCPA’s view that the current Plan does not meet the new requirements of the amended *Coastal*

*Protection Act.* It is the CCPA’s position that the Plan must be rejected or amended for it to comply with the legislation. Consequently, the CCPA seeks further public and community

consultation, investigation and relevant research of submissions and review of the further draft prior to approval by the Council of the Plan for submission to the Minister.

**Responding to the Threat of Erosion and Climate Change**

The release of the Plan has had an immediate radical and negative impact on the Wooli community, yet the Plan is intended to address long term highly uncertain effects. The lack of certainty provides

a measure of flexibility in planning documents, but is very destructive when it significantly influences immediate decisions in existing communities.

A fundamental problem with the Plan is the way it is being utilised. The objectives and actions forming the Plan propagate immediate, high, and poorly understood impacts on an existing community and environment with no defined framework for community engagement or mitigation of impacts. *The plan is justified on the basis that highly uncertain long term environmental effects could potentially pose a threat to the community.*

The scoping work that has been performed to create the Plan could be used as the first step towards an alternative plan that:



1. Ensures active stakeholder engagement;

2. Maximises the value of existing (public and private) assets while managing risk;

3. Maximises development of systematic understanding of site processes and options;

4. Utilises time to enhance stakeholder outcomes;

5. Provides for implementation of the most appropriate timely interventions based

on multi‐criteria assessment, followed by suitable maintenance and monitoring;

6. Supports a stakeholder culture of informed and managed adaptation to climate change.

The science of climate change is an evolving area and requires a robust risk management framework when considering adaption issues. The answers may not be immediately available but the science will continue to evolve in this area. The latest thinking in this rapidly emerging field has not been considered in the Plan.

The level of scientific modelling undertaken in formulating the Plan, and the alternative engineering solutions considered are inadequate. High capital options such as artificial reefs and low capital options such as dune vegetation management have been mentioned, consistent with a Scoping Study level of investigation, but this level of evaluation is not sufficient for an implementation decision.

The extent of community engagement to date has been inadequate.

**Potential financial solutions**

CCPA has outlined in section 4 some potential financial solutions for all levels of government to consider, should further research and consultation determine that potential engineering solutions will require significant funding. The potential financial solutions identified are indicative only and significant additional work will be required to determine their appropriateness for the situation. ***The key point to note is that CCPA wishes to engage with all levels of government to proactively work up financial solutions, as well as engineering ones.*** CCPA also recognises that any engineering solutions are likely to require a significant amount of long term research and maintenance expenditure, so our financial solutions are focused on generating annuity streams, not just a lump sum of money.

**Conclusion**

CCPA strongly recommends the Clarence Valley Council to:

1. Reject the current Wooli Village Draft Coastal Zone Management Plan, and particularly the aspects around planned retreat, as it is not collaborative, engaging or flexible enough to effectively utilise current best practice or emerging knowledge in the field of coastal management;

2. Engage with the stakeholders (including the Wooli community) to develop an alternative comprehensive management plan for the Wooli Coastline;

3. Seek support from the New South Wales state government for a more accommodating and responsive legislative framework ;

4. Support the adoption of any available immediate short term solutions, such as the reconstruction of the dune care group in Wooli with an active focus on bush regeneration;

CCPA has had positive discussions with members of Coastal Research Units (CRUs) at Sydney and

Griffith universities and the international Hydrological Engineering firm Amalgamate Solutions and

Research (ASR). Other CRU’s have been identified at The University of NSW. and Macquarie and Wollongong Universities. The expertise available through this collaboration is enormous. While the solution to coastal sand loss and erosion issues in Wooli may be as yet unknown, one will be found

but only after adequate research and preparation. A state wide approach and federal engagement will be required and links through the NSW government and these universities will identify financial assets for research grants and facilitate solutions to planning and legislative obstacles.

CCPA wishes to continue to engage with CVC and the state government to develop funding and engineering solutions. We are confident that if the CVC and the NSW Government work collaboratively with the community, we can together achieve an appropriate response to the real threats of beach erosion and climate change on the village of Wooli. We are also confident that such a response is unlikely to involve planned retreat.

**1 What is the CCPA?**

**1.1 CCPA Formation and Membership**

The Coastal Communities Protection Alliance – Wooli (CCPA) was formed in response to Wooli

ratepayers’ notification in September 2010 of the issuance of the Draft Wooli Village Coastal Zone Management Plan (the Plan) prepared by Worley Parsons on behalf of Clarence Valley Council (CVC). The CCPA currently has 125+ registered members and is an incorporated body directed by a Steering Committee to co-ordinate activities. Our website, [www.protectwooli.com.au](http://www.protectwooli.com.au), has extensive detailed further information.

Membership of CCPA comprises concerned citizens who reside or own homes in Wooli, or who are concerned with the protection of the village. The members of CCPA are not just people whose homes are in the retreat zones outlined in the Plan. Rather, CCPA is a diverse group of people with different perspectives but the group is united in its belief that the planned retreat option presented in the Plan must be rejected. CCPA is fortunate to have amongst its members professional representatives from the engineering, science, investment banking, legal, accounting and consulting fields. These members have worked collaboratively to prepare this position paper.

**1.2 Wooli Village – a unique part of the NSW coastline**

Wooli Village is a town of approximately 600 residents surrounded by the Yuraygir National Park. It is framed by the Wooli Wooli River on one side and the Pacific Ocean on the other. The oldest part of the Wooli village has been in existence officially since 1923 and includes a mixture of older

fishermen’s shacks and more modern dwellings. This part of the village also includes a water tower,

the local primary school, the bowling club, a dive shop, general stores, a caravan park, playground, tennis courts and the community hall. Locals and holiday makers love the Wooli village for its relaxed atmosphere, friendly nature and lack of development.

The region boasts the longest stretch of undeveloped coastline in NSW (as per Department of the Environment figures), one of the cleanest rivers in NSW, pristine coastal vegetation and abundant bird and native wildlife.

**1.3 Draft Wooli Village Coastal Zone Management Plan**

The Plan proposes a progressive retreat from the coast and from the “site of the original Wooli village”. ***It should be noted that the original Wooli village is not a “site” but, as outlined above, a vibrant community of residents, both full time and part time.*** It is also a popular holiday spot, with

many people returning year after year to holiday in the town. A recent visitor survey showed that

93% of Wooli visitors come from outside of the CVC area, bringing additional income to the area.

The Plan is comprised of three main components: proposed planned retreat, a dune management plan and a coastal erosion emergency management plan. CCPA accepts the dune management and coastal erosion emergency management plan proposals but rejects completely the proposed planned retreat option.

The Plan was prepared by Worley Parsons after they were commissioned by CVC. The budget for the report was relatively small resulting in a report which essentially built on data included in the report

of Patterson, Britton and Partners to Ulmarra Shire Council in 1996-7. As a result, the report was prepared at a level of a “scoping study” identifying but not investigating in depth the problem of sand loss from the Wooli beach.

As referred to in section 3, *CCPA would expect that a significant level of research and consultation would be undertaken before a suggestion such as planned retreat could be raised.* Although the draft report does recommend further investigation of the land swap option, it is presented as a

preferred option. It is the CCPA’s view that a number of other options should be considered *in detail*

before a preferred option is presented. In addition, presenting planned retreat as a viable option would need to be subject to presentation of a viable area of land to retreat to. This has not been

presented in the draft plan – as all areas presented as possible retreat areas would be subject to the

same erosion issues, just at a later time. This is specifically acknowledged in the draft report which recommends retreat to leasehold titles only. Wooli is at the coastal edge of a National Park. It is small with a limited amount of freehold land available. Simply put, there is nowhere for those threatened by planned retreat to retreat to - without leaving Wooli

CCPA has prepared a comprehensive response to the Plan and indicated some proposed next steps in terms of possible planning and engineering solutions in section 3.

**1.4 Impact of the Plan**

The immediate effect of the Plan has been to erode real estate value throughout the entire Wooli village such that no sales of property have occurred since it was released. If the Plan were accepted, this loss of value would become permanent. (March 2012: Since this report was published in February 2011, 3 house sales have been made in the area.)

The social and economic impacts of the proposals in the Plan would be significant, not only for the immediately impacted landholders. Abandoning the old section of the Wooli village would mean

that the rest of the village would suffer and would not be able to sustain the current level of tourism and businesses. As outlined in the Plan, Wooli businesses currently service other communities in the area, including Minnie Water.

The uncertainty created by the issuance of the Plan in its current form is also significant. It is particularly distressing for elderly residents who may have been hoping to sell their properties to move to gain access to more services, particularly hospitals and aged care facilities.

**2 Legislative Framework**

The Minister for Climate Change and Environment has identified areas of coastal risk and has directed the Clarence Valley Council, among other local government authorities, to prepare a draft Coastal Zone Management Plan (the Plan) for Wooli.

The Minister made the direction pursuant to the *Coastal Protection Act* 1979 as amended by the

*Coastal Protection And Other Legislation Amendment Act* 2010 (collectively called “the Act”).

Under the Act, Council is required to:

1. prepare the plan in accordance with the Minister’s guidelines and policy (section 55D);

2. consider all submissions made to the draft CZMP after it has been publicly exhibited

(section 55F); and

3. consult with other public authorities and submit to the final draft CZMP to the Minister for certification.

Upon submission of the Plan from the Council the Minister may:

1. refer the Plan to the Coastal Panel (yet to be established) for advice and/or recommendations;

2. certify or refuse to certify the Plan.

Importantly, the Act, from which the Plan is derived, must, among other things, make provision for:

1. the protection and preservation of beach environments and beach amenity;

2. ensuring continued and undiminished public access to beaches;

and from January 1, 2011:

1. the management of coastline risks arising from coastal hazards (such as beach erosion, coastal slope instability, shoreline recession, watercourse entrance instability and tidal inundation);

2. management of estuary health and the risks arising to that estuary from coastal hazards;

3. the impacts from climate change on risks arising from coastal hazards and on estuary health;

and

4. where coastal protection works are proposed to be funded by the Council and/or a private landowner(s), the proposed arrangements for the adequate maintenance of the works and the management of consequent impacts of those works (Section 55C).

The Plan dated 4 August 2010 was published prior to the recent legislative amendments, and fails to provide or properly provide for these matters.



*It is the CCPA’s position that it is necessary for the Plan to be rejected or amended to comply with*

*the legislation. In that regard, the CCPA seeks further public and community consultation, investigation and relevant research of submissions and review of the further draft prior to approval by the Council of the Plan for submission to the Minister.*

*It is the CCPA’s desire to work effectively in conjunction with the Council to assist in the formulation*

*of a Plan for Wooli that:*

*1. accords with the principles of the legislation;*

*2. provides the best environmental, economic and social outcomes for Wooli and the Clarence*

*Valley; and*

*3. may serve as a responsible and practical precedent for other coastal communities threatened by climate change.*

**3 Responding to the threat of erosion and climate change**

**3.1 Review of Current Status and Knowledge**

The Clarence Valley Council (CVC) prepared and published for comment in 2010:

1. Wooli Beach / Village Review of Coastal Hazards (Worley Parsons, 2010a);

2. Wooli Village Coastline Management Strategy Update and Options Review (Worley Parsons,

2010b);

3. Wooli Village Draft Coastal Zone Management Plan (Worley Parsons, 2010c)

The third of these documents has a significant effect on the Wooli community. The purpose of this document is to critically evaluate the proposal presented in (Worley Parsons 2010c). As a result of this evaluation, an alternative approach is proposed for the development of a Management Plan for Wooli.

A review of Worley Parsons (2010; a,b,c) indicates that Wooli village is subject to significant risk of physical destruction as a result of coastal process exacerbated by climate change, and that the best option is to relocate the village to an area of lower risk. The key risk driving this finding is the risk of dune erosion, with flooding effects being a secondary risk. This work was framed as an extension to previous investigations (Patterson Britton & Partners, 1997; a, b).

Legislative requirements compel CVC to develop a plan for the Wooli community to accommodate climate change (Worley Parsons, 2010b). The Draft Coastal Zone Management Plan has a significant impact on the viability and future of the Wooli community, although thorough evaluation and/or mitigation of this impact was beyond the scope of investigations by Worley Parsons. The focus of Worley Parsons (2010c) is on planning and policy, so there is limited consideration of asset management, investment, environmental and community impacts.

Reasonable information is available on the likely climate change projections in the Wooli area (Macadam et al, 2007). However the impact that these climate change effects could have on the critical issue of beach erosion is considered only at a general level, and site specific issues are not analysed in any detail (Worley Parsons, 2010a). The relationship between climate change and beach erosion is poorly understood, and will be site specific. Detailed consideration of this issue was beyond the scope of Worley Parsons 2010a, and is not addressed in the Plan.

Typically, planning framework establishment and investment decisions are made by different stakeholders with investment decisions being structured in response to the planning framework.

However Wooli’s reality is that the village already exists in its current environment, so planning and

investment decisions are inextricably linked by the current reality.

Key issues emerging from the Draft Coastal Zone Management Plan are:

1. The proposed Plan is significantly different to the existing plan, particularly in relation to cost allocation (note the stated objectives in the Draft Coastline Management Plan);

2. The proposed Plan has a radical impact on existing investments (both private and public);

3. The proposed Plan will have a radical impact on future investments (both private and public);

4. Assessment of relationships between the Plan and investment decisions (current and future) was beyond the Scope of Worley Parsons (2010c). Where options are discussed in Worley Parsons (2010 a, b, and c), they are only considered at Scoping study level, and they are neither comprehensive nor detailed enough to support implementation decisions;

5. Environmental and Community impacts associated with the proposed Plan have been subject to limited consideration (as expected in a planning study). However the close linkage between the

plan and investment/asset management means that community, and potentially environmental impacts will occur without adequate management under the Plan;

6. There is a great deal of uncertainty associated with the likely climate change impacts driving the

Plan;

7. The timeframes associated with likely climate change impacts are significantly different to investment decision timeframes (investment impact is significant and immediate);

8. Assessment of dune deterioration has not been detailed, nor site specific. In particular, it has not been matched to the level of detail required for sound management decisions for existing assets.

*The result is that the release of the Wooli Village Draft Coastal Zone Management Plan has had an immediate radical and negative impact on the Wooli community, yet the Plan is intended to address long term highly uncertain effects. The Plan does not address short, medium or long term effects with certainty. The lack of certainty provides a measure of flexibility in planning documents, but is very destructive when it significantly influences immediate decisions in existing communities.*

The fundamental problem with Worley Parsons (2010a,b) is the manner in which it is being utilised (Worley Parsons, 2010c). *The objectives and actions forming the Plan propagate immediate, high, and poorly understood impacts on an existing community and environment with no defined framework for community engagement or mitigation of impacts.* The Plan is justified on the basis that highly uncertain long term environmental effects could potentially pose a threat to the community.



*Alternatively Worley Parsons (2010 a,b) could be used as the basis for a plan that:*

*1. Facilitates active stakeholder engagement;*

*2. Maximises the value of existing (public and private) assets while managing risk;*

*3. Maximises development of systematic understanding of site processes and options;*

*4. Utilises time to enhance stakeholder outcomes;*

*5. Provides for implementation of the most appropriate timely interventions based on multi‐criteria*

*assessment;*

*6. Facilitates a stakeholder culture of informed and managed adaptation to climate change.*

*Such a plan would encompass plan evolution in collaboration with related processes of investment and governance based on emerging and best available knowledge.*

**3.2 Climate Change**

Wooli is not unique in being a coastal community under threat. Thom et al (2010) present a structured and reasoned discussion with respect to the possible threat and the need to gain much more knowledge to quantify the threat, and identify appropriate responses. Thom et al (2010) suggest adaptation to reduce the impact of climate change on settlements, and identify critical gaps in information that limit the capacity to manage risk, and reduce the impact of climate change on coastal communities.

Thom et al (2010) state that involving stakeholders in research programs will help ensure the relevance and uptake of findings, and contribute to building knowledge and commitment from key

stakeholders and the broader community. Four main information needs are identified for adaptive response:

1. Assess the vulnerability of particular communities and locations;

2. Provide historical and current information that informs and supports future adaptations;

3. Fill information gaps that hinder or obstruct adaptation;

4. Provide information management strategies and decision tools to guide information producers and consumers towards useful information with which to adapt to climate change.

Thom et al (2010) propose a risk management framework to describe adaptation options, namely:

1. Spread risk;

2. Prevent effects of risk;

3. Avoidance of risk;

4. Research;

5. Encourage behavioural change.



*The Plan is not consistent with this recommended framework.*

**3.3 Asset management and intervention strategies**

Characteristic values (e.g. 1 in 100 year storm event) are utilised in modelling techniques to make comparisons between alternatives and deal with risk. This is a conventional means of asset evaluation (at least initially) because it allows rapid objective comparison of risk and or level of service independent of local effects. This approach is well established in a design and planning processes across a wide range of professional disciplines.

Over recent years (particularly since the 1990’s) owners of large capital assets have been managing the more complex and inter‐related issues of:

1. Significant investment in existing assets;

2. Deteriorating condition of existing assets;

3. Sound apparent utility of existing assets;

4. Increasing magnitude of characteristic values.

The limitations of high level modelling based on characteristic values have become increasingly evident when applied to decision models involving existing assets. Examples of this include bridges (most Australian bridges do not comply with current design codes), wharves, industrial structures (in refineries etc) and dams. While initial (high level) evaluation of these facilities is often based on design code criteria (characteristic values), decisions regarding management of these existing assets are typically made using much more sophisticated risk management based evaluation models, making maximum use of quantifiable and measurable data. The principles espoused in AS ISO13822 (Standards Australia, 2005) provide a more detailed framework of this approach for structures, but the approach is generally applicable for other constructed assets (e.g. Wooli).

Wooli village represents a significant public and private asset. While Worley Parsons (2010;a,b,c) identifies potential high level risks, management of these risks should be based on an asset management approach, and this should be (but is not currently) accommodated by the Plan.

*Once risks exceeding high level thresholds have been identified (e.g. Worley Parsons, 2010a), best practice asset management techniques apply a second tier assessment. For the case of Wooli, this would mean a more detailed quantification of the actual risks for the Wooli site based on significant local parameters and issues. Often a second tier assessment will result in a significantly different risk profile compared with the initial assessment.*

Often these risks can be managed by regimens such as increased observation or minor targeted intervention. In some cases improved (second tier) understanding of the actual prevalent risk profile may mean that even these measures may not be required. No second tier assessment is accommodated in the Plan.



In some instances the second tier assessment may identify the need to undertake more significant interventions. In such cases, detailed studies need to be undertaken to scope, cost and manage the impact of implement of the intervention. The intervention methodology is selected based on

detailed multi‐criteria assessment covering all stakeholder issues. No third tier assessment is

accommodated in the Plan.

*A range of intervention (coastal protection) measures have been implemented around the world over a considerable period. ASR Marine Consulting and Research (2010) provides a recent overview of practical solutions. Of note, the protection measures summarised in ASR Marine Consulting and Research (2010) typically have multiple effects including:*

*1. Beach protection*

*2. Modification to (potentially improvement of) beach amenity*

*3. Improved safety*

*The Narrowneck multipurpose reef constructed on the Gold Coast has improved beach protection, provided an accessible reef environment for diving, improved public safety, and improved surfing, with a very strong benefit cost ratio (ASR Marine Consulting and Research, 2010). Protection measures can involve significant capital investment, however a range of less capital intensive (but more labour intensive) measures are also available to facilitate beach protection and improve amenity.*

*While some intervention methodologies are mentioned (Scoping Study level) in Worley Parsons (2010a), the lack of necessary second and third tier assessment methodologies mean that such interventions have not been adequately considered within the Plan.*

One of the most cost effective asset management techniques for risks identified at first tier level assessment has proven to be development of a better understanding of site specific risk and management options available (certainly true for bridge and industrial plant assets). Key elements of this approach include:



1. Limit major intervention decisions to those clearly required;

2. Manage interim risk as required;

3. Increase observations to gather site specific data;

4. Develop an understanding of issues and options from other sites

To some extent, this has already occurred at Wooli. In particular:

1. The buy‐back option proposed by Patterson Britton (1997a) has not been required to date

2. Limited, although somewhat ad hoc risk management has been implemented via minor beach protection works

3. There is a considerably better body of knowledge and technology available from other sites compared with that available in 1997 (ASR Marine Consulting and Research, 2010 – although

this has yet to be accessed for Wooli).



*Further, there will be extensive investment in coastal research over coming years in response to climate change concerns. Wooli can only benefit from this national and international investment by deferring major (Wooli based) intervention decisions where possible and being engaged in the process of management and knowledge gathering (this should form the basis for the Wooli management plan)*. *This routinely applied asset management process was not canvassed in the work underpinning the Plan. An alternative plan should consider combining an approach similar to AS/ISO13822, with emerging applicable research.*

The draft plan in its current form has had a major and immediate impact on the Wooli community. Development of the Plan has been based on a “minimum spend” approach. While adequate for a Scoping Study level investigation, continuation of this “minimum spend” approach to immediate

implementation is not an appropriate or responsible asset management response on behalf of Wooli stakeholders (CVC is also a key Wooli stakeholder). The result is that the stakeholder impact of the draft plan does not reflect the risk profile associated with the Plan, and is not acceptable for an asset owner/manager focused on best value outcomes from existing assets.

**3.4 Coastal modeling and protection research**

Worley Parsons (2010a) makes use of simple high level coastal modelling and engineering in their hazard review for Wooli. The report makes reference to both the complexity of these processes, limitations of input data. Hazards are assessed within the confines of these limitations based on

“benchmark” recommended allowable limits. This approach appears to be reasonable for a “scoping

level” of investigation.

Botev and Fryar (2002) highlight the key requirements for coastal modelling as:

1. The need to collect sufficiently representative data and correctly identify the predominant processes and driving forces;

2. Select optimal model resolution and establish the model such that it reproduces consistently the physics of the real system when attempting to construct predictive models of coastal systems.

This level of analysis is beyond the scope of Worley Parsons (2010a), and the report suggests that there is insufficient data available to undertake this level of modelling.

A relevant study competed by Patterson (2009) modelled the Northern NSW Coast north and south

of the Richmond River over a length of 60 km and 50 km wide (covering on‐shore and off‐shore

features) to understand sand movement associated with Richmond river training walls. Photogrammetric data was the only reliable source of input information (similar to Worley Parsons,

2010a). Patterson (2009) completed much more sophisticated analysis than Worley Parsons (2010a)

using numerical modelling to predict sand movement over an extended period (exceeding 100 years).

Features of the numerical model included the capacity to model:

1. Sea level change;

2. Bedrock features such as submerged reefs or headlands depending on sea level;

3. 2D coastline and continental shelf representation;

4. Long term cross‐shore sand transport in water depths beyond upper profile zone of frequent of

frequent storm erosion exchange;

5. Representation of breakwaters and rivers.

This model only accounted for steady state solutions (i.e. ignores transient effects).

The Richmond River seawalls were placed between 1890‐1910, with the north wall extended in

1960s. This area is similar to Wooli with northward net long shore transport (up to 350,000 m3/yr in the Ballina area). The earliest available data for the Richmond investigation was 1947 (compared

with 1942 for Wooli). Patterson’s (2009) evaluation noted:

1. Installation of the training walls caused sand to build up for 8 ‐10 km south of the wall

2. Sand position at a given time is a function of both steady state, and transient effects

3. The most significant transient effects were cyclone related, occurring in 1954, 1967, 1974.

Restoration towards the steady state equilibrium followed the transient events

Patterson(2009) observed that:

1. Rocky and pocket beach nature of the coastline between Ballina and Lennox Head are such that:

a. Only limited erosion occurs due to the bedrock controls of the headlands and underlying reefs;

b. A substantial proportion of the sand losses caused by the training walls are transferred north relatively quickly to Lennox Head and Seven Mile Beach; .

2. Down drift erosion from the training walls has not yet affected the beaches at Suffolk Park or Tallow Beach. However there is potential for the erosion to be felt there over the next 100 years;

3. Modelling the coast line at and north of Ballina is highly complex because of the variable shore alignment and, particularly, the extensive presence of bedrock headlands and reefs that control the sand transport processes. The modelling undertaken did not represent those features and processes with a high level of accuracy, however it is considered that the essential processes and controls were reasonable well simulated such that the impacts of the training walls could be identified realistically.

Patterson (2009) concluded:

1. Training walls appear to be the dominant influence on the sustained shoreline erosion that has been experienced at Lennox Head and Seven Mile beach.

2. In the absence of sea level rise, the shoreline appears to be recovering slightly at the south Lennox head and has stabilised along Seven Mile beach. Ongoing monitoring is needed to confirm this;

3. Despite the above, there appears to have been a long term reduction in the longshore transport past the training walls and along Seven Mile Beach and some impact of the training walls may start to be felt at Suffolk Park over the next 100 years.

4. Sea level rise will exacerbate the erosion at all beaches in a manner that is more complex than

that indicated by application of the “Bruun Rule”, with Headland controls minimising recession

updrift and exacerbating recession down drift of these controls.

In contrast to Patterson (2009), Nielsen and Adamantidis (2007) concentrated on the effect of transient (storm) events on beaches, and found that:

1. Neither empirical nor analytical predictive techniques provide definitive answers for predicting storm erosion hazards for beaches;

2. Interactions occur between steady state and transient effects, and that multiple transient effects closely spaced in time (within a year) can interact with each other –implying that hazard events

may not be statistically independent of each other;

Nielsen and Gordon (2008) investigated the hydraulic stability of some large NSW estuaries with similar process and outcomes evident to Patterson (2009) including:

1. Processes are complex, variable and somewhat unstable in nature;

2. Variations trend towards equilibrium states over extended periods (hundreds of years);

3. Separating measurable differences in effects from statistical variations is difficult, and hard to establish with a high level of confidence.

While this review of coastal modelling and protection research is not exhaustive, it is adequate to demonstrate a number of key points with respect to the Wooli Village Draft Coastline Management Plan, namely:

1. Underpinning evaluation for Wooli has been based on the simple “Bruun Rule” approach, which

while useful at the “screening” evaluation level, is not an accurate predictor of beach behaviour

2. Steady state and transient (storm) processes can be modelled, but are highly influencedby local features such as reefs and major land form

3. Separating instantaneous measured effects on a beach from normal statistical variations associated with beach processes is difficult to achieve with a great deal of certainty;

4. Disturbances impacting beach processes take many years (potentially hundreds of years)to fully stabilise, and such disturbances can be generated quite remotely from the beach being impacted (potentially tens of kilometres away).

*While the underpinning science associated with the Plan is adequate to identify zones of potential risk at Wooli, it is not adequate for temporal or spatial prediction of beach behaviour. The science underpinning the Plan should be limited to facilitation of risk management processes for Wooli until better information is available.*

Given the magnitude of impact of the Plan, more robust and accurate modelling should be utilised as the basis for implementation decisions. It is noteworthy that modelling capacity and knowledge of coastal process has significantly advanced from 1997 to 2010. Patterson Britton & Partners (1997a) could not use current knowledge because it was not available. As mentioned previously, current and planned investments are likely to significantly increase knowledge of beach process in coming years. The opportunity to utilise this knowledge did was not specifically investigated by Worley Parsons (2010a), possibly because it did not form part of their investigation scope.



Local knowledge and Patterson Britton (1997b) indicate that not all storms damage Wooli beach,

and some storms appear to add sand to the beach in the vicinity of the village. However, storms with swells originating from the South to South East appear to be the prime cause of damage to the

beach in the vicinity of Wooli village.

*There has been no attempt to materially understand the deterioration mechanism that generates risk for Wooli, nor investigate methodologies to mitigate this risk (e.g. those discussed in reference noted in Section 2.3 above). The combination of all data sources (including local knowledge) with current modelling techniques would provide an opportunity to understand, and hence manage the risk to Wooli from storm damage. This is the key risk driving the Plan, yet it has not been systematically investigated using best available knowledge and technology, and such an investigation has not been recommended as part of the Plan.*

**3.5 Community knowledge and engagement**



The idea that Wooli is at risk from coastal processes is not new. This risk has been known by the Wooli community for at least 50 years, yet to date there has been little perceivable impact of this hazard on the community itself. There is considerable local knowledge about what has happened in the past, which has not been engaged to date. In addition, there is a desire by the community to protect itself, and manage risk to the community and the environment.

Risks that have not been canvassed to date in a systematic way include policy risks. It could be argued that Worley Parsons 2010c poses a much more serious and immediate risk to the viability of the Wooli community than the Hazards discussed in Worley Parsons 2010a.

The Plan has already had a significant impact on the Wooli community, which is located in an acknowledged sensitive and high value environment. To date there appears to have been limited engagement with community stakeholders in the development of the Plan. While public comment on the Plan is a first step, *it does not represent ongoing engagement*.

The Plan alludes to the possibility of significant developmental changes (moving over half of the community from one sensitive location to another). An Environmental Impact Assessment (EIA) would be required if this development were proposed by a private developer and should be undertaken to substantiate the Plan if serious consideration is given to its retention. This further illustrated the close relationship between planning and development for circumstances such as those existing at Wooli.

Community based programmes such as “Dune Care” have previously functioned at Wooli. Fostering and promotion of this type of programme can act as a focus for broad community engagement in beach protection, and should be undertaken as a first step towards an alternative management plan.

**3.6 Wooli Village Draft Coastline Management Plan gap analysis**

CVC as part of statutory their requirements have commissioned a Scoping Study into Wooli Beach / Village Review of Coastal Hazards (Worley Parsons 2010a). This study effectively found that the Hazard profile warrants further action by CVC.

The Wooli Village Draft Coastline Management Plan if ratified by CVC would propagate the impacts to date further and have real and immediate implementation implications. The level of investigation underpinning the Plan is inadequate for implementation, having the following deficiencies:



*1.* ***Costing accuracy*** *– the order of magnitude costings presented by Worley Parsons are sufficient*

*only to establish the magnitude of the issues (is there a case to be dealt with). They are not sufficient to compare options, nor make investment decisions. They are adequate for Scoping Study level of accuracy only;*

*2.* ***EIA ‐*** *No systematic EIA has been conducted. The EIA needs to encompass land title, immediate*

*community, community network, social, and environmental issues. Under the circumstances it should also engage all key stakeholders;*

*3.* ***Asset management ‐*** *Best current practise risk based asset management processes have not*

*been applied. Application of these techniques is not appropriate at Scoping Study level however*

*systematic multi‐criteria analysis would normally be employed at pre‐feasibility study level, and*

*more advanced risk based asset management techniques should be employed during the feasibility study to allow informed and appropriate decisions;*

*4.* ***Coastal modelling –*** *the limitations of input data are acknowledged in (Worley Parsons, 2010a).*

*The statistical significance of the available data has not been established. Modelling has been appropriate for a Scoping Study (is there a case to be dealt with), but not adequate for more advanced studies upon which significant investment decisions should be made. Site specific beach processes have not been clearly identified or modelled, and intervention strategies have not been analysed in sufficient detail using current technology;*

*5.* ***Engineered solutions ‐*** *Application of the suite of proven engineered solutions has not been*

*adequately pursued, and this cannot effectively occur until (4) above has been addressed. High capital options such as artificial reefs and low capital options such as dune vegetation management have been mentioned, consistent with a Scoping Study level of investigation, but this evaluation is not sufficient for an implementation decisions;*

*6.* ***Coastal and Climate Change Research ‐*** *There appears to have been no attempt to engage with*

*contemporary coastal protection and climate change research which is a rapidly emerging field*

*of knowledge (Thom et al, 2010). This would have been a logical conclusion of the Scoping Study,*

*7.* ***Community engagement –*** *productive community engagement has not been engaged effectively. The Wooli community is a pro‐active informed community prepared to constructively*

*engage as evident by the response to draft plan. The process to date has limited the effectiveness of this engagement. Beyond Scoping Study level, the Wooli community needs to be actively engaged in the long term solution, which is consistent with Thom et al (2010).*

The CVC is being forced to function within a constrained policy framework (Worley Parsons 2010b). The current policy framework appears to limit the response of local authorities to a “lowest common denominator” approach within tight timeframes. This approach is at odds with best practice proposed by Thom et al, 2010. In particular, the policy framework appears to be limited to a “one

size fits all” approach, rather than a tiered asset management approach. A tiered approach would

encompass the existing policy framework as a first tier “deemed to comply” regime, however it

would also facilitate a tier two, and possible tier 3 framework consistent with established asset management practices where more sophisticated management techniques, data collection, and active operational risk management techniques focused on management of risk, and optimisation of opportunities. This policy deficiency has the potential to have a significant detrimental impact on the

Wooli community, and other “at risk” communities. The greatest risk to the communities in the

short term may well be the policy framework rather than the potential climatic hazard.

**3.7 Appropriate planning response**

Prompted by legislative requirements, the CVC initiated a Scoping level study to understand the coastal process hazards existent for Wooli village. Based on this study, an “options study” and “management plan” were produced with a view to expediting implementation.

In the broader context hazards existing for Wooli village are similar to those presented to a number of coastal communities throughout Australia and around the world.

These hazards can be divided into two types:

1. Steady state change of the coastline;

2. Transient effects – typically associated with major storm events.

A great deal of uncertainly in both time and space is associated with both types of hazards, and the processes governing both types of hazard are complex, both in the number and types of parameters

involved, and in their inter‐relationship.

While there are many aspects of these coastal hazards that are not known, some aspects of the hazards can be known with a relatively high level of certainty;

1. Steady state hazards develop over long periods of time (exceeding 100 years)

2. Real hazard impact is likely to be associated with storm events

3. Storm events cannot be predicted in time or space in the medium to long term

4. Short term storm risk, and likely hazard can be predicted quite well

5. Storm prediction capacity when aligned with emergency response can adequately protect the impact of hazards on human life

6. Management of hazard impact on property and physical community viability is more challenging that (5)

7. Hazards presented by policy and planning implementation may exceed (6)

There appears to be very little knowledge of the impact of policy and planning on either the viability or utility of communities in coastal hazard affected zones.

Human induced climate change is a relatively recently acknowledged phenomenon, and represents just one of a number of similar processes that need to be factored into management of coastal hazard affected zones.

Coastal communities and the utility value they provide to the broader community is poorly understood in quantitative terms.

Based on the above, it is proposed that the most appropriate planning response for coastal hazard affected zones should have the following characteristics:

1. Minimum immediate community impact (particularly with respect to community viability, utility and value);

2. Systematic engagement with coastal communities to identify, understand and manage the full dimensions of coastal hazards as they affect the environment and community;

3. Maximise the gathering of statistically significant quantified data on coastal hazards and their impact (robust, cohesive, engaged communities will be a key element to achieving this characteristic);

4. Further to (2), utilise existing communities to pilot and measure both hazard and risk with mitigation strategies in a structured and systematic manner;

5. Proactively seek to identify opportunities that may result from greater knowledge of coastal hazards.

Characteristics of the current coastal community hazard situation is that a long term engaging systematic response can be developed which makes use of more dynamic and responsive and informed decision making for the environment and the community.

As an illustration of what is possible, consider that earthquakes have damaged building for millennia. Communities have been constructed in areas prone to earthquake hazards. When a hazard becomes evident (usually following an understanding of the risks earthquake), three high level options are apparent:

1. Abandon the site or community

2. Ignore potential future hazards and re‐develop without learning

3. Learn, adapt and constructively work with nature to build better communities



*It can be argued that the most enlightened and prosperous communities have almost exclusively chosen Option 3 (e.g. San Francisco, USA; Wellington N.Z.). Climate change is an emerging and currently highly uncertain hazard, and communities essentially have the above three options. The Plan as currently formulated does not embrace Option 3, but it should do so.*

**4 Potential Financial solutions**

The cost of property purchase and/or compensation to landowners forced to abandon their homes as a result of planned retreat, was considered in the Plan as beyond Government resources and was presumably rejected for this reason. However, the Plan does not contemplate that the real cost of planned retreat of the original Wooli village is the same whether or not there is compensation. The compensation is only the issue of who incurs the loss of the assets abandoned in the village. If the landowners are compensated then some of the costs move to the Government; if there is no compensation then all the costs are borne by the land owners. CCPA has calculated, based on evidence contained in the Plan itself and conservative market assumptions, there are at least $157m of assets at risk in Wooli if the original village is abandoned. This is the real cost of planned retreat, regardless of who wears the cost. There is no feasible financial solution for a cost of this magnitude.

CCPA has outlined below some potential financial solutions for all levels of government to consider, should further research and consultation determine that potential engineering solutions will require significant funding. The potential solutions identified are indicative only and significant additional work will be required to determine their appropriateness for the situation. The key point to note is that CCPA wishes to engage with all levels of government to proactively work up financial solutions, as well as engineering ones. The indicative solutions outlined below which could be considered include:

1. Use of some of the rates paid by Wooli ratepayers – value $150,000 per year

2. Use of Crown Land to raise funds – value $500,000 per year inflation adjusted.

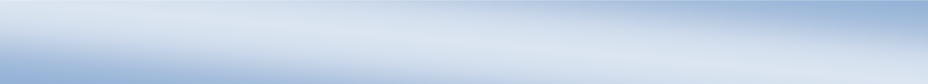
3. Zero interest mortgage loans – value $500,000 per year inflation adjusted.

Further solutions and combinations of solutions may come to light as more research is performed. All figures quoted in the following sections are indicative only and would need to be subject to validation as part of the research associated with any next steps.

**4.1 Use of Some of the Rates paid by Wooli Ratepayers**

It should be noted that the legal ability of the CVC to take this approach has not yet been examined and that this option would require extensive community consultation. That consultation has not yet

occurred and there is no guarantee that all impacted Wooli ratepayers would agree to the proposal.



*A policy of planned retreat for coastal communities will significantly and adversely affect property*

*values in the whole Clarence Valley Council region.*

A policy of planned retreat would effectively render the properties in the original village of Wooli close to worthless. The land valuation of these Wooli properties is currently $72 million based on

2007 NSW Valuer General valuations. In addition, all other Coastal Communities in the Clarence

Valley Shire, especially Broome’s Head (another listed hot spot), will also experience significant falls

in land values if the CVC supports planned retreat in any of the villages in the Council area. Buyers of coastal properties will seek houses only in those regions where the Council policy is to support the beach facility rather than abandon it.

*CVC rate income will fall by as much as $2,500,000 as a result of a policy of planned retreat.*

Rate income from coastal communities in the CVC currently stands at $5,746,636. With updated NSW Valuer-General valuations due to be released this year, the threat of planned retreat could trigger objections from ratepayers in all of the CVC coastal villages. We note that properties in



Belongil Beach had their property values halved by the NSW Valuer-General’s office last year. *We*

*note that the potential loss of CVC rate revenue was not included as a cost of planned retreat in the*

*Worley Parsons report.*

*Property values have fallen significantly in Wooli since the last NSW Valuer-General valuations*

Even without the threat of planned retreat, there has been a significant deterioration in the value of Wooli properties. This is evidenced by comments made by Mr Rod Ford, Principal of Yuragir Real Estate. He stated at a recent CCPA meeting held on 28 November 2010, that there had not been a sale in the southern part of Wooli village for 9 months. In addition, 1 in 10 of the houses in the southern village of Wooli are now for sale. There are also a number of properties for sale in the northern, newer part of the village. Given the current uncertainty in relation to the long term viability of the village, there are no buyers. We would estimate that land values in Wooli have at least halved since 2007, and we are confident that the NSW Valuer-General would reflect this in any



re-evaluation of Wooli land values.

*Unchanged rates in 2011 gives the CVC income above what it is due given current land values in*

*Wooli village. This excess of collected rates should be put towards the long term maintenance of*

*Wooli beach.*

If Wooli ratepayers do not object to the 2010 NSW Valuer-General valuations and continue to pay rates at 2007 valuations, then the CVC will be collecting rates far in excess of what they should be. Consequently, we put it to the Council that half the rates collected from Wooli should be put towards commissioning a new and thorough second tier assessment on the alternatives for Wooli. If the excess rates were put towards a joint CVC/CCPA managed report on Wooli beach, we believe that Wooli ratepayers would be prepared to continue to pay rates at 2007 valuations even though



those land values are vastly in excess of the real land values in Wooli in the current market.

*Wooli has more than paid its share of CVC expenses.*

The median land value in the Clarence Valley Council area was about $100,000 according to the valuations as at 2007. At the same time the average value of properties in Wooli was $386,000. Therefore, Wooli has been paying far in excess of its share of Council expenses over a number of years. However, to ensure the long term viability of the village, Wooli now needs a greater percentage of the rates that its ratepayers pay to be spent on the village and its environs.



We estimate that the southern village of Wooli currently pays about $260,000 in rates each year. It would not be unreasonable for $150,000 of these rates to be retained for the benefit of Wooli to help fund the upcoming expenses that will be needed to maintain the village and its attractive environment. This would still mean the Wooli would be a net contributor to other Council projects.

**4.2 Sale of Crown Land to finance engineering solutions**

*In the Plan, there is a suggestion that Crown Land could be used in a land swap agreement with current Wooli landowners as a leasehold alternative to freehold properties at risk. However, a better option for all stakeholders would be for the Government to sell these properties identified as alternative sites, rather than to lease them.* If a credible plan can be put together that ensured the long term viability of Wooli, then all of this Crown Land is worth a substantial sum of money. Under the relocation proposal, all these sites would be lost and be worthless once the dune is breached.

Therefore, it is a rational approach to sell this land and use the proceeds to form the basis of a ‘war

chest’ to use to support the village of Wooli.

To further enhance the attractiveness of these properties, the Government, as part of the contract of sale, could offer buyers an option to sell back the property to the Government at the original purchase price of the land. This sellback option would only be available to the original buyers and would expire after 20 years.

The Plan proposes that the primary school be moved to an alternate site. Our initial rough calculations indicate there could be 10 blocks that could be subdivided from the current school site. There are a further 17 sites that could be subdivided from the land currently housing the Wooli Hall and tennis courts (also proposed to be moved) and adjacent to that. As these are beachfront sites, if the beach could be secured, each could be worth upwards of $600,000 each. In addition, the land adjacent to the Bowling Club could be subdivided into 5 sites. These blocks would be worth upwards of $500,000 each. The sale of all these properties could generate a total in the region of

$18,700,000.

The cost of relocation estimated by Worley Parsons, is $6,700,000 as set out on page 51 of the Coastline Management Strategy Update and Options Review. The implication is that the Council and/or the NSW Government are prepared to outlay these funds to support relocation. If this amount is added to the Crown Land sale proceeds, then the funds available to defend the village rise to $25,400,000.

CCPA’s initial calculations indicate there could be approximately $4,300,000 in expenses to relocate the school, the tennis courts and the Wooli Hall as well as servicing the new sites. This would leave

$21,100,000 for the beach regeneration. These funds could be invested in an indexed linked Commonwealth Government Bond. This would generate income that could be spent annually to regenerate the beach, while the principal grows with inflation. This would result in the funds available to spend on the beach to be protected from being diluted due to inflation.

Set out below the calculations if the funds were invested in the latest issue of Commonwealth Government Indexed Linked Bonds being the 2.5% coupon maturing on 20 September, 2030. In the following calculations, an allowance has been made to spend $1,000,000 upfront on the beach regeneration.

Number of

Blocks

Current School 10

Tennis Courts and Wooli Hall 17

Total Blocks for potential sale 27

Approximate Value per Block $600,000

$16,200,000

Blocks adjacent to Bowling Club 5

Approximate Value per Block $500,000

$2,500,000

Funds received through sale $18,700,000

NSW Government and Council Relocation

Expenditure assumed by the Plan $6,700,000

Spend on beach up front ($1,000,000) Relocation of School, Wooli Hall and Tennis

Courts and provision of services to new sites ($4,300,000)

Total up front inflow $1,400,000

Net funds available for Beach Regeneration $20,100,000

|  |  |  |
| --- | --- | --- |
| Commonwealth Government | | |
| Inflation linked Bond | Inflation Rate | Return |
| 2.50% | 2.50% | 2.50% |
| September 20, 2030 | | |

Year ended

Value of

Principal Interest Receipts

|  |  |  |
| --- | --- | --- |
| September 20, 2011 | $20,602,500 | $505,640.63 |
| September 20, 2012 | $21,117,563 | $518,281.64 |
| September 20, 2013 | $21,645,502 | $531,238.68 |
| September 20, 2014 | $22,186,639 | $544,519.65 |
| September 20, 2015 | $22,741,305 | $558,132.64 |
| September 20, 2016 | $23,309,838 | $572,085.96 |
| September 20, 2017 | $23,892,584 | $586,388.10 |
| September 20, 2018 | $24,489,898 | $601,047.81 |
| September 20, 2019 | $25,102,146 | $616,074.00 |
| September 20, 2020 | $25,729,699 | $631,475.85 |
| September 20, 2021 | $26,372,942 | $647,262.75 |
| September 20, 2022 | $27,032,265 | $663,444.32 |
| September 20, 2023 | $27,708,072 | $680,030.43 |
| September 20, 2024 | $28,400,774 | $697,031.19 |
| September 20, 2025 | $29,110,793 | $714,456.97 |
| September 20, 2026 | $29,838,563 | $732,318.39 |
| September 20, 2027 | $30,584,527 | $750,626.35 |
| September 20, 2028 | $31,349,140 | $769,392.01 |
| September 20, 2029 | $32,132,869 | $788,626.81 |
| September 20, 2030 | $32,936,190 | $808,342.48 |

The interest receipts are the funds that should be used for the beach regeneration beginning with

$505,640 in the first year in addition to the $1,000,000 budgeted in the above calculations. As can be seen from these calculations, in the year 2030, there will be $808,342 available to spend on beach nourishment, while the value of the investment will have risen to $32,936,190. This will ensure that even after 20 years, there will still be plenty of funds available for the ongoing maintenance of the Wooli beach.

**4.3 Zero interest Mortgage Loans**

This financial option is more complex than the other ideas presented in this paper. We note that it would require extensive community consultation and other parties and would be need to be worked up with the NSW Treasury Corporation. There is no guarantee that impacted Wooli ratepayers would agree to participate in the scheme.

Under this plan, every ratepayer in the original village of Wooli would take out a zero interest loan provided by the NSW Government. The size of the loan would be set at 29% of the NSW Valuer- General registered land value of the property. These funds would then be used to buy units in a

Trust Fund (Wooli Trust Fund) managed by the NSW Government Treasury Corporation. The interest income from the Wooli Trust Fund would be used for the maintenance of the beach facilities and environment at Wooli.

**4.3.1 The mortgage loan.**

The mortgage provided by the Government would have no interest and therefore cause no cash flow issues for the borrower. It would rank behind any loans currently on the property. The Government would be further secured by the Wooli Trust Fund, which would make good any losses incurred by the Government in the event that the borrower was unable to repay the loan when it becomes due.

The Government mortgage will be repayable either on the sale of the property or in 25 years, whichever is the sooner. The loan will not be transferable to the new owners following the sale of the Wooli property.

**4.3.2 Units in the Wooli Trust Fund**

The moneys received from the mortgage loan will be invested in units in the Wooli Trust Fund. The holding of these units will be attached to the title of the Wooli property thereby ensuring that the owner of the Wooli property also owns units in the Wooli Trust Fund. Therefore, if a property is sold, the units in the Wooli Trust Fund that relate to that property will also be sold and transferred to the new owners along with the property.

**4.3.3 The Wooli Trust Fund**

The current land value of all the properties in the southern village of Wooli as at 2007 was $72.8m. If all ratepayers take out a loan of 29% of their property land value, then the amount raised will be

$21.1m. This equates to the proceeds that could be raised by the sale of Crown Land in Wooli as set out in section 4.2. The investment outcomes are therefore the same as set out in that section.

**4.3.4 The Wooli ratepayer**

Each Wooli ratepayer involved in the plan would borrow funds that would be invested into the units of the Wooli Trust Fund. There is no cashflow issue for ratepayers, as the loan will not be attracting

any interest and the investment will not be paying any returns. The net value of a ratepayer’s Wooli

property, being the value of the property less the loans on it, will decrease by the size of the Government mortgage. However this decrease will be compensated by the value of the holding in the Wooli Trust Fund. If there are any losses for ratepayers, they will only be realised on the sale of the property in Wooli.

**4.3.5 NSW Government**

The NSW Government loan of $21.1m to the residents of Wooli is secured by the underlying Wooli properties as well as the Wooli Trust Fund. As the NSW Government Treasury Corporation will be in control of the Wooli Trust Fund, it is very difficult to see any circumstances in which the Government can lose any money as a result of this plan.

As in the example set out in 4.2, the interest payments received by the Wooli Trust Fund are the funds that should be used for the beach regeneration beginning with $505,640 in the first year in addition to the $1,000,000 budgeted in the above calculations. As can be seen from these calculations, in the year 2030, there will be $808,342 available to spend on beach nourishment, while the value of the investment in the Wooli Trust Fund will have risen to $32,936,190. This will ensure that even after 20 years, there will still be plenty of funds available for the ongoing maintenance of the Wooli beach.

**Conclusion**



1. CVC’s Plan does not comply with current legislation

2. The Plan continues to have strong negative impact on the Wooli community

3. The Plan is suitable as a first step towards further research but is a completely inadequate basis upon which to reach an implementation decision

4. CCPA has provided a range of engineering, research and financial options

5. These options should be part of a best-practice planning process, involving CVC, the Wooli community (including CCPA), State government, leading researchers and solution providers.

6. This process will produce a comprehensive plan suitable for selecting the optimum solution for the Wooli community, its environment and the Clarence Valley.

**Appendix A**

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Appendix B

Update March 2012

Since this Position Paper was released in February 2011, there have been some changes in the area of coastal zone management legislation in general and Wooli’s situation in particular. These include:

1. There was a change of state government in April 2011, when NSW voters put a Liberal government in power. The Environment ministry which controls coastal zone management issues is occupied by the Hon. Robyn Parker.
2. Representatives of CCPA attended the Coastal Management Workshop at Ballina in Oct 2011. Their informed and constructive contribution to the discussion was noted by the organizers and subsequently a CCPA member has been appointed to an advisory committee to the Environment ministry.
3. Relations between CCPA and CVC management have improved significantly. There is more cooperation and exchange of information than previously. CCPA feels that this is a significant development and aims to build on this collaboration.
4. Discussions have been had with CVC concerning funding of research into Wooli beach strategies. So far progress in this area has not achieved success, but CCPA is hopeful that CVC will acknowledge the community efforts and finance being put into this project and recognize it with reciprocal funding.
5. A community group has staged two art shows at Wooli and contributed significant funding to CCPA. Contributions are also regularly made from coffee sales at Wooli businesses and from Protect Wooli tee shirts.
6. Steps have been made towards instigating some dune management strategies. The Dunecare organization has been revitalized and is active in organizing working bees to plant on the dune, construct sandtraps, and to monitor the success of these.
7. Initial survey of the beach has been complete, with plans for it to be updated quarterly.
8. After extensive liaison with CVC management and eCoast, a marine engineering consultancy familiar with the Wooli coastal area, equipment collecting a photographic record of sand and water movements on the beach was installed in March 2012.
9. CCPA members are engaged in collecting historical data in the form of photographs and narratives about weather events and changes to the beach structure.
10. Data from f), g), h) and i) is to be collated to form a reliable body of knowledge on which to base long term solution strategies. This will be the main thrust of CCPA’s negotiations with local and state government in the coming years.