

*Report*

**Hastings Coastal  
Environment Strategy  
Technical Paper #3  
Coastal Infrastructure**

Prepared for  
Hastings District Council

*REPORT*

# Hastings Coastal Environment Strategy Technical Paper #3 – Coastal Infrastructure

*Prepared for*

**HASTINGS DISTRICT COUNCIL**

*By*

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## 1. INTRODUCTION

*The core purpose of the Hastings Coastal Environment Strategy (HCES) is to establish a comprehensive strategy that “will enable the community to develop an integrated regime to protect, manage and develop the coastal environment”. The strategy has a planning horizon of 20 years, hence the recommendations and outcomes of the strategy are intended to go beyond the ambit of the Resource Management Act to encapsulate wider Council functions and responsibilities and to extend beyond the strict 10 year life of the District Plan.*

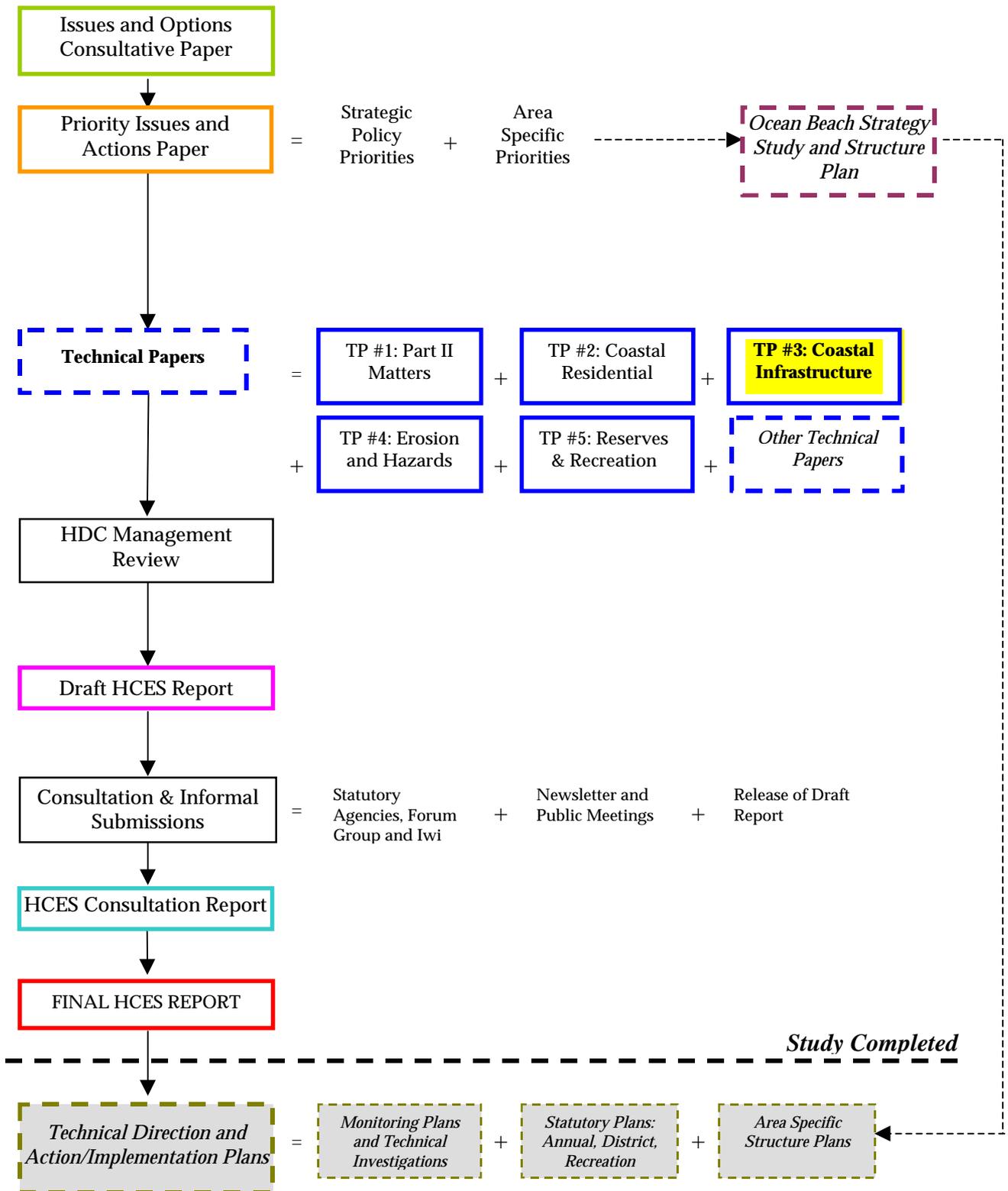
*A key issue for sustainable and integrated management relates to infrastructure planning, investment and development for coastal settlements and recreational areas along the Hastings coast. At present the coastal settlements generally have little if any community waste water, water supply and stormwater facilities and in some areas road access is difficult and constrained. Emphasis has been placed on self-sufficiency for development, however there is emerging evidence in some settlements of adverse environmental effects and health/safety concerns due to failing or poorly maintained private waste water systems and water supplies.*

*It is also recognised that there is a strong link between infrastructure development and strategic planning to the extent that carefully targeted infrastructural investment can encourage and reinforce sound policy planning. The converse is also true with a lack of integrated management leading to infrastructural resources being poorly targeted, encouraging development in inappropriate locations or leading to unintended environmental outcomes.*

*The purpose of this technical paper is to bring together relevant existing information and work pertaining to infrastructure planning in the Hastings coastal environment and to establish a set of general parameters and locality specific objectives which will ensure that infrastructure is carefully co-ordinated with other Council functions and responsibilities. The paper is one of a series aimed at addressing key technical issues for the HCES (refer Figure 1.1).*

*This Technical Paper #3 identifies statutory requirements relevant to infrastructure and highlights a number of strategic objectives and priority issues established for the coastal environment. The paper analyses existing Council practices and planning before outlining suggested infrastructure strategies for specific coastal communities. Areas requiring further work subsequent to release of the HCES are also identified.*

Figure 0.1 HCES Study - Process Schematic



## 2. STATUTORY FRAMEWORK

### 2.1 RESOURCE MANAGEMENT ACT

*Technical Paper 1 provides an overview of the Purpose and Principles of the RMA, in particular Part II matters of relevance to the Hastings Coastal Environment. These matters are not repeated here. Specific policy direction of relevance to infrastructure planning and development is contained in the New Zealand Coastal Policy Statement (NZCPS) Relevant policies include:*

- *Policy 1.1.1 NZCPS - preservation of the natural character of the coastal environment by encouraging appropriate subdivision, use & development in areas already compromised and by avoiding cumulative effects;*
- *Section 3.2 NZCPS - provide for appropriate subdivision, use & development of the coastal environment by: identifying appropriate areas for forms of use; avoiding, remedying or mitigating adverse effects of activities on the environment; ensuring that any adverse effects are offset by environmental benefits (e.g. financial contributions); ensuring that use & development is conditional on the provision of adequate services, in particular the disposal of wastes, and by considering the potential for adverse effects from services provision;*
- *Section 5.1 NZCPS – discharge of human waste direct to water without passing through land should only occur where this better meets the purpose of the Act than land disposal, there has been consultation with tangata whenua and the community generally and due weight is given to the Part II matters;*

*The Proposed Hawke's Bay Regional Resource Management Plan (PHBRRMP) is also relevant to infrastructure planning and provision. There are a number of individual policies and provisions of relevance. However, it is not necessary to repeat these in detail here as they are largely reinforcement of the directions of the NZCPS.*

### 2.2 DISTRICT PLAN POLICY

*The Transitional District Plan (former Hawke's Bay County District Scheme) places significant emphasis on development being conditional upon the provision of adequate public infrastructure services. Where public services are not available development is strictly controlled and subject to standards which reflect the risks and limitations of reliance on private on-site services.*

*The Proposed Hastings District Plan (1997)<sup>1</sup> contains several sections of relevance to infrastructural issues. The following provides a brief summary of those objectives and policies which are considered to be of particular relevance.*

*Section 2.5 of the PHDP addresses transportation. Amongst other objectives aimed at promoting a safe and efficient roading network, the PHDP includes a specific objective to avoid*

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<sup>1</sup> *Submissions on the PHDP have closed and Council is currently releasing decisions on submissions of which there are a number relevant to infrastructure issues.*

*or mitigate the effects of inappropriate roading activity on the environmental and amenity values of the community.*

*Section 4 of the Plan requires all applicants for subdivision and development to fully assess servicing issues and effects including roading, water supply, stormwater and wastewater. Unlike the TDP however, there is more recognition of the potential for private sector participation in services provision.*

*Section 8 of the PHDP governs the district's residential zones. The Plan notes that Haumoana and Te Awanga rely on on-site waste water disposal but have a reticulated water supply. Flooding and stormwater problems are also identified at these settlements. Regarding Waimarama the Plan notes that water supply is limited and that waste water servicing is problematic. The PHDP also notes that at Waipatiki the unsealed road is a constraint, although it is noted that a public water supply has recently been installed. The PHDP notes that at Whirinaki water supply is also available but waste water disposal still relies on septic tanks.*

*Objective R05 and Policy RP15 are of direct relevance:*

*"R05 To ensure that residential development does not occur unless adequate levels of infrastructural services are in place*

*RP15 The provision of adequate community or on-site infrastructure sewerage collection, treatment and disposal, water supply, stormwater collection as a pre-requisite to consolidation or greenfield residential development".*

*As a method the PHDP notes that infrastructural design and construction will have regard to the character and amenity of particular localities.*

*Section 13.1 of the Plan provides for Papakainga as a district wide activity. The objective is to give maximum freedom for hapu to develop their settlement pattern while ensuring that appropriate health, safety and amenity standards are met. Policies seek to encourage papakainga developments to adopt what ever servicing methods are suitable for individual site conditions and where possible promote establishment of communal infrastructure.*

*Section 13.3 of the PHDP provides for network utilities as a district wide activity. The objectives and policies seek to maintain and enhance a safe and efficient utility network (including water, gas, electricity, telecommunications, sewage disposal, railways and roads) whilst ensuring that any significant adverse effects of new network utilities are avoided, remedied or mitigated.*

*Section 15.1 of the PHDP addresses subdivision and land development. Objective SDO5 and a number of policies have direct relevance including:*

*"SDO5 To ensure that land which is subdivided is, or can be, appropriately serviced to provide for the likely or anticipated use of the land, the health and safety of people and communities, and the maintenance or enhancement of amenity values, while avoiding, remedying or mitigating adverse effects on the environment.*

*SDP12 Ensure provision of on site services for water supply, sewage disposal or stormwater disposal for all allotments in the Rural and Plains areas unless the provision of reticulated services is identified as an appropriate work to mitigate adverse effects on the environment.*

*SDP19 Ensure that any infrastructural costs arising from subdivision proposals are apportioned in a fair and reasonable way between existing and new users."*

*Sections 15.3 and 15.4 of the PHDP and Variation 1 to the PHDP outline policy and rules in relation to the taking of development levies and roading contributions.*

## **2.3 OTHER LEGISLATION**

*Other legislation with direct relevance to infrastructure provision includes the following:*

*Local Government Act 1974 – duties, functions and structures of local government including works and services.*

*Public Works Act 1981- statutory provision and control of public works projects including provision for land acquisition and works on private property.*

*Building Act 1991 – standards for all building development including utility service provision, mitigation of hazards and requirements for minimum health and safety measures.*

### 3. STRATEGIC OBJECTIVES AND PRIORITIES

*The HCES Priority Actions Paper (PAPS) summarizes the output of Issues and Options investigations and the feedback from consultation on the Issues and Options Paper. PAPS develops a profile of relevant resource priorities in the coastal environment by highlighting site specific issues and potential resource conflicts requiring attention. PAPS identifies the following Priority Issues relating to infrastructure planning and development:*

**INFRASTRUCTURAL SYSTEMS THAT ARE AT CAPACITY OR FAILING; and**

**INFRASTRUCTURE BEING UPGRADED IN AN AD HOC MANNER.**

*These strategic priorities are developed in more detail to include the following range of issues:*

- *failure of infrastructure impacts/adversely effects other resources and values (such as natural character, recreation values, tangata whenua values);*
- *the capacity of infrastructure constrains urban development;*
- *the ad hoc upgrading of infrastructure leads to pressure on resources and increases demand which can adversely effect other resources and values within the coastal environment.*

*From PAPS and consultation findings the following strategic objectives and policies for coastal infrastructural planning and development have been established:*

***Infrastructure***

**OBJECTIVE - To ensure that infrastructure and its development are integrated with wider planning for the use and development of the coastal environment.**

**POLICIES**

1. **To recognise infrastructural capacity limits as a constraint for residential development;**
2. **To prioritise infrastructural development and investment to areas where such development will positively impact on other resources and resource values.**
3. **To ensure that subdivision, use and development provides or funds infrastructural development consistent with the projected level of impact.**
4. **To ensure that infrastructural investment does not fuel growth pressures in inappropriate locations.**

*Technical Paper 1 outlines a number of RMA Part II matters which require recognition and protection in the Hastings coastal environment. In addition there is a general duty to avoid, remedy and mitigate adverse effects and a requirement for Council to address health and safety for its residents. In terms of the priority issues and policies identified above, these duties can translate into infrastructural need. The following is a list of area specific management outcomes*

*identified in work to date which may warrant recognition and response from an infrastructural planning perspective.*

#### Aropaoanui

- *Policy focus on natural character, remoteness and wilderness means that infrastructural development should be limited (e.g. road upgrading) to retain special character and as an informal means to control use and ease of access to this sensitive area. (PAPS identified this as a moderate priority)*
- *Opportunity exists to change the status of paper roads which are unlikely to be appropriate for inclusion in the transportation network, into public access ways for walkways and trails.*

#### Waipatiki

- *Water quality impacts from development warrant investigation and if necessary remediation. Water quality can be enhanced by infrastructural investment (waste water treatment). (PAPS identified this as a high priority)*
- *Provision of community infrastructure will enhance recreational use and enjoyment. (PAPS identified this as a high priority)*

#### Tangoio

- *Policy focus on natural values means that infrastructural investment can be limited as a means of reinforcing sense of place and discouraging further residential development along the coastal edge.*

#### Whirinaki

- *There is a need to investigate and if necessary remediate failing waste water systems which have the potential to pollute the Esk River and coastal waters. Investment in infrastructure has the potential to enhance water quality.*
- *Residential development can occur at Whirinaki as a means of taking pressure off more sensitive areas. Such development must be carefully planned from an infrastructural perspective (particularly waste water and stormwater disposal). (PAPS identifies this as a high priority)*

#### Haumoana

- *Failing infrastructure (septic tanks) is adversely impacting upon natural character of the lagoon. Water quality can be enhanced by better management of discharges and through investment in wastewater solutions. (PAPS identifies this as a high priority)*

Te Awanga

- *Failing infrastructure (septic tanks) is adversely impacting upon natural character of the wetlands and lagoons. Water quality can be enhanced by better management of discharges and through investment in wastewater solutions. (PAPS identifies this as a high priority)*

Ocean Beach

- *There is a need to investigate and if necessary remediate failing waste water systems which have the potential to pollute the Waipuka Stream and coastal waters. Investment in infrastructure has the potential to enhance water quality. (PAPS identifies this as a moderate priority)*
- *Road access and construction requires careful investigation and sensitive treatment because it has the potential to conflict with tangata whenua values as options for roading may require acquisition/use of Maori land and may also impact upon landscape and natural character values. (PAPS identifies this as a moderate priority)*

Waimarama

- *There is a need to investigate and if necessary remediate failing waste water systems which have the potential to pollute groundwater, wetlands, streams and coastal waters. Investment in infrastructure has the potential to enhance water quality and to facilitate urban growth, taking pressure off other areas. (PAPS identifies this as a high priority)*

## 4.0 INFRASTRUCTURAL DEMAND

### 4.1 RESIDENTIAL GROWTH

*Aside from environmental, health and safety drivers the other principal driver of infrastructural needs and demands in the Hastings coastal environment stems from residential growth and the policy directions for such growth. HCES Technical Paper 2 addresses coastal residential issues in detail and formulates a preferred strategy for accommodating projected demand over a 20 year planning horizon. The general and area specific implications of this preferred strategy for infrastructural planning and development can be summarized as follows:*

#### General Implications

- *Future public infrastructural investment should focus on preferred growth areas and at addressing other health and safety concerns.*
- *Public investment in infrastructure which could fuel growth pressures in inappropriate locations should be suspended or re-directed.*
- *The private sector has an increasing role to play in infrastructure provision, especially in remote areas or for stand-alone developments.*
- *Technological advances especially in wastewater and water supply engineering mean that innovative package-type solutions have increasing application for small or isolated coastal communities.*

#### Area Specific Implications

##### Aropaoanui

*This is not a preferred growth area, instead has a focus on natural and wilderness values. Public infrastructural investment should be compatible with these aims.*

##### Waipatiki

*Waipatiki is the preferred northern coastal residential development area, although the projected demand and hence likely scale of growth is limited.*

*TP2 recommends that an area of 2 – 3 hectares be added to the existing settlement catering for a further 15 – 20 sites. The paper recognises that further work is warranted to determine whether the land is suitable for on-site effluent disposal. There may also be merit in considering a package treatment facility. Such a facility could allow denser development if this was compatible with natural and amenity values.*

*With increased residential and recreational demand there is merit in continued upgrading and seal extension of Waipatiki Road provided such work is sensitive to landscape and amenity values. In some difficult areas this may require a less than standard level of service.*

### Tangoio

*This is not a preferred growth area and at present there is no record of environmental or health problems arising from on-site effluent disposal or tank water supplies. Accordingly infrastructural investment in this locality can remain limited.*

### Whirinaki

*At present there is no direct evidence of water quality problems associated with residential waste water systems at Whirinaki. However, intensification of the settlement will require detailed assessment of waste water options and one potential solution is to work with the Napier City Council for the management of the Bay View settlement and their waste water scheme.*

### Haumoana

*TP2 identifies significant physical and infrastructural constraints at Haumoana which mean that at present it cannot be signalled as a preferred growth corridor. Indeed stormwater and septic tank problems are of a magnitude meaning infrastructural investment is likely to be required to remedy existing health and safety concerns. This being the case there is some logic in designing remediation measures with possible future growth in mind as the area is popular with a particular market niche.*

### Te Awanga

*HUDS and TP2 identify Te Awanga as a preferred niche market growth area with capacity for approximately 50 sites.*

*Some consolidation and limited expansion of the existing settlement is possible outside of areas with flood hazard or storm water constraints and it is likely that carefully designed on-site servicing will be adequate for such limited growth.*

*More intensive development or greenfield growth warrants public infrastructural investment and as Te Awanga is likely to be a key component of the coastal plains residential strategy, planning for such future investment is prudent.*

### Ocean Beach

*TP 2 concludes that Ocean Beach should not constitute a core component of the coastal residential strategy with planning here focusing on maintaining and enhancing natural, cultural and recreational values.*

*TP2 acknowledges the presence of the existing bach settlement, which has the potential to generate adverse effects (especially on water quality) due to a lack of adequate wastewater facilities and the failure of existing septic tanks. The report recommends that the bach settlement be legitimised and that planned retreat be promoted. Limited expansion of the existing settlement is envisaged subject to provision of adequate infrastructure, probably via packaged solutions.*

*TP2 acknowledges the potential for other small scale stand alone developments which will need to be self-sufficient from a servicing perspective.*

*Road access is identified as a significant legal and physical constraint. TP2 concludes that anything other than a small settlement at Ocean Beach would warrant significant road upgrading. Such extensive upgrading may conflict with natural and landscape values hence a balance needs to be struck between level of service, cost and construction impact.*

### Waimarama

*TP2 identifies Waimarama (both north and south) as the preferred growth area for the southern coastal residential market. The report identifies significant development potential subject to the establishment of adequate community infrastructure.*

*A structure plan is recommended to identify staged growth and servicing requirements.*

*The northern part of Waimarama is identified as having different (more natural) values than the south. Opportunities exist in the north for a low impact, package or on-site approach to servicing of different development types (e.g. cluster housing).*

*Given on-going residential and recreational demand, continued road upgrading to maintain and enhance safe access to this area is warranted.*

### Rural Areas

*TP1 recommends that a precautionary approach be taken to development in the general rural coastal areas. In general this means that public infrastructural investment should be limited with stand-alone developments being self-sufficient.*

## **4.2 RECREATIONAL DEMANDS**

*Recreational use and demands have the potential to generate adverse effects warranting an infrastructural need or response. In particular waste water problems can emerge from overloaded public toilet systems, peak summer traffic loadings can generate safety, congestion, environmental (dust/noise) and physical impacts upon the road network and water supplies for public amenities and camp grounds are often stretched during peak periods or threatened by pollution sources.*

*Issues identified at particular localities include:*

*Roading and Access constraints or problems – Aropaoanui, Waipatiki, Ocean Beach*

*Potential waste water/pollution problems from ablution facilities – Haumoana, Te Awanga, Clifton, Ocean Beach, Waimarama*

*Camping Demands and peak holiday pressures – Aropaoanui (informal), Waipatiki, Te Awanga, Clifton, Ocean Beach (informal), Waimarama (both formal and informal)*

## 5.0 CURRENT INFRASTRUCTURE PRACTICE AND PLANNING

### 5.1 CURRENT PRACTICE

*At present infrastructural investment in the Hastings coastal environment tends to be reactive with works identified largely on the basis of emerging problems, pressures or demands. The proportion of funding devoted to coastal areas is also small compared to other urban areas of the District and to the Heretaunga Plains. This is despite the fact that the coast represents a major recreational destination for all of the region's residents. In this regard Hastings funds and provides infrastructure at its coastal settlements which is utilized by ratepayers from adjacent authorities.*

*Whilst current practice is largely reactive, there is growing evidence that Council's Engineering Division is focussing more closely on developing infrastructural work programmes in a manner that better matches planning policy for the various coastal settlements. This means that infrastructure provision and public investment is reinforcing planning strategies rather than contradicting them, in particular with regard to residential growth directions.*

*Aside from public investment in infrastructure, Council has also adopted the practice of requiring developer's to contribute to the full costs of their impacts unless there are exceptional circumstances warranting public cost sharing. This approach means that for development in areas remote from existing utilities there is benefit in developer's investigating self-sufficient infrastructural solutions such as package treatment facilities.*

### 5.2 RECENT AND PLANNED PROJECTS

*Consultation with technical engineering staff<sup>2</sup> at HDC has identified the following recent or planned projects (either completed within the last 2 years, currently underway or funded for the next 3 years) within particular coastal localities which address infrastructural limitations or known problems. Where necessary study team comments are offered with regard to the implications of the project on the HCES.*

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<sup>2</sup> Includes Alan Watton, Rob Bramley (Roading), Dave Mc Bride (water, storm water and wastewater), Petar Tepsic (water and wastewater).

<b>Location</b>	<b>Project Description</b>	<b>HCES Study Team Comment</b>
<i>Waipatiki</i>	<i>On-going Road Seal Extension and Safety Improvements (including new bridge) – Waipatiki Road</i>	<i>Consistent with recreational and residential strategies for Waipatiki.</i>
	<i>A new water supply with UV treatment is now operating with some capacity for growth.</i>	
<i>Haumoana</i>	<i>HBRC is currently investigating water quality to distinguish rural pollutant sources from urban (septic tank) sources.</i>	<i>This will provide background for future study on wastewater options for the settlement.</i>
<i>Ocean Beach</i>	<i>Road upgrading and legal access investigations continue including Opus assessment of alternatives<sup>3</sup>.</i>	<i>The Opus study cannot be considered in isolation of wider planning strategies for Ocean Beach.</i>
<i>Waimarama</i>	<i>Road upgrading including safety improvements continue.</i>	<i>Consistent with recreational and residential strategies for Waimarama.</i>
	<i>Water supply was enhanced in 1998. The system is more reliable and network extensions are planned, however limitations remain at peak periods.</i>	<i>Consistent with residential growth strategy.</i>

### 5.3 EMERGING ISSUES

*Consultation with HDC technical staff has identified a range of other emerging issues which warrant evaluation through either the HCES or other Council studies.*

#### General Issues

- There is growing concern about the adequacy (or adequacy of implementation) of the Council's Code of Urban Subdivision and Code of Engineering Practice to manage the design, construction, monitoring and maintenance of private (package type) infrastructure. Often Council inherits management or ownership of inadequate or failing private infrastructure from a developer without any recourse for remediation. Given that Council is always obligated to address public health and safety, it is critical that private developer's account for on-going monitoring and maintenance, so that this cost does not fall to the general public.*

<sup>3</sup> Refer Ocean Beach Road Assessment Report, Opus Report No. 2S2062.00/99/1

- *At present there is no attempt to integrate planning or investment in infrastructure across district boundaries. For example this is evident at Whirinaki where a wastewater scheme is being evaluated for Bayview (within Napier City) and where Whirinaki has a water supply which could service parts of Napier City if the pipe network were connected.*
- *There is a need to ensure consistency between HDC and HBRC flood mapping.*

#### Area Specific Issues

- *Investigation of feasible wastewater solutions is warranted at Whirinaki, Haumoana, Te Awanga and Waimarama as a means of addressing existing health and environmental concerns. Feasible options worthy of study include dune infiltration, land (forest) disposal and wetland treatment.*
- *There is a need for HBRC to consult with HDC Engineering and Planning staff on flood mitigation works planned for Haumoana and Te Awanga as the timing of these works have implications for the residential growth strategy.*

## 6.0 COASTAL INFRASTRUCTURE STRATEGY - IMPLEMENTATION

*Having regard to the Strategic Objective and Policies (section 3 of this report) and the foregoing analysis of issues, demands and constraints it is possible to provide a framework of management outcomes sought from infrastructure planning and development over the next 20 years in the various settlements along the Hastings coast.*

### Aropaoanui

- \* *Enhance recreational access to the beach by vesting paper road as recreation reserve and by providing for controlled vehicle access to parking areas.*
- \* *Retain and reinforce natural and wilderness values by discouraging significant investment in road upgrading or other public infrastructure.*

### Waipatiki

- \* *Establish through monitoring the extent of contamination of river, lagoon and/or ground water occurring through failing septic tank systems<sup>4</sup> and if significant adverse environmental or health effects are evident, investigate waste water treatment and disposal options for the existing settlement and the proposed growth area.*
- \* *Continue water supply upgrading commensurate with demand.*
- \* *Continue policy of road seal extension, improvements and safety works aimed at enhancing access from Waipatiki Road.*

### Tangoio

- \* *Monitor groundwater quality to assess impact of septic tank disposal and require remedial action by owners/occupiers as appropriate.*
- \* *Discourage further coastal residential development in this location, including limiting investment in public infrastructure.*

### Whirinaki

- \* *Monitor groundwater and river water quality to assess impact of septic tank disposal.*
- \* *Evaluate options and plan for a community wastewater scheme sized to accommodate residential intensification and also some possible longer term expansion of the residential zone in this locality. Options considered should include combined solutions with either Pan Pac mill or Bayview.*

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<sup>4</sup> *As opposed to wider contaminant sources such as rural runoff.*

- \* *Adopt a programme of planned infrastructural upgrading (roads, footpaths, water supply, wastewater, community buildings) consistent with the growing residential permanence of this settlement over the next 10 – 20 years.*

### **Haumoana**

- \* *Monitor groundwater and river water quality to assess impact of septic tank disposal.*
- \* *Work with HBRC to identify feasible options for stormwater and flood management which can be readily implemented within a reasonable planning horizon (less than 10 years).*
- \* *Dependant upon the outcome of water quality monitoring, evaluate options and plan for a community waste water scheme which has future potential for staged expansion to accommodate residential growth in this locality if stormwater problems are resolved.*

### **Te Awanga**

- \* *Monitor groundwater, lagoon, wetland and river water quality to assess impact of septic tank disposal.*
- \* *Work with HBRC to identify feasible options for stormwater and flood management which can be readily implemented within a reasonable planning horizon (less than 10 years).*
- \* *Dependant upon the outcome of water quality monitoring, evaluate options and plan for a community waste water scheme which has future potential for staged expansion to accommodate residential growth in this locality once stormwater problems are resolved.*

### **Ocean Beach**

- \* *Monitor groundwater and stream water quality to assess impact of septic tank disposal from the existing bach settlement and if significant adverse environmental or health effects are evident work with landowners and occupiers to investigate feasible waste water treatment and disposal options.*
- \* *Establish security of road access to the beach either through purchase, lease or other arrangement.*
- \* *Enhance physical road access to the extent necessary to provide a basic, safe level of service compatible with the natural character and landscape values of the locality.*
- \* *Require any stand-alone developments to be self-sufficient from an infrastructural perspective, including long term monitoring and on-going maintenance.*

## Waimarama

- \* *Monitor groundwater, lagoon, wetland and stream water quality to assess impact of septic tank disposal.*
- \* *Evaluate options and plan for a community wastewater scheme sized to accommodate residential growth in this locality.*
- \* *Adopt a programme of planned infrastructural upgrading (roads, footpaths, water supply, wastewater, community buildings) consistent with the growing residential permanence of this settlement over the next 10 – 20 years.*
- \* *Continue policy of road seal extension, improvements and safety works aimed at enhancing access from Hastings and Havelock North.*

## 7.0 IMPLEMENTATION AND FUTURE WORK

*The strategy parameters and suggested directions identified in this paper must be combined with findings from the PAPS and other technical papers to formulate an integrated strategy for coastal environmental management, land use planning, growth management and recreation planning. In addition the following specific actions are recommended:*

- *that a complaint's register be established for infrastructural issues as a means of gauging the appropriateness and adequacy of infrastructural investment.*
- *that regular monitoring of water quality be undertaken in conjunction with the HBRC to identify adverse effects arising for stormwater or waste water disposal or failing on-site systems.*
- *that a publicity campaign (and if necessary enforcement programme) be introduced to educate householders on the maintenance requirements and obligations of septic tank usage.*
- *that area specific Strategy and Structure Plans be prepared for the preferred growth areas at Waipatiki, Whirinaki, Te Awanga and Waimarama (north and south).*
- *that discussions be held with Napier City Council regarding the Bayview Wastewater Scheme and its potential impact upon development at Bayview and whether it has any potential to service all or parts of the Whirinaki area.*
- *that the strategic direction for Haumoana (limited growth) be reviewed if infrastructural constraints can be overcome.*

