Proposed District Plan Change 6
Hutt River Flood Hazard Areas

Section 32 Report

Prepared by Hutt City Council and The Wellington Regional Council

Contents

1. Introduction

1.1 Purpose of the Report

Section 32 of the Resource Management Act 1991 (RMA) places a duty on the Hutt City Council (the Council) to consider the appropriateness of any plan change for achieving the purpose of the RMA and to assess its costs and benefits. This report has been prepared to address these requirements.

The proposed plan change updates and expands existing flood hazard information about the Hutt River contained in the General Residential, Suburban Commercial, General Business, Avalon Business, General Rural, General Recreation and River Recreation Activity Areas and Utilities, Natural Hazard and Earthworks sections of the District Plan. Policies and rules are included in the proposed plan change for areas within the City where land use has the potential to be adversely affected by the Hutt River. The proposed plan change is limited to those areas immediately adjacent to the Hutt River or not protected by stopbanks at Belmont and the entrance to Stokes Valley.

The proposed plan change follows on from the Hutt River Floodplain Management Plan (HRFMP), published by Greater Wellington[1] in October 2001. The Hutt River Advisory Committee[2] and officers of both Hutt City Council and Greater Wellington have been working together to implement the HRFMP outcomes including preparation of the proposed plan change.

The HRFMP is the key supporting document for the proposed plan change (refer to Section 1.4). In addition to the HRFMP a number of background papers, reports and publications have influenced the development of the proposed plan change. These documents are listed in Section 6 that follows.

1.2 Report Structure

This report is divided into 6 sections.

Section 1: **Introduction** outlines the purpose of the report, the report's structure, statutory framework, and the HRFMP.

Section 2: **Resource Management Context** provides an overview of the measures that sit alongside the proposed plan change, describes the flood problem in the Hutt Valley, how hazard areas are defined and what is being done.

[1] Greater Wellington is the promotional name of the Wellington Regional Council.
[2] A sub-committee of Landcare Committee, Greater Wellington, compromising councillors from Hutt, Upper Hutt and Greater Wellington Councils.

Section 3: **Preparing the Proposed Plan Change** looks at the background to the proposed plan change and describes the existing and proposed district plan provisions.

Section 4: **Achieving the Purpose of the RMA** analyses the costs and benefits of the proposed plan change.

Section 5: **Consultation** describes the decision making framework.

Section 6: **Principal Background Information** lists the background reports, papers and publications that have influenced the development of the proposed plan change.

1.3 Statutory Framework

There are a number of relevant provisions in the RMA which define the statutory obligations of the Council in preparing a plan change.

Part II

Part II of the RMA underpins the exercise of all functions, duties and powers.

Section 5 provides the starting point to promote the sustainable management of natural and physical resources.

Section 6 sets out a list of the matters of national importance which are to be recognised and provided for. Section 7 sets out certain other matters to which persons exercising functions and powers under the Act are required to have particular regard. The relevant aspects of sections 6 and 7 have been considered in preparing the proposed plan change.

Section 8 requires that the Council in exercising its functions and powers under the Act "in relation to managing the use, development, and protection of natural and physical resources, shall take into account the Treaty of Waitangi (Te Tiriti o Waitangi)". Tangata whenua have been consulted on the Hutt River flood hazard. This is an ongoing process and feedback to date has been included in the HRFMP.

Functions and Duties

Section 31 outlines the functions of the Council under the Act and includes the control of any actual or potential effects of the use, development, or protection of land including for the purpose of avoidance or mitigation of natural hazards.

Section 74 requires the Council to change its plan in accordance with its functions under section 31, the provisions of Part II (which includes its obligations in terms of sections 6 and 7), its duty under section 32 and any regulations.

Section 75 sets out the contents of district plans. A district plan is required to state significant issues, objectives, policies, methods, explanations and anticipated environmental results.

Section 76 provides additional guidance for a territorial authority, stating that a council may include rules which prohibit, regulate, or allow activities, for the purpose of carrying out its functions under the Act and achieving the objectives and policies of the plan.

Section 32

Before adopting any objective, policy or rule or other method in relation to a proposed plan, the Council must carry out an analysis in terms of section 32.

32. Consideration of alternatives, benefits, and costs –

(1) In achieving the purpose of this Act, before a proposed plan, proposed policy statement, change, or variation is publicly notified … an evaluation must be carried out by –

(a) …

(b) …

(c) the local authority, for a policy statement or a plan (except for plan changes that have been requested and the request accepted under clause 25(2)(b) of Part 2 of Schedule 1); or

(d) …

(2) A further evaluation must also be made by –

(a) a local authority before making a decision under clause 10 or clause 29(4) of Schedule 1; and

(b) …

(3) An evaluation must examine –

(a) the extent to which each objective is the most appropriate way to achieve the purpose of this Act; and

(b) whether, having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives.

(4) For the purposes of this examination, an evaluation must take into account –

(a) the benefits and costs of policies, rules, or other methods; and

(b) the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods.

(5) The person required to carry out an evaluation under subsection (1) must prepare a report summarising the evaluation and giving reasons for that evaluation.

(6) The report must be available for public inspection at the same time as the document to which the report relates is publicly notified or the regulation is made.

1.4 Hutt River Floodplain Management Plan (HRFMP)

The HRFMP is not a document specifically required under the RMA. However, it is a document that has assisted Council in formulating the proposed plan change. Preparing the HRFMP and the district plan change have been closely aligned to ensure that an integrated management approach has been taken and to ensure the purpose of the RMA is met. Without the preparation of the HRFMP, it would have been difficult to support the inclusion of new policies and rules in the District Plan.

The HRFMP is a 40-year blue print for managing and implementing programmes that will gradually reduce flooding effects from the Hutt River. The plan was a joint effort[3], and reflects the varied and shared responsibilities of the three councils involved.

The HRFMP summarises the structural and non-structural measures selected to help manage the flood hazard, and records the process undertaken to determine the measures. Alternative options that were investigated and rejected are also presented. The HRFMP includes policies supporting further development and implementation of measures over the next 40 years, outlines the decision making framework and broad community involvement process to achieve implementation, and provides direction for a monitoring strategy for the HRFMP's implementation and the performance of measures.

[3] Greater Wellington, Hutt City and Upper Hutt City Council were involved in preparing the HRFMP.

2. Resource Management Context

2.1 The flood problem

Flooding from the Hutt River is a major environmental management issue facing residents of the Hutt Valley. Throughout its recorded history many large floods have occurred in the Hutt Valley[4]. Historically, the response has been to build a flood defence system along most of the Hutt River's length, gradually straightening the river channel and excavating substantial quantities of gravel to improve the river's flood capacity. By 1972 the flood protection system was largely in place.

Since 1972 isolated and substandard stopbanks have progressively been extended or rebuilt, and existing stopbanks maintained. Gravel extraction and river straightening have steadily been replaced by a focus on re-establishing bank-edge vegetation and strengthening bank edges.

If The Wellington Regional Council continues to undertake the level of flood protection works they have been doing prior to the HRFMP, there remains a significant chance that sections of the existing Hutt River flood defences would fail during the next 100 years[5]. There is a 63% likelihood that a 1 in 100-year flood (1900 cumecs[6]), with the potential to breach the existing Hutt River flood defences, will occur during this period. If that happened then widespread flooding of some urban areas would almost certainly occur.

A large flood over the Hutt floodplain would have wide ranging social and psychological impacts on the Hutt Valley community. There would be physical damage and disruption to homes, schools, workplaces, community facilities (such as public halls and clubrooms), essential services (including hospitals) and emergency services.

2.2 What is being done? – Defining the flood hazard

In defining the flood hazard prior to undertaking the proposed plan change, Council together with The Wellington Regional Council considered both the areas subject to flooding or erosion, and the potential consequences.

Three geographical areas were used in defining the flood hazard:

- the upper catchment (outside Hutt City Council area);

[4] Refer Hutt River Floodplain Management Plan – Table 1- Hutt River Historical Floods, page 5.
[5] Technical investigations undertaken as part of the Hutt River Floodplain Management Plan's development.
[6] A cumec measures water flow. 1 cumec (1 cubic metre per second) equals 1 cubic metre of water passing a given point every second.

- the river corridor; and
- the floodplain.

The two areas (river corridor and floodplain) that affect Hutt City are outlined briefly below and illustrated in Figure 1.

River Corridor

The river corridor is land immediately adjacent to the river and contains the Primary and Secondary River Corridor hazard areas. Due to its location, the river corridor represents a significant flooding and erosion hazard to both people and structures (including the flood defences) located in the river corridor.

Areas of high velocity flood waters, known as floodways, are typically associated with flooding in the Primary River Corridor.

Ponding and slower flowing flood waters dominate the Secondary River Corridor so the erosion and flow risks are heavily reduced. Ponded floodwaters can still pose a danger to people and cause substantial damage to building interiors.

Floodplain

The floodplain is all of the remaining flood-prone area outside the river corridor. It extends over parts of the City's urban areas, representing the extent of a 2300 cumec flood. A flood of that size could exceed the floodplain's major upgraded stopbanks.

The floodplain areas are divided into:

- higher risk floodplain areas (not protected by stopbanks) and
- moderate and lower risk floodplain areas (protected by 1900, 2300 or 2800 stopbanks)

Higher risk means the risk of major damage to property and buildings is high and life-threatening situations can easily develop. Higher risk floodplain hazard areas are only a small proportion of the entire flood-prone area. They include existing developed areas at Belmont and the entrance to Stokes Valley, which lie beyond the river corridor extent, are not protected by stopbanks or are landward of erosion hazard areas.

Moderate and lower risk means property damage is not likely until the structural standard is exceeded. Moderate and lower risk areas extend over much of the floodplain. No land use controls are proposed for these areas.

2.3 Improving the community's resilience to flooding

The proposed plan change is part of a package of HRFMP measures[7] that are aimed at improving the community's resilience to flooding. The measures take into account how the Hutt Valley has actually developed and what that means for the flood risk.

The measures include:

- Physical protection (structural measures);
- Appropriate ways of using land and preparing communities for flooding (non-structural measures – including the proposed plan change); and
- Environmental opportunities to enhance the river environment.

Structural measures

Structural measures involve constructing physical works designed to contain floods and limit erosion from the Hutt River. They are the more traditional tools for reducing flood risk. The City relies heavily on structural flood defences, such as stopbanks, rock lining and vegetation buffers to reduce flood risks.

The HRFMP proposes to spend an estimated $78 million on physical works over the next 40 years to achieve the 2300 cumec standard.

New and upgraded flood defences will protect major urban areas in the City from a 2300 cumec (1 in 440-year) flood. Other areas will have a lower flood standard, with an emphasis on alternative measures. The river corridor, Belmont and the entrance to Stokes Valley will remain unprotected by stopbanks.

Non-structural measures

Non-structural measures deal with the residual risk of flooding by improving community resilience against the flood hazard and helping people to avoid the flooding problem to start with.

They address:

[7] The measures cover areas of both district and regional responsibility. The proposed district plan change is one tool being used by the Council to help implement these measures.

- land use: through policies and rules in the District Plan or voluntary actions that deal with constructing building and structures, doing earthworks and using land in a wise manner.

- emergency management: by preparing the community to cope with flooding.

The proposed plan change introduces planning controls in higher risk floodplain areas. These areas either remain unprotected by structural measures or are located where existing structural protection will not be increased to the design standard level (2300 cumecs). These are discussed in more detail in the following section.

3. Why Prepare a Plan Change?

The purpose of the RMA is to promote the sustainable management of natural and physical resources. This places a mandate on the Council to ensure the City's environment is managed in the most sustainable way possible, while in the context of the proposed plan change, avoiding or mitigating the adverse effects of flooding.

With this in mind, a series of non-structural principles[8] were developed to guide how land should be developed and used, and how the community should be supported in a flood emergency. Developing these principles concluded 18 months of work over 1999 and 2000, with input from Hutt, Upper Hutt and Greater Wellington officers, the Hutt River Advisory Committee and the public.

These principles provided a framework for the types of non-structural measures to be implemented as:

- policies and rules in the Council's District Plan;

- voluntary action, information and advice; and

- emergency management programmes and procedures.

As with the structural measures, a risk based approach was used to guide the choice of possible non-structural measures, including the balance between different types of measures.

For the City this has resulted in a combination of land use controls, advice and information and emergency management measures.

Land use controls relate only to the river corridor and higher risk floodplain hazard areas not protected by stopbanks. In particular, the

[8] Refer to Hutt River Floodplain Management Plan – Section 5.4 Principles for Non-Structural Measures.

proposed policies and rules require new development, where no structural measures are planned or in undeveloped flood-prone areas, to consider the flood hazard. In Belmont the area susceptible to erosion from the Hutt River has been improved by edge protection works to better protect dwellings on properties immediately adjacent to the river.

A limited number of properties in Belmont and at the entrance to Stokes Valley have also been identified within the 100-year flood extent. New buildings and structures and additions to existing buildings and structures on these properties will need to have a minimum floor level above the 100-year (1900 cumec) flood event if the new structure or addition exceeds a gross floor area of 20m^2.

Advice and information for the public will include the provision of floodplain risk area maps, river corridor plans, flood extent maps, and more detailed depth and flow information for all flood-prone areas in a 100-year event.

Emergency management measures will focus on increasing the service coverage provided by the Council for all people at risk from direct or indirect effects of flooding. This involves enhancing the current systems to take advantage of new opportunities and innovations. As well as Council-led initiatives this includes improving people's ability to help themselves.

3.1 Existing Plan Provisions

Provisions for flooding within the Hutt City District Plan are contained within a separate Natural Hazards section. Chapter 14H - Natural Hazards, is a citywide chapter that includes an Issue, Objective, and Policy, but no rules for flood hazard.

Chapter 7C River Recreation Activity Area involves the Hutt River and adjacent land. This chapter provides the substantive land use controls over activities that may adversely affect the flood hazard or river protection works. Land use controls are limited to areas within the River Recreation Activity Area.

The District Plan also has a number of existing objectives that are relevant to the proposed plan change. These are highlighted below:

Natural Hazards

- To avoid or reduce the risk to people and their property from natural hazards associated with seismic action, landslides, flooding and coastal hazards.

River Recreation Activity Area

- To ensure that flood and river protection works are not affected adversely by recreation activities and that extraction activities are for the purposes of flood control.

- To ensure that the flood carrying capacity of the river channel and margins is not reduced.

Utilities

- To enable utilities to be established throughout the district in a manner that adverse effects on the environment are avoided, managed or mitigated as far as practicable.

Currently, rules that give effect to the flood hazard of these objectives are limited to those contained in the River Recreation Activity Area. The proposed plan change introduces rules into the General Residential, Suburban Commercial, General Business, Avalon Business, General Rural and General Recreation Activity Areas and Utilities and Earthworks sections of the District Plan to give more effect to the objectives.

3.2 Proposed District Plan Provisions

New issues, objectives, policies and rules are proposed for activity areas and chapters affected by the Hutt River flood hazard. The proposed plan change includes expanded explanation and reasons sections for the affected chapters. The proposed issues, objectives, policies and rules are outlined below. Provisions for flood hazard continue to be included in chapter 14H – Natural Hazards. This section now references the HRFMP and the location of areas susceptible to flooding by a 100-year flood event and areas at risk of erosion by the Hutt River.

Chapter 4A General Residential Activity Area

This chapter introduces a new issue referring to the effects of the flood hazard. The following issue, objective, policies and rules are proposed:

Issue

Areas not protected by flood protection structures are at a risk of flooding by the Hutt River. The size, scale and location of buildings and structures need to be managed to avoid or mitigate adverse flood hazard effects.

Objective

To avoid or mitigate adverse flood hazard effects on existing and new development within areas susceptible to a 100-year flood event from the Hutt River.

Policies

(a) To ensure that all buildings and structures on sites immediately adjacent to the Hutt River (see planning map E3) are appropriately located to avoid damage from erosion hazards of the Hutt River.

(b) To ensure that all buildings and structures (including additions that are more than minor to existing buildings and structures) on sites identified within the 100-year flood extent have floor levels constructed above the 1 in 100-year flood event.

(c) To establish a maximum limit on area for additions to the gross floor area of existing buildings or structures as at 1 March 2005 on sites identified within the 100-year flood extent.

(d) That minor additions (not more than 20m^2) to existing buildings and structures on sites identified within the 100-year flood extent are permitted.

(e) That all buildings and structures do not create adverse flood hazard effects for other land, buildings and structures off-site.

(f) That new accessory buildings on sites identified within the 100-year flood extent are permitted, subject to a maximum gross floor area.

(g) To discourage the siting of buildings and structures in the Primary and Secondary River Corridors.

(h) To ensure that buildings and structures in the Primary or Secondary River Corridor of the Hutt River have no more than minor adverse effects on flood protection structures.

(i) To mitigate the effects of flood hazards on buildings and structures in the Primary and Secondary River Corridors by managing their location, size and scale.

(j) That any remaining risk that arises will be dealt with by emergency management procedures and other voluntary actions.

Permitted Activities - Conditions

(w) Sites in Belmont that contain the building setback line (see planning map E3):
No part of any building or structure shall be constructed on the riverside of the building setback line.

(x) Buildings and Structures within the 1 in 100-year flood extent (see planning maps D3, E3 and G1):
In addition to the other Permitted Activity Conditions, the following shall apply in this area:

i) All buildings and structures shall have a floor level above the 1 in 100-year flood level; except:
ii) Minor additions to existing buildings and structures are a Permitted Activity provided:
   - the floor level of additions is not below the floor level of the existing building or structure; and
   - the gross floor area of all additions does not exceed 20m² to the gross floor area of the building or structure existing as at 1 March 2005.
iii) New accessory buildings shall not exceed a total gross floor area of 20m².

(y) Primary and Secondary River Corridors
All new buildings and structures or additions in the Primary or Secondary River Corridor with a gross floor area of 20m² or less and with a setback of 20m or more from a flood protection structure.

Restricted Discretionary Activities

(f) All buildings and structures that are sited wholly or in part on the riverside of the building setback line in Belmont.

i) In assessing proposals, Council will be guided by the degree to which buildings and structures further increase:
   - The risk to people of exposure to the erosion hazard; and
   - Any mitigation measures that are proposed.

(g) All buildings and structures within the 1 in 100-year flood extent that do not comply with the Permitted Activity Conditions for floor levels or total gross floor area.

i) In assessing proposals, Council will be guided by the degree to which buildings and structures further increase:
   - The risk to people of exposure to the flood hazard; and
   - The flood hazard effects for land, buildings and structures off-site.

(h) All new buildings and structures or additions in the Primary or Secondary River Corridor with a gross floor area greater than 20m² or with a setback less than 20m from a flood protection structure.

- Proximity of buildings and structures to flood protection structures;
- Adverse effects of the flood hazard on buildings and structures and on flood protection structures; and
- The risk to people of exposure to the flooding and erosion hazard.

Chapter 5C Suburban Commercial Activity Area

This chapter introduces a new issue referring to the effects of the flood hazard. The following issue, objective, policies and rules are proposed:

Issue

Areas not protected by flood protection structures are at a risk of flooding by the Hutt River. The size, scale and location of buildings and structures need to be managed to avoid or mitigate adverse flood hazard effects.

Objective

To avoid or mitigate adverse flood hazard effects on existing and new development within areas susceptible to a 100-year flood event from the Hutt River.

Policies

(a) To ensure that all buildings and structures (including additions that are more than minor to existing buildings and structures) on sites identified within the 100-year flood extent have floor levels constructed above the 1 in 100 year flood event.

(b) To establish a maximum limit on area for additions to the gross floor area of existing buildings or structures as at 1 March 2005 on sites identified within the 100-year flood extent.

(c) That minor additions (not more than 20m²) to existing buildings and structures on sites identified within the 100-year flood extent are permitted.

(d) That all buildings and structures do not create adverse flood hazard effects for other land, buildings and structures off-site.

(e) That new accessory buildings on sites identified within the 100-year flood extent are permitted, subject to a maximum gross floor area.

(f) That any remaining risk that arises will be dealt with by emergency management procedures and other voluntary actions.

Permitted Activities – Conditions

(n) Buildings and Structures within the 1 in 100-year flood extent (see planning map G1):
In addition to the other Permitted Activity Conditions, the following shall apply in this area:

(i) All buildings and structures shall have a floor level above the 1 in 100-year flood level; except:

(ii) Minor additions to existing buildings and structures are a Permitted Activity provided:
- the floor level of additions is not below the floor level of the existing building or structure; and
- the gross floor area of all additions does not exceed 20m² to the gross floor area of the building or structure existing as at 1 March 2005.

(iii) New accessory buildings shall not exceed a total gross floor area of 20m².

Restricted Discretionary Activities

(d) All buildings and structures within the 1 in 100-year flood extent that do not comply with the Permitted Activity Conditions for floor levels or total gross floor area.
(i) In assessing proposals, Council will be guided by the degree to which buildings and structures further increase:
- The risk to people of exposure to the flood hazard; and
- The flood hazard effects for land, buildings and structures off-site.

Chapter 6A General Business Activity Area

This chapter introduces a new issue with reference to the Primary and Secondary River Corridors. Buildings and structures within the Primary and Secondary River Corridors are subject to flood hazard effects and can also have adverse effects on flood protection structures. The following issue, objective, policies and rules are included:

Issue

Buildings and structures within the Primary or Secondary River Corridor of the Hutt River are subject to flood hazard effects and can

also have adverse effects on flood protection structures. The size, scale and location of buildings and structures need to be managed to avoid or mitigate these adverse effects.

Objectives

To avoid or mitigate adverse flood hazard effects on buildings and structures.

To avoid or mitigate adverse flood hazard effects on flood protection structures.

Policies

(a) To discourage the siting of buildings and structures in the Primary and Secondary River Corridors.

(b) To ensure that buildings and structures in the Primary or Secondary River Corridor of the Hutt River have no more than minor adverse effects on flood protection structures.

(c) To mitigate the effects of flood hazards on buildings and structures in the Primary and Secondary River Corridors by managing their location, size and scale.

Permitted Activities – Conditions:

(b) Setback Requirements:
All new buildings and structures or additions in the Primary or Secondary River Corridor with a gross floor area of 20m² or less and with a setback of 20m or more from a flood protection structure.

Restricted Discretionary Activities

(h) All new buildings and structures or additions in the Primary or Secondary River Corridor with a gross floor area greater than 20m² or with a setback less than 20m from a flood protection structure.

- Proximity of buildings and structures to flood protection structures; and
- Adverse effects of the flood hazard on buildings and structures and on flood protection structures.

Chapter 6C Avalon Business Activity Area

A small part of the Avalon Business Activity Area is within the Secondary River Corridor. Therefore the proposed plan change

introduces an issue, objective, policies and rules in reference to the flood hazard. The following are included:

Issue

Buildings and structures within the Secondary River Corridor of the Hutt River can have adverse effects on flood protection structures. The size, scale and location of buildings and structures need to be managed to avoid or mitigate these adverse effects.

Objective

To avoid or mitigate adverse flood hazard effects on flood protection structures.

Policies

(a) To discourage the siting of buildings and structures in the Secondary River Corridor.

(b) To ensure that buildings and structures in the Secondary River Corridor of the Hutt River have no more than minor adverse effects on flood protection structures.

Permitted Activities – Conditions

(n) Secondary River Corridor
All new buildings and structures or additions in the Secondary River Corridor with a gross floor area of 20m² or less and with a setback of 20m or more from a flood protection structure.

Restricted Discretionary Activities

(c) All new buildings and structures or additions in the Secondary River Corridor with a gross floor area greater than 20m² or with a setback less than 20m from a flood protection structure.

- Proximity of buildings and structures to flood protection structures; and
- Adverse effects on flood protection structures and on the flood hazard.

Chapter 7A General Recreation Activity Area

This chapter expands the site development issue to include the reference that buildings and structures within the Primary or Secondary River Corridor are subject to flood hazard effects and can also have

adverse effects on flood protection structures. A new issue, objective and policies are also introduced to reflect the 1 in 100-year flood extent.

Existing Issue amended

Recreation and open space activities frequently require the development of buildings and structures. This may include public toilets, changing sheds, maintenance buildings, club rooms, information kiosks, play and sporting equipment and stadium facilities. Such buildings and structures can have adverse effects on adjoining residential activity areas. In addition, such facilities can have adverse effects on the intrinsic values of open space and recreation areas. *Buildings and structures within the Primary or Secondary River Corridor of the Hutt River are subject to flood hazard effects and can also have adverse effects on flood protection structures.* It is therefore important that such adverse effects are controlled, avoided or mitigated.

New Policies added

(f) To mitigate the effects of flood hazards on buildings and structures in the Primary and Secondary River Corridors by managing their location, size and scale.

(g) To discourage the siting of buildings and structures in the Primary and Secondary River Corridors.

(h) To ensure that buildings and structures in the Primary or Secondary River Corridor of the Hutt River have no more than minor adverse effects on flood protection structures.

New Issue

Areas not protected by flood protection structures are at a risk of flooding by the Hutt River. The size, scale and location of buildings and structures need to be managed to avoid or mitigate adverse flood hazard effects.

Objective

To avoid or mitigate adverse flood hazard effects on new development within areas susceptible to a 100-year flood event from the Hutt River.

Policies

(a) To ensure that all buildings and structures on sites identified within the 100-year flood extent have floor levels constructed above the 1 in 100-year flood event.

(b) That all buildings and structures do not create adverse flood hazard effects for other land, buildings and structures off-site.

(c) That any remaining risk that arises will be dealt with by emergency management procedures and other voluntary actions.

Permitted Activities – Conditions

(d) Building Coverage and Size of Structures:
(iv) All new buildings and structures or additions in the Primary or Secondary River Corridor with a gross floor area of 20m² or less and with a setback of 20m or more from a flood protection structure.

(k) Buildings and Structures within the 1 in 100-year flood extent (see planning map G1):
In addition to the other Permitted Activity Conditions, the following shall apply in this area:
(i) All buildings and structures shall have a floor level above the 1 in 100-year flood level.

Restricted Discretionary Activities

(e) All new buildings and structures or additions in the Primary or Secondary River Corridor with a gross floor area greater than 20m² or with a setback less than 20m from a flood protection structure.
- Proximity of buildings and structures to flood protection structures; and
- Adverse effects of the flood hazard on buildings and structures and on flood protection structures.

(f) All buildings and structures within the 1 in 100-year flood extent that do not comply with the Permitted Activity Conditions for floor levels.
(i) In assessing proposals, Council will be guided by the degree to which buildings and structures further increase:
- The risk to people of exposure to the flood hazard; and
- The flood hazard effects for land, buildings and structures off-site.

Chapter 7C River Recreation Activity Area

This chapter expands the flood and river protection issue to recognise that the River Recreation Activity Area is exposed to a significant flood hazard. Activities need to avoid or mitigate potential adverse flood hazard effects associated with these higher-risk areas. The following amendment to the issue and new policies are proposed:

Issue

The River Recreation Activity Area that is contained within the Primary and Secondary River Corridors is exposed to a significant flood hazard. Activities need to avoid or mitigate potential adverse flood hazard effects associated with these higher-risk areas. It is important that recreation activities on the surface of rivers and margins have adverse effects which are no more than minor on flood and river protection works, and that flood waters are not impeded. Any extraction activities that occur are for the purpose of flood control.

Policies

(a) To ensure that recreation activities on the surface of rivers and margins have *no more than minor* adverse effects on flood protection structures.

(e) To ensure that any other activities in the Primary or Secondary River Corridor of the Hutt River have no more than minor adverse effects on flood protection structures.

Chapter 8B General Rural Activity Area

This chapter introduces to the site development issue reference to the Primary and Secondary River Corridors. Buildings and structures within the Primary and Secondary River Corridors are subject to flood hazard effects and can also have adverse effects on flood protection structures. The following amendment to the objective and new policies and rules are included:

Objective

To recognise those elements within the site that determine the character, amenity values and adverse effects of flood hazards of rural areas and manage them appropriately.

Policies

(e) To discourage the siting of buildings and structures in the Primary and Secondary River Corridors.

(f) To ensure that buildings and structures in the Primary or Secondary River Corridor of the Hutt River have no more than minor adverse effects on flood protection structures.

(g) To mitigate the effects of flood hazards on buildings and structures in the Primary and Secondary River Corridors by managing their location, size and scale.

Permitted Activities – Conditions

(t) Primary and Secondary River Corridors
All new buildings and structures or additions in the Primary or Secondary River Corridor with a gross floor area of 20m² or less and with a setback of 20m or more from a flood protection structure.

Restricted Discretionary Activities

(i) All new buildings and structures or additions in the Primary or Secondary River Corridor with a gross floor area greater than 20m² or with a setback less than 20m from a flood protection structure.
- Proximity of buildings and structures to flood protection structures; and
- Adverse effects of the flood hazard on buildings and structures and on flood protection structures.

Chapter 13 Utilities

The amendments to this chapter introduce the Primary and Secondary River Corridors. Electricity transformers and water pumping stations should not be located within the Primary and Secondary River Corridors of the Hutt River. The following policy and discretionary rule are included:

Policy

(k) Where practicable, economic and technically feasible, electricity transformers and water pumping stations should not be located within the Primary or Secondary River Corridor of the Hutt River.

Discretionary Activities

(h) In all activity areas, electricity transformers and water pumping stations in the Primary or Secondary River Corridor of the Hutt River.

Assessment Matter for Discretionary Activities

(q) The likely impact on electricity transformers and water pumping stations, and therefore the provision of those services to the City, in a flood event.

(r) The likely impact of new roads on floodplain management.

Chapter 14H – Natural Hazards

The main change to this chapter updates the flood hazard information on the Hutt River. The following information replaces the existing information in the District Plan.

(i) The Hutt River:
Physical protection measures are used for the Hutt River. These include dredging at the river mouth, groynes, channel control and stopbanks. Physical protection works are planned to be upgraded during the next 40 years, under The Hutt River Floodplain Management Plan (HRFMP). This is in response to the current standard of many stopbanks and bank edge protection works that would put a large part of the Hutt Valley floodplain at risk of flooding in a major flood event.

District Plan measures are used in the Primary and Secondary River Corridors and in parts of the Hutt Valley floodplain, that are not protected from major floods by the existing stopbanks or those proposed to be upgraded under the HRFMP. This land forms a narrow margin either side of the Hutt River, including parts of Belmont and Stokes Valley. The Seaview area is also affected by flooding however this area was not investigated in detail as part of the HRFMP, as it is also affected by flooding from the Waiwhetu Stream. The Wellington Regional Council and Hutt City Council are currently investigating the Waiwhetu Stream. Seaview flooding extents will be further investigated on completion of the Waiwhetu Stream investigation.

Any activities located within the Primary or Secondary River Corridors or other unprotected areas are susceptible to flooding which includes the effects of inundation and erosion. It is accepted that development must be able to continue in those areas that have already been developed, although landowners and developers will be expected to mitigate flood hazard effects to an acceptable level. For example, it is necessary for proposed buildings or structures greater than $20m^2$ within the 100-year flood extent to raise floor levels to above the 100-year flood event. Proposed buildings and structures will also be required to be located to avoid damage from erosion hazards or be structurally strengthened to withstand the effects of severe erosion and high flood flow velocities.

The location of the following activities in the Primary or Secondary River Corridor or in areas not protected from major flooding by the existing stopbanks will not be appropriate:

- significant buildings where people work, live or congregate; such as schools, emergency services, hospitals, rest homes, holiday accommodation high-density residential developments and extensive commercial development.

These types of activities may expose people and assets to an unacceptable risk, or impose unacceptable costs on the community. Other activities such as earthworks, and accessory buildings and structures will also be required to avoid, remedy or mitigate the adverse flood hazard effects adequately. Adverse effects include, but are not limited to, erosion of the site or any part of a building, inundation and effects on other land and structures off-site. These effects may be cumulative or one-off in nature.

The Primary and Secondary River Corridors and those parts of the Hutt River Floodplain affected by flooding and erosion in a 100-year flood event are identified in the Map Volume of the District Plan. The height of floor levels for buildings and structures within the 100-year flood extent shall be above the 100-year flood level. This height is determined by the location of the proposed building in relation to a modelled flood level. The Wellington Regional Council has information on the Hutt River Floodplain, which will assist in determining an appropriate height for floor levels of buildings.

In addition to the District Plan measures, information on flood prone sites are given in Land Information Memoranda, and all Building Consents require a minimum floor level for all new development to be above the 50-year flood level.

While engineering works for flood defence can reduce the risk of flooding, they can never eliminate it completely. In the event of the stopbanks being over-topped or breached, the implementation of emergency management procedures may be necessary. Therefore, it is important that Hutt City residents are aware of the flood hazard, and prepare themselves for flooding should it occur.

Chapter 14I – Earthworks

The change to this chapter introduces a new issue referring to the adverse effects earthworks can have on flood protection structures in the Primary and Secondary River Corridors. The following issue, objective, policy and rule are included:

Issue

Earthworks can adversely affect flood protection structures in the Primary and Secondary River Corridors of the Hutt River. It is therefore necessary that these adverse effects are avoided or mitigated.

Objective

To ensure earthworks in the Primary or Secondary River Corridor of the Hutt River do not affect adversely flood protection structures.

Policy

(a) To ensure that earthworks in the Primary or Secondary River Corridor have no more than minor adverse effects on flood protection structures.

Permitted Activities - Conditions

(d) In the Primary and Secondary River Corridors, earthworks must be a minimum distance of 20m from a flood protection structure.

Restricted Discretionary Activities

In all activity areas except Special Recreation Activity Area, Passive Recreation Activity Area, Hill Residential Activity Area, and the Landscape Residential Activity Area, earthworks which fail to comply with any of the Permitted Activity Conditions.
(iv) Natural Hazards:
Consideration should be given to those areas prone to erosion, landslip and flooding. Excavation should not increase the vulnerability of people or their property to such natural hazards. *In the Primary and Secondary River Corridors of the Hutt River, consideration should be given to the effects on the flood protection structures.*

4. Achieving the Purpose of the RMA

The existing District Plan provisions provide for the flood hazard principally through policies in chapter 14H and rules contained in chapter 7C (see Section 3.1 above). The existing objectives, policies and rules make some provision for the flood hazard. However, they do not sufficiently address the potentially adverse effects of flooding and erosion on new development in unprotected areas and in the river corridor.

The HRFMP investigations clearly show that a combination of structural and non-structural measures, which includes the new proposed plan change provisions, will provide a sustainable framework

for managing the Hutt River flood hazard. Preparing the HRFMP and the proposed plan change have been closely aligned to ensure an integrated approach to the management of the floodplain and policies and rules are developed which promote the sustainable management of natural and physical resources.

4.1 Policy Options

The HRFMP process considered a number of policy options for the river corridor, Belmont and Stokes Valley before adopting the proposed regulatory approach. The key options considered for each area are outlined below.

River Corridor

(a) Option 1: Status Quo

Structural Measures

This option maintains the existing flood protection system without any upgrades, with reinstatement being undertaken as and when damage occurs. The existing system includes sections of stopbank which may breach during flood events smaller than a 50-year event.

Flooding in the river corridor can cause substantial impacts, including:

- extreme danger to occupants;
- severe damage to structures;
- erosion and loss of land to the river; and
- substantial depositing of flood debris.

Non-Structural Measures

No changes are proposed to the existing District Plan provisions and emergency management procedures.

(b) Option 2: No Change to Structural Options / Strengthened Non-Structural

Structural Measures

This option maintains the existing flood protection system without any upgrades as in Option 1 above.

Non-Structural Measures

Strengthen existing District Plan provisions to require buildings and structures in the river corridor to consider the effects of flooding.

Strengthen existing emergency management procedures and actively encourage voluntary actions to prevent potential flood damages.

(c) Option 3: Erosion Protection and Strengthened Non-Structural Measures (Selected Option)

Structural Measures

Provide erosion protection as part of improving the flood defence system for the Hutt Valley.

Non-Structural Measures

Strengthen existing District Plan provisions to require buildings and structures in the river corridor to consider the effects of flooding.

Strengthen existing emergency management procedures and actively encourage voluntary actions to prevent potential flood damages.

Option 3 has been selected as it is considered on balance to provide the most appropriate level of protection to the Hutt Valley given the value of assets at risk on the floodplain. Options 1 and 2 are not considered appropriate options as the cost to individuals of protecting existing assets in the river corridor was considered to be too high. Increased erosion protection also has significant benefits for the wider community.

Belmont

(a) Option 1: Status Quo

Structural Measures

This option maintains the existing flood protection system without any upgrades with reinstatement being undertaken as

and when damage occurs. The existing system is currently constrained above the Western Hutt Road (SH2) on the true right bank and Taita stopbank along much of the rivers left bank.

Residential development from Carter Street to Richard Street is located immediately adjacent to the river channel and is separated from the river by a narrow berm. The berm is wider in the reach from Richard Street to the upstream end.

45 residential properties located adjacent to the river channel would have been at risk from bank erosion. 32 houses are at risk from flooding during a 1900 cumec (100-year) flood. See appendix A - District Planning Maps, sheet 3 of 4 for the extent of flooding in a 100-year flood event at Belmont.

Non-Structural Measures

No changes are proposed to the existing District Plan provisions, which have no controls (in terms of flood effects), over the use and development of land. No changes are proposed to existing emergency management procedures.

(b) Option 2: Upgrade Edge Protection to a 100-year Standard and Strengthen Non-Structural Measures (Selected Option)

Structural Measures

- Provide river bank edge protection to a 100-year standard.

- Construct for Norfolk Street a stopbank and engage an emergency management component. A stopbank would be constructed on either side of Norfolk Street up to the edge of the footpath and the gap across the road would be closed when a large event in the Hutt River occurs.

Non-Structural Measures

Strengthen District Plan provisions to require buildings and structures within the 100-year flood extent and those adjacent to the Hutt River to consider the effects of flooding and erosion.

Strengthen existing emergency management procedures and actively encourage voluntary actions to prevent potential flood damages.

(c) Option 3: Construct Major Stopbank

Structural Measures

Construct a major stopbank along the river at Norfolk Street to provide protection to a 440-year standard. A stopbank in this location would need to be approximately 2 metres high and a 20 metre long strip of land would need to be purchased.

Option 2 has been selected on the basis of advice from The Wellington Regional Council and the community, as the agreed set of measures to improve flood protection in the Belmont area. The design standard chosen for all measures in Belmont is the 1900 cumec (100-year) flood event.

The HRFMP investigations identified 32 Belmont houses or buildings as floodable from the Hutt River in the 1900 (100-year) flood event, 50 in the 2300 cumec (440-year) event, and 61 in the 2800 cumec (very rare) event. The investigations concluded that a major stopbank protecting Belmont was neither practical nor viable. The community's preference was for edge protection works rather than a stopbank. A stopbank would obstruct views and adversely affect the amenity of the area. A number of private properties would also be affected and property purchase required.

The potential for a small stopbank to protect Norfolk Street from Hutt River flooding was noted in 2001 at the time of the HRFMP investigations, however until this option was investigated fully, house raising was included in the HRFMP.

In 2003, The Wellington Regional Council reviewed the proposed measures for flood reduction at Belmont. The measures included bank edge protection, associated property issues, provisions being developed for HCC District Plan and house raising. Discussions were subsequently held with individual property owners affected by house raising. At the conclusion of these discussions there was a general consensus that a partial stopbank should be constructed to protect houses in Norfolk Street rather than house raising. A gap would be left across Norfolk Street which would be closed in the event of a flood. The community and Regional Council chose this option because of the difficulties that would arise from stormwater flooding if the gap in the stopbank was permanently closed. Other issues raised were the potential adverse effects on road and pedestrian crossings over a stopbank.

Works were also undertaken at Belmont to increase the existing edge protection to 100-year levels. This work has resulted in a reduction in

the number of properties potentially affected by erosion from 45 to 5 properties. The most important criteria for designing appropriate bank edge protection at Belmont is the design standard in the Hutt River Floodplain Management Plan. In the Belmont reach this means that the bank edges must be strong enough to withstand a 1900 cumec flood, without eroding beyond the design buffer zone. The complete design is a combination of rock, groynes and debris fences with vegetation, which takes into account the erosion risk and historic river patterns.

At the same time as these measures were being put in place The Wellington Regional Council and Hutt City Council continued to work together on the non-structural measures which include the proposed district plan change.

Stokes Valley

(a) Option 1: Status Quo

Structural Measures

This option maintains the existing flood protection system without any upgrades with reinstatement being undertaken as and when damage occurs. The major feature of this reach is the Stokes Valley Stream confluence (where the stream joins the Hutt River) on the true left bank. Heavy rock is proposed to protect the outlet and training bank of the Stokes Valley Stream.

Residential development, adjacent to the Stokes Valley Stream at the entrance to Stokes Valley, is at risk of flooding at times of high flows in the Hutt River. Nine properties are potentially affected. See Appendix A – District Planning Maps, sheet 4 of 4 for the extent of flooding in a 100-year (1900 cumec) flood event at Stokes Valley.

Non-Structural Measures

No changes are proposed to the existing District Plan provisions, which have no controls (in terms of flood effects), over the use and development of land. No changes are proposed to existing emergency management procedures.

(b) Option 2: Strengthen Non-Structural Measures (Selected Option)

Non-Structural Measures

Strengthen existing district plan provisions to require buildings and structures within the 100-year flood extent to consider the effects of flooding.

Strengthen existing emergency management procedures and actively encourage voluntary actions to prevent potential flood damages.

Option 2 was selected as this provides the best level of protection to the community given the difficulty of providing a structural solution. This option will help to ensure that all new development in this unprotected area will take account of the flood hazard. Stopbanking options would include purchasing a number of residential properties along the stream bank. This was not considered a viable option given the relatively small number of properties at risk from flooding.

4.2 Summary of benefits and costs

The cost benefit summary below illustrates that the main benefits of the proposed plan change will be to help ensure all new development in flood hazard areas, takes account of the flood hazard specific to that area. This equates to:

- Reduced property damage from flooding and erosion
- Reduced exposure of people and assets to unacceptable risk or unacceptable costs for the community
- Positive benefits in terms of increased peace of mind for individuals.

While the introduction of rules may result in slightly higher development costs for individuals and developers, the overall economic, environmental and social benefits outweigh these one-off costs.

The benefits and costs of the three different options available to Council are based on the following criteria:

- Efficiency in achieving the objectives of the District Plan;
- Effectiveness in achieving the objectives of the District Plan;
- Environmental benefits;
- Environmental costs;
- Economic costs;
- Economic benefits;
- Social costs; and
- Social benefits.

Tables 1-3 outline the benefits and costs of the options for the river corridor, Belmont and Stokes Valley.

Table 1: River Corridor - Benefits and Costs

	Option 1: Status quo	Option 2: No Change to Structural Options / Strengthened Non-Structural	Option 3: Erosion Protection and Strengthened Non-Structural
Efficiency in achieving the objectives	Yes - in terms of administrative costs. No – in terms of achieving the objectives of the District Plan.	See comments under option 3.	A plan change does involve significant resources, however this can be justified in terms of benefits to both individuals and the community – see below. Will require some additional assessment by planning/building staff to ensure compliance with new provisions.
Effectiveness in achieving objectives	The current methods provide limited controls on development in the river corridor from a flood event.	See comments under option 3.	Yes – will ensure that new development in the river corridor is aware of the flood risk and takes appropriate measures to prevent adverse effects.
Environmental benefits	No Change.	See comments under option 3.	Aims to reduce damage from flooding by requiring landowners and developers to mitigate flood hazard effects to an acceptable level. Buildings and other structures are discouraged and will be required to be located away from erosion hazards or be strengthened to withstand the effects of erosion and high flood flow velocities. Aims to reduce the exposure of people and assets to unacceptable risk and reduce unacceptable costs on the community.
Environmental costs	No Change.	See comments under option 3.	Minimal – provided new structures can be built to reduce any potential adverse effects on the flood hazard.

	Option 1: Status quo	Option 2: No Change to Structural Options / Strengthened Non-Structural	Option 3: Erosion Protection and Strengthened Non-Structural
Economic costs	Potentially no cost until a flood event occurs and then the cost falls on the current owner rather than the person who built the house. Costs to individuals of providing erosion protection are likely to be significantly higher. Potential for more people to be exposed to the risk of a flood event.	See comments under option 1 and 3. Damage from flood events may be higher if erosion protection not provided.	Increased erosion and flood protection may equate to higher building costs. Some additional costs to Council in producing information. Potential costs for one-off individuals who choose voluntary actions or to build in areas not subject to the flood hazard.
Economic benefits	Minimal.	See comments under option 3.	Will reduce potential costs of a flood event to both individuals and the community. Improved emergency management will benefit both Council and the community in preparedness and response to a flood event.
Social costs	Costs would include both tangible (property damage) and intangible (including such factors as physical injury, fear, anxiety, ill health, inconvenience and loss of personal property).	Minimal.	Minimal.
Social benefits	None.	See comments under option 3.	Positive benefits in terms of increased peace of mind for individuals. Raises community awareness about the flood hazard and effects associated with development in the river corridor.

Table 2: Belmont - Benefits and Costs

	Option 1: Status quo	Option 2: Upgrade Edge Protection and Increase Non-Structural Measures	Option 3: Construct Major Stopbank – no requirement for strengthened District Plan measures
Efficiency in achieving the objectives	Yes - in terms of administrative costs. No – in terms of achieving the objectives of the District Plan.	A plan change does involve significant resources, however this can be justified in terms of benefits to both individuals and the community – see below. Will require some additional assessment by planning/building staff to ensure compliance.	Yes - in terms of administrative costs. However significant cost to Greater Wellington to construct a new stopbank. If stopbank completed would not require regulatory controls.
Effectiveness in achieving objectives	The current methods do not provide any controls on development in unprotected areas from a 100-year flood event.	Yes – will ensure that new development in unprotected areas will be raised above the 100-year flood event or require a resource consent. For properties adjacent to the Hutt River, will ensure there is no new development on the riverside of the building setback line without a resource consent.	If stopbank completed would not require regulatory controls.
Environmental benefits	No Change.	Aims to reduce damage from flooding by requiring landowners and developers to mitigate flood hazard effects to an acceptable level. Buildings and structures will be required to raise floor levels to above the 100-year flood level. Buildings and structures will also be required to be located away from erosion hazards or be strengthened to withstand the effects of erosion and high flood flow velocities. Aims to reduce the exposure of people and assets to unacceptable risk, and reduce unacceptable costs on the community. This would be achieved by discouraging the location in unprotected areas of significant buildings where people work, live or congregate; such as schools, emergency services, hospitals, rest homes, holiday accommodation, high-density residential development and extensive commercial development.	Potentially over time.
Environmental costs	No Change	Minimal – if new houses can be built to reduce any potential adverse effects on amenity values and streetscape.	Significant disruption caused by construction of a new stopbank.

	Option 1: Status quo	Option 2: Upgrade Edge Protection and Increase Non-Structural Measures	Option 3: Construct Major Stopbank – no requirement for strengthened District Plan measures
Economic costs	Potentially no cost until flood event occurs and then the cost falls on the current owner rather than the person who built the house. Potential for more people to be exposed to the risk of a flood event.	Requiring floor levels to be raised or development not to locate in unprotected areas may equate to higher building costs, particularly where raising floor levels are concerned. Some additional costs to Council in producing information.	Costs for the community and Greater Wellington in constructing a stopbank.
Economic benefits	Cheaper building costs for some individuals not having to raise floor levels.	In unprotected areas requiring floor levels to be raised, will reduce potential costs of a flood event to both individuals and the community. Preliminary analysis undertaken by Greater Wellington in June 2000 of specific sites in Belmont indicates that in general it is of high economic viability to raise new houses to 100-year (1900 cumec) flood level. Improved emergency management will benefit both Council and the community in preparedness and response to a flood event.	Cheaper building cost for some individuals by not having to raise floor levels.
Social costs	Costs would include both tangible (property damage) and intangible (including such factors as physical injury, fear, anxiety, ill health, inconvenience and loss of personal property).	Minimal.	Costs would include both tangible (property purchase) and intangible (including such factors as inconvenience, disruption, loss of amenity with construction of a stopbank).
Social benefits	None.	Positive benefits in terms of increased peace of mind for individuals. Raises community awareness about the flood hazard and effects associated with development in unprotected areas.	Positive benefits in terms of increased peace of mind for individuals.

Table 3: Stokes Valley - Benefits and Costs

	Option 1: Status quo	**Option 2: Strengthen Non-Structural Measures**
Efficiency in achieving the objectives	Yes - in terms of administrative costs. No – in terms of achieving the objectives of the District Plan.	A plan change does involve significant resources, however this can be justified in terms of benefits to both individuals and the community – see below. Will require some additional assessment by planning/building staff to ensure compliance.
Effectiveness in achieving objectives	The current methods do not provide any controls on development in unprotected areas from a 100-year flood event.	Yes – will ensure that new development in unprotected areas will be raised above the 100-year (1900 cumec) flood event or require a resource consent.
Environmental benefits	No Change.	Aims to reduce damage from flooding by requiring landowners and developers to mitigate flood hazard effects to an acceptable level. Buildings and structures will be required to raise floor levels to above the 100-year flood level. Buildings and structures will also be required to be located away from erosion hazards or be strengthened to withstand the effects of erosion and high flood flow velocities. Aims to reduce the exposure of people and assets to unacceptable risk, and reduce unacceptable costs on the community. This would be achieved by discouraging the location in unprotected areas of significant buildings where people work, live or congregate; such as schools, emergency services, hospitals, rest homes, holiday accommodation, high-density residential development and extensive commercial development.
Environmental costs	No Change.	Minimal – if new houses can be built to reduce any potential adverse effects on amenity values and streetscape. Some additional costs to Council in producing information.

	Option 1: Status quo	Option 2: Strengthen Non-Structural Measures
Economic costs	Potentially no cost until flood event occurs and then the cost falls on the current owner rather than the person who built the house. Potential for more people to be exposed to the risk of a flood event.	Requiring floor levels to be raised or development not to locate in unprotected areas may equate to higher building costs, particularly where raising floor levels are concerned.
Economic benefits	Cheaper building costs for some individuals not having to raise floor levels.	In unprotected areas requiring floor levels to be raised, will reduce potential costs of a flood event to both individuals and the community. Preliminary analysis undertaken by Greater Wellington in June 2000 of specific sites in Belmont indicates that in general it is of high economic viability to raise new houses to the 100-year (1900 cumec) flood level. Improved emergency management will benefit both Council and the community in preparedness and response to a flood event.
Social costs	Costs would include both tangible (property damage) and intangible (including such factors as physical injury, fear, anxiety, ill health, inconvenience and loss of personal property).	Minimal
Social benefits	None.	Positive benefits in terms of increased peace of mind for individuals. Raises community awareness about the flood hazard and effects associated with development in unprotected areas.

5. Consultation Undertaken

5.1 The Consultation Process

As discussed in Section 1.1 and 1.4 the preparation of the proposed plan change follows on from the HRFMP published by Greater Wellington in October 2001.

Public consultation commencing with 'Living with the River'[9] in 1996 helped develop complementary structural and non-structural options and an environmental strategy for the Hutt River. During this period the flooding problem was analysed, local floodplain management issues identified, and various options considered, developed and selected. At the same time, existing flood defences have continued to be maintained and in some cases, improved.

HRFMP Process

A five phase process was employed by Greater Wellington to investigate issues, develop and select options, and produce supporting policies and a long term strategy for implementation. The process[10] is summarised and described in figure two below:

Phase 1 Commenced 1987 – Defined the flood problem including physical, social, economic and environmental issues.

Phase 2 Commenced 1997 – Developed and evaluated physical design standard options, developed floodplain management approaches, and used social, economic and environmental criteria to evaluate them.

Phase 3 Commenced 1999 – Refined and selected preferred options.

Phase 4 Commenced 2000 – Produced the HRFMP, including policies to support its implementation.

Phase 5 Commenced 2001 – implementation.

The approach illustrated below was adopted by Greater Wellington to ensure that a viable, economically acceptable, socially appropriate and balanced set of measures were adopted to manage flood risks on the Hutt River floodplain.

[9] Summarises the first phase of investigations into the Hutt River flooding problem. The publication also records the community's major concerns.
[10] More detail on the five phases can be found in Section 1.5 and Appendix 2 of the HRFMP.

Figure 2: Greater Wellington Floodplain Management Plan Process

Phase 1 Completed November 1996	Define the flood problem, including physical, social, economic and environmental issues. τ Greater Wellington endorsed 'Living with the River' Summary Report
τ	τ
Phase 2	1. Develop and evaluate design standard options. 2. Evaluate a broad range of flood management approaches: • Environmental strategy • Non-structural measures • Structural measures. 3. Use social, economic and environmental criteria to evaluate them • The preferred design standard and measures are selected following public consultation.
	τ
Phase 3 Phases 2 and 3 completed June 2000	Refine and finalise preferred options τ Greater Wellington approved final options
τ	τ
Phase 4 Adopted in August 2001	Draft Hutt River Floodplain Management Plan: • Develop Draft Plan and refine it following public consultation. • Finalise Draft Plan. τ Greater Wellington adopted Hutt River Floodplain Management Plan
τ	τ
Phase 5 Full Plan implementation: From August 2001	Plan implementation to date includes: • Ava to Ewen River Works • Belmont River Works • Improved emergency management procedures and new brochures about flooding • Proposed District Plan Change.

Each step involved public and Hutt River Floodplain Management Advisory Committee participation in preparing the recommendations submitted for Council approval.

Advisory Committee

The Advisory Committee[11] was responsible for decision making which provided the process to:

- Consider and select acceptable flood mitigation measures;

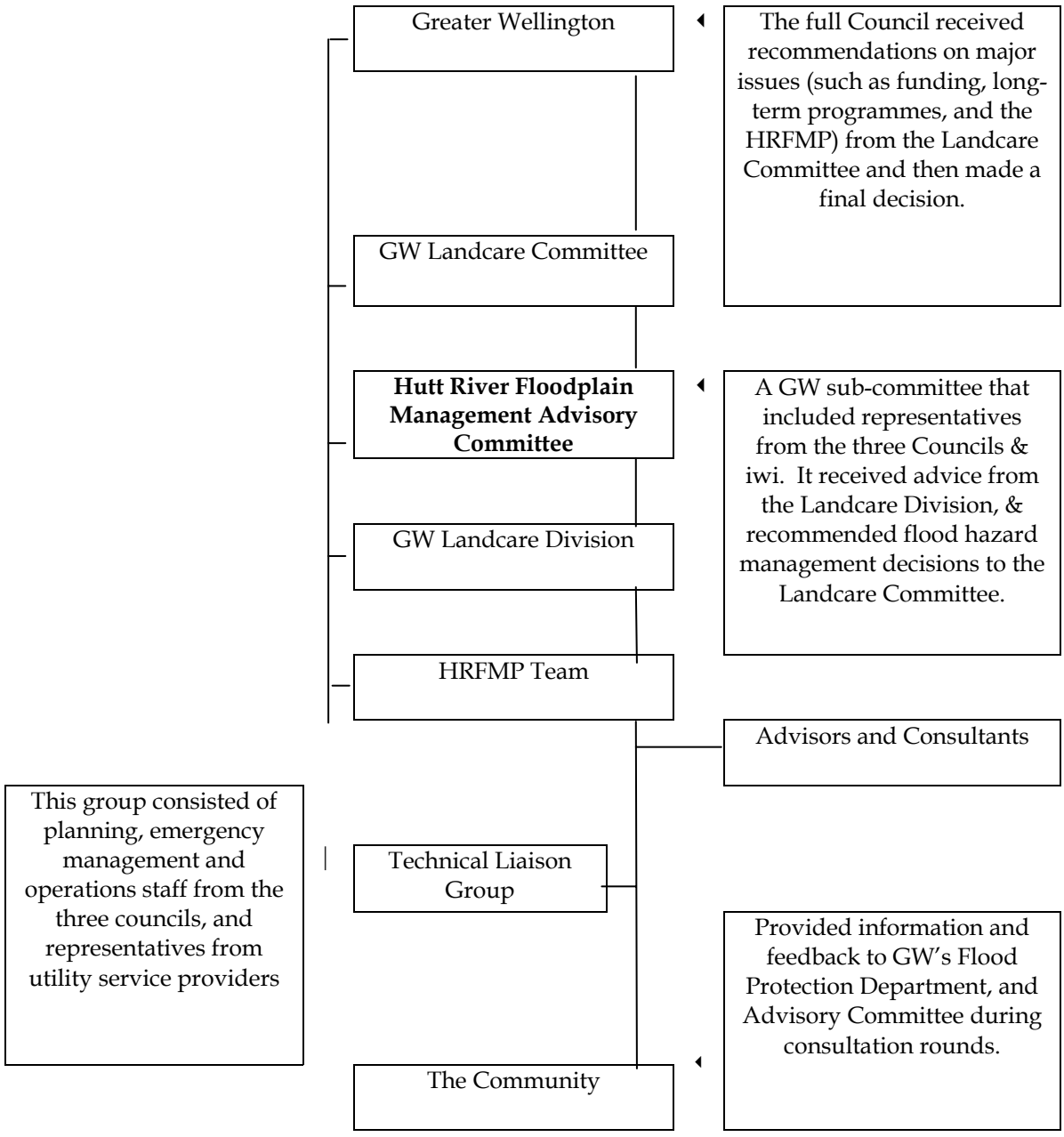
[11] The Hutt River Floodplain Management Committee included Councillors from Greater Wellington, HCC, UHCC and representatives from iwi steered the HRFMP process from 1998 until 2002. From 2002- until the present the committee has continued under a new name - the Hutt River Advisory Committee.

- Develop an environmental strategy; and
- Prepare a management plan for implementing measures and the strategy.

The framework also defined who was responsible for preparing, evaluating and deciding on measures to reduce flood risks (figure three describes this framework).

The Committee's focus is now on overseeing implementation of the outcomes of the HRFMP including supporting the District Plan change.

Figure 3: The Decision Making Framework



Proposed District Plan Change Consultation

In drafting the proposed District Plan change, officers from both Hutt City Council and Greater Wellington undertook an initial eight months of consultation with affected parties. This included residents of Belmont near the Hutt River, residents at the entrance to Stokes Valley and the four golf clubs affected by the plan change (Hutt, Boulcott, Shandon and Manor Park). Several public meetings were held in Belmont where such things as possible naming of terms and proposed rules were discussed. It was this consultation that helped draft the plan change.

6. Principal Background Information

The Hutt floodplain underwent an extensive floodplain management planning exercise between 1999 and October 2001. Greater Wellington prepared the HRFMP as a result of this work.

The following key background documents have been referred to in addition to the information included in this report:

Document	**How Used**	**Ref.**
Evaluation of Existing Hutt River Flood Defences and Upgrade Concept Design, Vol. 1, II and III, Beca Carter Hollings and Ferner, 1999.	Evaluated the existing Hutt Flood Defences.	
Hutt Floodplain Management Plan, Addendum to Economic Analysis Report Methodology and Documentation, Optimix Ltd, June 2000.	Presented a site specific analysis of the costs of raising floor levels in new houses against the benefits measured as reduced flood or damages saved. The unprotected residential areas of Belmont and Bridge Rd, Akatarawa, were assessed to determine the net benefits in raising flood levels to 1990 cumec levels at Belmont, and 2300 cumec flood levels at Bridge Road.	
Hutt River Flood Control Scheme Review – Topic No.3: Public Involvement Procedures, Volumes 1-4, Royds Garden Ltd, Environmental and Planning	Outlines the initial consultation process carried out with the community in the early 1990's.	

Associates, James Barnes Associates, November 1990.		
Hutt River Flood Control Scheme Review – Topic No.9: Flood Damage Assessment, Agricultural Engineering Institute (AEI) December 1992.	Investigates Hutt River Flood Damages.	
Living with the River, Hutt River Floodplain Management Plan: Phase 1 Summary Report, Rivers Dept, WRC, November 1996.	Describes the standard of the current flood protection system, history and the likelihood of flooding in the Hutt River, the value of exposed assets, ways to manage the flood hazard and discussed flood hazard related social, cultural, economic and environmental issues from the phase 1 investigations.	
Hutt River Floodplain Management Plan Phase 2/3 Investigations, Risk Assessment and Hydraulic Modelling, Flood Protection Group, WRC, September 1999.	Provides a risk assessment of the flood control scheme and review the river hydraulics.	
Hutt River Floodplain Management Plan Phases 2 and 3: Assessment of Environmental Effects for Design Standard, Flood Protection Group, WRC, May 1999.	Provides an understanding of the environmental effects from various structural options.	
Hutt River Floodplain Management Plan: Review of Process for Design Standard, Optimix, June 1999.	Reviews the process for arriving at the design standard.	
Report to the Hutt River Floodplain Management Advisory Committee, Dec 1999 *Hutt River Floodplain Management Plan: Non-Structural Measures – National and International Procedures.*	Provides Hutt River Corridor Assessment.	Report No. 99.708
Report to the Hutt River Floodplain Management Advisory Committee, Dec 1999 *Hutt River Floodplain Management Plan: Non-Structural Measures* – River Corridor Plans.	Provides Hutt River Corridor Assessment.	Report No. 99.711
Hutt River Floodplain Management Plan Phase 2/3: Non-structural Options, Economic Analysis and Floodplain Hazard Maps –	Provides an economic assessment of non-structural options.	

Methodology and Documentation, Flood Protection Group, Wellington Regional Council, 2000.		
Report to the Hutt River Floodplain Management Advisory Committee, June 2000 *Hutt River Floodplain Management Plan: Confirming Non-Structural Measures*.	Confirms Non-structural measures to the HRFMAC.	Report No. 00.460
Hutt River Floodplain Management Plan Environmental Strategy, Flood Protection Group, WRC, February 2001.	Provides guidance on preferred options for enhancement of the river.	
Hutt River Floodplain Management Plan – For the Hutt River and its Environment, Flood Protection Group, WRC, October 2001.	Provides a foundation for implementing structural and non-structural measures, and an environmental strategy for the river environment.	
HRFMP Non-structural Measures – Draft District Plan Provisions Upper Hutt City Council, Summary Report, Flood Protection Department, WRC, July 2003.	Includes draft plan changes to UHCC District Plan.	PD#167125
HRFMP Non-structural Measures – HCC-GW Officers' Draft District Plan Provisions, Hutt City Council and Greater Wellington, WRC, July 2003.	Includes draft plan changes to HCC District Plan.	PD#167219
The City of Lower Hutt Operative District Plan, Hutt City Council, June 2003.	Contains existing District Plan Objectives, Policies and Rules and Planning Maps.	