

3. HEATHCOTE VALLEY WATERWAYS, WETLANDS AND DRAINAGE SCHEME

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The purpose of this report is for the Council to consider:

- (a) The proposed waterways, wetlands and drainage scheme that will facilitate future development within the Heathcote Valley and;
- (b) The establishment of a formal cost-sharing scheme to fund the proposal.

INTRODUCTION

1. Background

The Heathcote Valley, located in the south-east sector of the city, drains from the Port Hills to the Heathcote River at Ferrymead just before the river discharges into the Avon-Heathcote Estuary (Ihutai). The catchment area is approximately 500 ha.

The present zoning for most of the catchment provides for rural and conservation land use. Living zones are concentrated around Heathcote Valley village, along the Port Hills Road corridor and on the slopes of the Port Hills above Bridle Path Road.

The floor of the valley is generally low-lying. Without the existing stopbanking and tidal control structures along the Heathcote River margin, much of this low-lying land would be subject to regular tidal inundation. The lower valley floor is also prone to flooding from catchment runoff during severe storms coinciding with high tides.

To date, floodwater ponding on the lower valley floor has been a nuisance rather than a major problem for valley floor activities which are predominantly extensive grazing and horse-riding. However, with a large area of residential development pending as a result of rezoning decisions through the City Plan process, a comprehensive upgrade of the drainage system is necessary to facilitate future development. Some City Plan rezoning decisions required that the land under consideration participate in a cost-sharing scheme to achieve the necessary upgrading.

In addition to the residential development expected to occur on the upper valley floor and on the Port Hills, planning is well-advanced on the "Heathcote Valley Park" concept for the lower valley floor. This private/Council partnership incorporating Ferrymead Historic Park, a 9-hole golf course and driving range, Tamaki Maori Village, sports fields, waterways and wetlands restoration, and floodplain management was last reported to the Board and the Council in September 2001. Overall the response to the plan was positive and supportive from not only elected members, but also from the public who made submissions to date.

The Council's strategic purchases of the lower valley floor (Ferrymead Trust purchase in 1996; Truscotts Road/Ferrymead Park Drive block reported in January 2001; and Truscotts and Cooktown waterway corridors proposed purchase) will provide the space necessary to:

- (a) Mitigate adverse water quantity and quality effects from new residential development
- (b) Realise many components of the "Heathcote Valley Park" vision.
- (c) Prevent inappropriate development within a hazardous coastal area.

The establishment of a formal cost sharing area is recommended to fund the upgrading of a drainage scheme that will facilitate new development in a way that enhances amenity and restores ecological values. Under transitional provisions in Sections 407 and 409 of the Resource Management Act 1991 (RMA) the Council is able to require cost-share contributions at the time of subdivision and development consent respectively pursuant to Section 283 of the Local Government Act 1974 in the same manner as if Section 283 had not been repealed. In general terms, the Council can recover all or part of the costs related to the upgrading of drainage works in a manner it considers fair and reasonable.

The three options available to the Council are: to require full mitigation measures on-site for each private development, to upgrade stormwater connections to the floodplain but allow more frequent uncontrolled ponding of floodwater on the floodplain (most of which is owned by the Council), or to implement a comprehensive scheme including detention ponds and wetlands on the floodplain. The first option is feasible for some development areas, but not for others. The uncontrolled ponding option would severely limit the opportunity to develop playing fields and other recreational facilities on the floodplain and provide only limited water quality control benefit to the Heathcote River downstream. The comprehensive scheme is preferred because it offers more certain flood control and water quality benefits throughout the catchment and provides opportunities to realise community benefits consistent with the Heathcote Valley Park concept.

The project was included in the Port Hills section of the Waterways and Wetlands Natural Asset Management Strategy adopted by the Council in October 2000. Costs to the Council identified in the asset management strategy are included in the draft five year capital works programme for Parks and Waterways.

2. Scheme Justification

The Council may constitute a formal cost-sharing scheme pursuant to Sections 407 and 409 of the RMA (incorporating Section 283 of the Local Government Act which has been repealed) to fund the cost of upgrading public infrastructure such as a drainage system necessary to serve new development. The requirement to contribute financially is set as a condition of subdivision consent or building consent. The Council can recover all or part of the costs relating to the upgrading of drainage works in a manner it considers fair and reasonable. It is not incumbent on the Council to seek agreement with all the parties involved, but some consultation is generally undertaken. Any person who objects to the charges can appeal to the Environment Court at the time of development.

The Heathcote Valley is already served by an existing stormwater drainage system which is adequate for the current level of development and discharges to the Heathcote River. In excessive rainfall events ponding occurs on farm land (much of which is owned by the Council).

Without further development this system would be adequate in the foreseeable future. With further development it is necessary to upgrade this system to better manage the increased volumes of stormwater and the increased flows in significant events, and to maintain or improve the water quality of the discharge to the Heathcote River. The upgrading includes establishment of a series of waterways, wetlands and detention ponds in accordance with modern stormwater management practice.

Since there is an existing system the charge for upgrading will be made pursuant to Section 409 of the Resource Management Act (incorporating Section 283 of the Local Government Act which has now been repealed).

A drainage cost-sharing scheme of this type for the Heathcote Valley was recommended at the City Plan hearings on urban growth. Practical on-site mitigation measures for each new development are considered insufficient to mitigate fully adverse water quantity and water quality effects downstream. A comprehensive drainage scheme is needed.

SCHEME DESCRIPTION

1. Description

The Heathcote Valley catchment (and scheme area); major waterways, wetlands and drainage scheme components, specific development areas (A to F), and vacant lots and other individual developments (areas G) are shown on the plan attached. The scheme area does **NOT** include:

- (a) Any part of the Avoca Valley Stream catchment which is a separate catchment to the west discharging directly into the Heathcote River.
- (b) The proposed Tamaki Maori Village site between Ferrymead Park Drive and the Heathcote River which will be developed in partnership with a private company.

The scheme will provide:

- (a) An open waterway/green corridor network through the Heathcote Valley floodplain from the toe of the hills to the sea.
- (b) Some stormwater piping and other utility components.
- (c) Stormwater treatment on the valley floor for runoff from the entire catchment.
- (d) Flood detention on the valley floor for all storm discharges connected directly to the drainage network.
- (e) On-site detention for some hill connections.

The overall catchment can be broken down into four distinct sub-catchments – floodplain, Cannon Hill, east and west (as shown on the plan) that connect at different points on the floodplain to the trunk system which extends from the Heathcote River control structure (1) to the primary stormwater treatment zone (6).

Storm runoff from the Cannon Hill sub-catchment including development area A drains via open vegetated swales to the flood detention basin (4). The east and west sub-catchments drain to the primary stormwater treatment zone – the east via Cooktown Waterway (8) and a swale; the west via a new pipeline (12) and existing culverts through the railway embankment.

2. Stormwater Detention on the Hills

All future development that can connect directly to the waterway network will be required to do so. However, this is not feasible for approximately 25 per cent of expected future development which will, therefore require stormwater detention in ponds or on-site tanks. The purpose of the detention of stormwater close to source is to reduce peak discharges to the floodplain, thereby reducing system capacity needed and the risk of erosion in any open channels.

For new development area F and part of areas C and D below the proposed Heathcote Valley waterway (see the attached plan), detention structures generally shared between four to six adjacent lots can be incorporated into subdivision design. With the detention of all roof runoff within these areas, controlled discharges into the existing drainage system can be accommodated.

Providing a satisfactory drainage system for development on existing vacant lots below Cannon Hill Crescent and Major Hornbrook Road, for example, is more difficult. Generally, roof runoff from each individual property will need to be connected to a tank with a piped outlet to or near their lowest property boundary when the site is developed. The design for on-site tank storage needs to be done with sensitivity to the needs of private owners. To achieve good results close consultation with individual owners will be essential.

The Council will need to provide a public drain connection at some future time. Where it can be achieved readily, existing stormwater point discharges should also be connected into a public drain network to reduce soil erosion occurring above Bridle Path Road. A comprehensive drainage improvement scheme serving these hill areas will need to be designed and implemented.

The intention is that all detention structures and downstream piping or channels will be part of the drainage scheme. Developers will be liable for their cost-share contribution while the scheme will meet the costs associated with stormwater detention.

3 Cost Estimates and Timing

The estimated cost of the Heathcote Valley Waterways, Wetlands and Drainage Scheme is \$3,354,000. For the purposes of considering a drainage cost-sharing scheme elements identified as clearly “non-drainage” have been deducted in Table 1 (attached) resulting in an estimated cost of \$2,845,000 for the “drainage” scheme.

The non-drainage elements comprise pathways and the corridor of land they are located on and amenity structures including pedestrian bridges. Extensive planting of ecologically suitable species on the margins of waterways, wetlands and basins is an integral part of modern stormwater management practice. Not only do the plants perform vital drainage functions such as improving bank stability, reducing flow velocity, and filtering out water-borne contaminants; but they also enhance landscape and ecological values. To take account of this, the estimated costs of planting have been split evenly between drainage and non-drainage categories.

All the detention structures and outlet conveyance systems on the hills will be part of the drainage scheme. The Council will be involved in the approval, funding and on-going management of these drainage facilities.

The drainage improvements will be constructed in stages depending on demand. The Council has already spent \$348,000 on strategic land purchases for the scheme. Civil works expected to proceed in 2002/03 include: Cooktown waterway (in conjunction with the adjoining residential subdivision), the saltmarsh channel (in conjunction with the development of Tamaki Maori Village), and excavation within the primary pond zone.

FUNDING THE PROPOSAL

1. Apportionment of Costs

Cost-sharing formulae for conventional piped stormwater reticulation schemes are often based on the "bus route" method which is deemed to reflect the extent to which the drainage system serves the land in any particular subdivision (ie each connection meets a share of the cost of all piping downstream resulting in relatively high unit contributions at the top of the catchment and low contributions at the bottom).

The Heathcote Valley drainage system comprises four district sub-catchments that connect to the trunk system on the floodplain at different points. The "bus-route" method can be applied fairly to each of the four sub-catchments as a "separate connection". However, within each sub-catchment the fundamental benefit gained by developers is the ability to develop irrespective of their location within the sub-catchment. For example, although new development northwest of Martindales Road in the west sub-catchment will not use the new piping (12) under the railway embankment, stormwater diversion through the new piping will release capacity in the existing drainage system downstream for new development to the northwest to use.

Within each subcatchment, developments that require relatively expensive detention structures benefit develop elsewhere in each sub-catchment by allowing direct discharge without overwhelming conveyance capacity downstream.

A uniform unit cost contribution within each sub-catchment reflects this inter-dependence.

The increase in stormwater runoff from development is closely related to the number of new buildings erected. Therefore, new dwellings on residential land already subdivided and new premises on commercial and industrial land should be levied for a contribution at the time of building consent. In addition the second and subsequent dwellings or premises on any lot will also be required to contribute.

Without further development, the existing drainage system would be adequate in the foreseeable future. With further development pending it is now necessary to upgrade this system, which supports the argument that the new development should meet most, if not all of the cost of the upgrading.

On the other hand, upgrading based on modern stormwater management practice using waterways and wetlands green corridors where feasible provides for amenity and ecological values as well as drainage. These additional benefits are available to all the community, therefore, the Council should meet the proportion benefiting the wider community.

The Council is acting in three capacities within the Heathcote Valley: as landowner, as provider of community benefits and as the developer of reserves. The Council will have the same liability as other landowners to pay a cost share contribution for new dwellings or premises built on its land. However, there is not expected to be any increase in net runoff overall from reserve land comprising extensive areas of grass, shrubs and trees and limited areas for car parking. Therefore, no additional levy on new reserve land will be made.

In Table 1 attached, the Council's percentage cost share is assessed for each scheme component. The following components: river control structure, saltmarsh channel, Ferrymead River culvert control, tributary swales and railway embankment piping are drainage facilities to enable new development. They are of little benefit to the wider community (the Council's share assessed at 10%).

The detention ponds, wetland and waterway corridors provide landscape amenity and ecological benefit for the enjoyment of the wider community while performing vital drainage functions (Council's share assessed at 50%).

Replacing the timber-lined drain along Truscotts Road with a vegetated swale will reduce the Council's on-going asset management costs (the Council's share assessed at 100%).

The stormwater detention and piped drainage systems planned for the hill catchments will provide some opportunity to connect up some existing uncontrolled discharges. The Council's contribution should relate to the ratio of retrofitted connections to total connections. In addition, the drainage scheme will also mitigate existing erosion problems in White's Drain in particular (the Council's share assessed at 30% for Cannon Hill and 50% for east sub-catchments).

If detention ponds are feasible (rather than on-site tanks) for development area F, some general landscape benefit could be expected (the Council's share assessed at 10%).

From Table 1, the Council's drainage cost share contribution overall is \$1,196,000 (or 42%) and private developer's contribution overall is \$1,649,000 (or 58%). Private developers within the East, West and Cannon Hill sub-catchments will meet all of the private cost share (from Table 1) for drainage works within their sub-catchment and contribute towards shared drainage facilities downstream on the basis of "No of lots etc" listed in Table 2 below. Private developers within the Floodplain sub-catchment will contribute towards drainage facilities on the floodplain only.

The estimated drainage cost share contributions for each lot (or each additional dwelling on an existing lot) are listed in Table 2 below:

Table 2: Unit Cost Share Contributions

Sub-catchment	\$/lot	No of lots etc
Floodplain	2,570	34
West	4,480	122
Cannon Hill	4,810	24
East	4,860	185
	Total:	365

The Heathcote Valley drainage scheme cost-sharing proposal is:

- (a) The Council's contribution 42%
- (b) Private contributions ranging from \$2,570 to \$4,860 per lot, dwelling or premises depending on sub-catchment.
- (c) The second and subsequent dwellings on any residential lot or premises on any commercial or industrial lot will each be required to contribute.
- (d) Calculations to date have been based on estimates. The estimates will be updated regularly to actual costs upon completion of each phase of the scheme upgrading. No adjustments will be made for the value of money over time.

2. Council Funding

The total Council commitment (including non-drainage elements of \$509,000) is approximately \$1.7 million.

Within the draft capital budget for 2002/03 \$980,000 is required to fund the Heathcote Valley Drainage Cost Share Scheme over the next five years. This will be funded as shown on Table 3 below:

Table 3:

Year	Development cost total	Costs for Scheme	Substitution proposed
02 / 03	635,000	493,000	Port Hills Waterways Restoration (see Pink Pages)
03 / 04	284,000	284,000	Port Hills Waterways Restoration (see Pink Pages)
04 / 05		102,000	Port Hills Waterways Restoration
05 / 06		101,000	Port Hills Waterways Restoration
06 / 07		100,000	On the existing 5 Year Plan
Total		\$1,080,000	

The cashflow requirements of the scheme can be met within the draft budget with some substitution as above. The costs of utility components such as piping and removal of timber lining could be met from Waterways and Wetlands Utilities capital budget. Also, the net capital cost over the period could be reduced to the extent that land and works can be substituted in lieu of cash contribution and reserve contributions for development areas B and C.

The Parks and Waterways Manager should explore with Financial Services Managers the possibility of either setting up a special trust account, or some other funding mechanism for cost-sharing schemes to ease the capital funding burden on the Council.

CONSULTATION AND CONSENTS

Proposed communication and notification steps for the cost sharing scheme are:

- (a) A brief mailout circular to potential developers within the Heathcote Valley.
- (b) Formal public notification of the scheme area once it has been adopted by the Council.
- (c) A summary report forwarded to all major developers within the Heathcote Valley advising them of details of the proposal and inviting comment.

Several resource consents will be required from both Environment Canterbury and the Council to implement the drainage scheme. The intention is to apply to Environment Canterbury for a comprehensive consent for the overall scheme after the cost-share area has been established. This will obviate the need for private developers to obtain their own discharge permits.

COMMUNITY BOARD FEEDBACK

The Hagley-Ferrymead Community Board at its meeting on 27 February 2002 decided to provide the following feedback on the scheme to the Parks, Gardens and Waterways Committee.

The Board questioned the use of detention tanks, the apportionment of costs, the contribution to landscaping and consultation with tangata whenua. In particular, the Board considered that personal detention tanks should be provided in any new housing developments in the area to provide water for garden irrigation to help alleviate water shortages over a dry summer.

- Recommendation:**
1. That the Council establish the Heathcote Valley Cost Sharing Areas pursuant to Sections 407 and 409 of the Resource Management Act 1991 (which saves the otherwise repealed provisions of Section 283 of the Local Government Act 1974) to finance the upgrading of the drainage system.
 2. That the Council approve the areas shown on the plan (attached) on the Heathcote Valley Drainage Cost Sharing Areas.

3. That the Council set as a condition of all future subdivision consents, and building consents for dwellings and other premises within existing subdivisions a requirement for cost contribution as described in the agenda report.
4. That the developers within the catchment area be advised of the Council's decision.
5. That the Council apply to the Canterbury Regional Council (Environment Canterbury) for a comprehensive resource consent that will permit discharge in accordance with the scheme for development within the Heathcote Valley catchment.
6. That the Parks and Waterways Manager and Financial Services Managers explore alternative funding mechanisms for cost-sharing schemes to ease the capital funding burden on the Council.
7. That the report be referred to the Regulatory and Consents Committee meeting on 19 April 2002, for consideration.