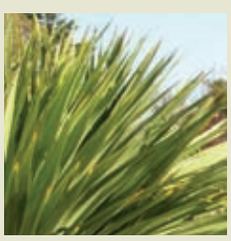


MID-HEATHCOTE RIVER / ŌPAWAHO LINEAR PARK MASTERPLAN

A VISION FOR THE LONG TERM PROTECTION AND ENHANCEMENT
OF ONE OF CHRISTCHURCH'S KEY NATURAL ASSETS

FINAL DOCUMENT
APRIL 2009

Christchurch City Council

THE MASTERPLAN

PLAN OVERVIEW

This Masterplan gives guidance for the long term management of the mid section of the Heathcote River/Ōpawaho. The Christchurch City Council applies values based management to all of the City's waterways including the Heathcote River/Ōpawaho, taking account of six values: landscape, ecology, recreation, heritage, culture and drainage.

This document provides background to the project from which 4 Key Goals have been developed using information gathered from neighbourhood improvement plans, ongoing consultation with iwi, individual neighbourhoods, and professionals such as ecologists (freshwater and terrestrial), ornithologists, engineers, planners and landscape architects. A series of concept plans (refer to Part 4) contained in this document illustrate how the idea of a Linear River Park could be developed as a focus for community recreation, education, relaxation and as an attractive environment for walking and cycling through the river corridor.

Knowledge gathered from the consultees was used to guide the development of this Masterplan to ensure that the river corridor can be improved to reinforce community values and neighbourhood identity.

These recommendations included:

- widening riverbanks and narrowing adjacent road carriageways to provide for a healthy future of long-lived large tree planting,
- reducing vehicle through traffic with more formed walkways and strengthening of existing cycle ways,
- providing a balance between native and exotic planting,
- creating habitat for aquatic flora and fauna,
- improving accessibility and visibility to the river,
- varying the riverbed and its banks to maintain flood capacity,
- developing partnerships with schools, educational and recreational groups,
- providing more integrated artwork along the riverbank; and
- working in partnership with Ngāi Tahu to protect and restore the ecological health and mauri (life force) of the Heathcote River/Ōpawaho, and identify, protect and restore sites of importance, celebrating the natural and cultural heritage of the river.

CONTENTS

PART ONE: THE MASTERPLAN

This Masterplan considers the Heathcote River/Ōpawaho as an important character forming element of Christchurch City. The qualities of the river corridor are unique and foster a sense of identity within residential neighbourhoods.

THE MASTERPLAN
INTRODUCTION

Fed from springs near Templetons Road and also receiving wet weather flows from as far west as Pound Road, the Heathcote River/Ōpawaho meanders around the base of the Port Hills from west to south-east. The river's route and character has been determined by historical flooding of the Waimakariri River where it once met the foot of the Port Hills.

This Masterplan focuses on the section of the Heathcote River/Ōpawaho that lies between Colombo Street and Opawa Road, which is situated within public open space. As the river approaches the estuary the channel widens and saline and tidal influences start to affect the flow of the river.

The Heathcote River/Ōpawaho has many heritage, cultural, ecological and recreational attributes which contribute to community and neighbourhood appreciation of this natural asset within the city.

This document begins by outlining the historical significance of the river, its current character and condition and presents the objectives and methods by which the river may be appreciated as a Linear River Park.

The Key Goals in Part 3 of this document summarise the main policies of this Masterplan, which have been developed from the local community's aspirations for the river corridor. The City Plan and several Council strategies and policy statements outlined in the Appendix C give more detailed background to these policies.

THE MASTERPLAN
PURPOSE

The Heathcote River/Ōpawaho Linear Park Masterplan has been prepared to guide the management and enhancement of the river corridor so that it becomes an increasingly beautiful and valued neighbourhood park, while preserving the many layers of natural and cultural heritage. A programme of works is appended to this Plan to be considered by the Council in its next (2009) Long Term Council Community Plan (LTCCP).[1]

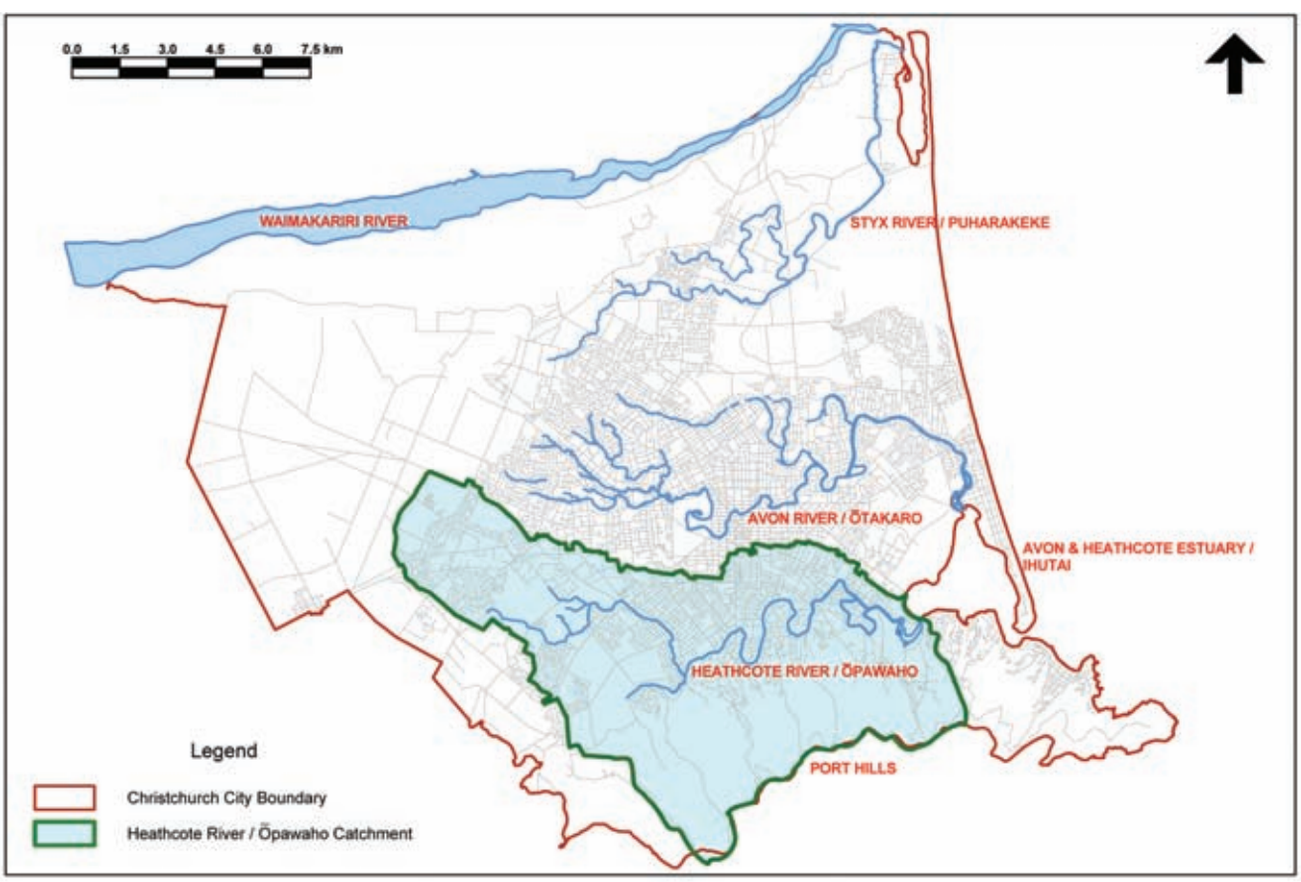
It is intended that the implementation of this Masterplan will occur in stages (refer to suggested timetable on page 89). Each stage will be taken from this plan and designed in detail. At this time the community will again be provided with an opportunity to comment on the design.

The Mid-Heathcote River/Opawaho Linear Park Masterplan was adopted by Council by resolution on the 9th April 2009.

1 Long Term Council Community Plan: is a 20 year plan, updated every 3 years, whose purpose is to describe what activities the Council will undertake, and the cost of those activities, in order to achieve specified Community Outcomes.

THE MASTERPLAN
PROJECT AREA

The project area extends from the Colombo Street Bridge to Opawa Road and includes the Heathcote River/Ōpawaho channel, its banks, and land up to the neighbouring residential boundaries which includes the local road network. This area is mapped on landscape plans in Part 4 of this document from pages 50-79.



The Heathcote River/Ōpawaho Catchment within the Christchurch City boundary.

The Heathcote River/Ōpawaho as a focus for community recreation.

VISION

To reinforce community values and neighbourhood identity by protecting, enhancing and celebrating the Heathcote River/Ōpawaho ecosystem as a focus for community recreation, education and as a healthy and attractive environment for walking and cycling through the city.

PART TWO: BACKGROUND

Research into the heritage, ecological, landscape, cultural and recreational attributes of the Heathcote River/Ōpawaho reveal opportunities which will help to guide the use and management of the river corridor.

BACKGROUND
CONSULTATION

Over the past 15 to 20 years the Council has consulted with the Community along the Heathcote River/Ōpawaho on many different projects, e.g. planting, tree removal, landscape enhancements, bridges and bank works.

During communication with the residents, many wider issues were identified both through these consultations or through direct contact with the Council. With the number of matters to manage and address, it was recognised that a Masterplan was needed to enable consistency, future planning and so that budgeting could be undertaken.

In 2005 public consultation was carried out asking the question:

"What would you like the Heathcote River/Ōpawaho and its surroundings to look like in 10, 20, or 50 years' time?"

This question was posed in public information leaflets, four public workshops and visits to local schools by Council staff.

In total 87 public submissions were received, 6 being from schools, and the public meetings were well attended. The main areas of concern/interest identified during the consultation included:

- A desire for a healthy river ecosystem.
- Improved recreation facilities.
- Slower, quieter roads adjacent to the river corridor.
- A plan for Hunter Terrace.
- Interpretation facilities.
- A balance of planting (between exotic and native).
- Flooding issues addressed.
- Improved river maintenance.
- Improved walkways/cycleways.

Consultation with Tūāhuriri Runanga and Rāpaki Runanga has subsequently been undertaken, which identified the following key issues in relation to the management of the Heathcote River/Ōpawaho:

- Erosion of the mauri of the river due to the decline in its physical health.
- Use of the river to dispose stormwater and sediment run-off and other pollutants.
- Loss of healthy and accessible mahinga kai and ability to sustainably harvest freshwater fisheries and other resources.
- Disruption of natural ecosystems and loss of habitat and native plants and animals.
- Lack of recognition of sites of significance to tangata whenua near the river and acknowledgement of Ngāi Tahu history and use of the river and surrounds.

The goals developed following consultation are:

- The Heathcote River / Ōpawaho 's natural and cultural heritage is to be protected and celebrated.
- The development of the mid section of the Heathcote River / Ōpawaho should focus on methods that can assist in improving the overall health of the river.
- A unique linear river park is created for Christchurch.
- The river corridor offers a diversity of experiences to be enjoyed by a wide range of people.

Consultation with all stakeholders will continue throughout the implementation of this Masterplan.

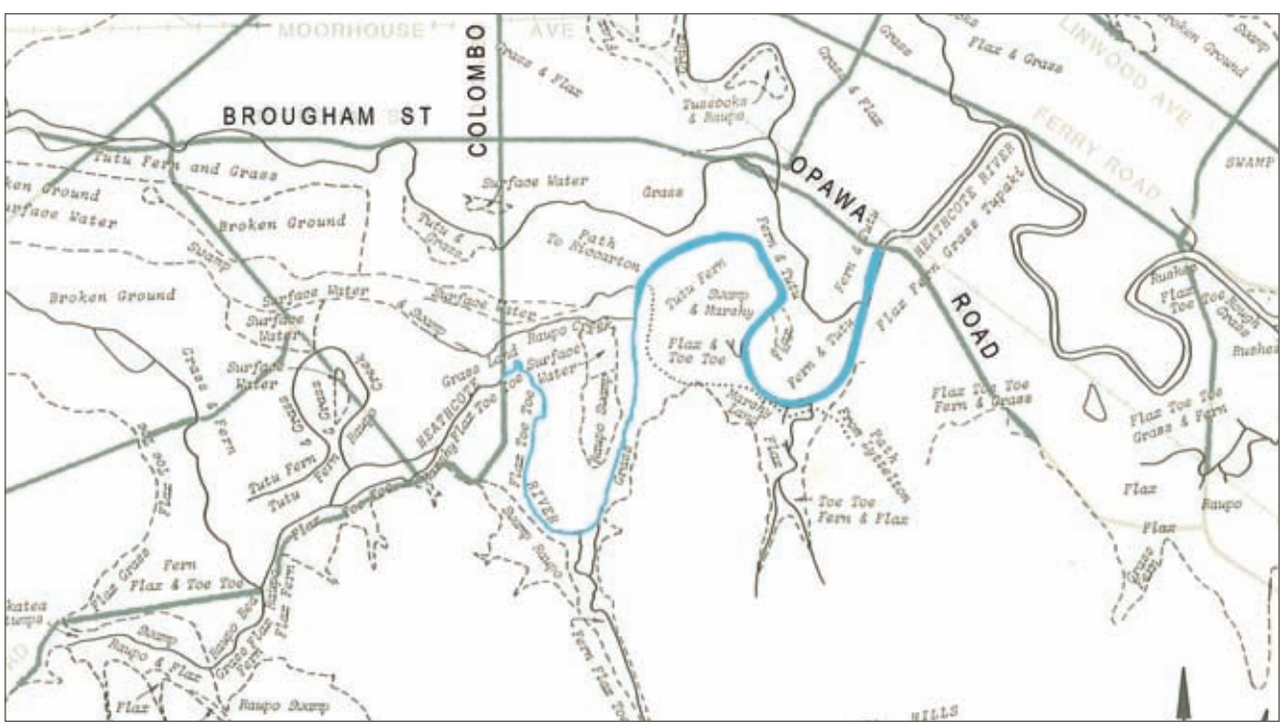
Community consultation with local residents.

BACKGROUND
PRE-EUROPEAN SETTLEMENT

The stretch of the Heathcote River/Ōpawaho covered by this Plan, historically meandered through extensive wetlands prior to urbanisation. The historic 'Black Maps' from the mid 1800s indicate that the habitat that the river passed through was abundant in harakeke (flax), toe toe, raupo, tutu and ferns and was dotted with ti kouka (cabbage tree).

The river corridor was low-lying and very wet. Even higher ground was prone to flooding when the Waimakariri River rose and flowed across the plains. The banks of the river were dense with vegetation in many places, as early survey maps indicate (see below). Over many centuries of using the river as a food source and transport corridor, the iwi of Waitaha, Ngāti Mamoe and Ngāi Tahu fostered a close relationship with this resource. The swamp forest around the river provided gathering grounds for water fowl and forest birds, including pukeko, weka and tui. Traps were regularly set for inanga (whitebait), pātiki (flounder), and tuna (eel).

The original name of this river, Ō-pa-waho means 'The Place of the Outward Pā,' or 'The Outpost' and refers to this pā being an outpost (waho) of Kaiapoi. The Ōpawaho once flowed through extensive swampland, and the pā was built in a convenient higher spot just downstream of the present Opawa Road Bridge. It was a resting place for Ngāi Tahu travelling between Kaiapoi and Horomaka (Banks Peninsula). The surrounding area was an important mahinga kai, a source of plentiful food, especially tuere (blind eel) and kanakana (lamprey).



Original waterways, swamps and vegetation cover of the Christchurch area in 1856 with an overlay of current roads within the Heathcote River/Ōpawaho project area.

BACKGROUND

NGĀI TAHU ASSOCIATION WITH THE HEATHCOTE RIVER/ŌPAWAHO

Ngāi Tahu is the iwi or tangata whenua with traditional associations in the Christchurch area. Within Ngāi Tahu, the rūnanga (sub-tribal groups) of Ngāi Tūāhuriri and Rāpaki (Te Hapū o Ngāti Wheke) have manawhenua (territorial rights) over, and are kaitiaki (guardians) for, the Heathcote River / Ōpawaho.

Like the Avon River / Ōtakaro, the Heathcote River / Ōpawaho, was highly valued as mahinga kai (a food and resource gathering area) by Ngāi Tahu. However, European settlement changed the way tangata whenua used and saw the river. The combined effects of drainage and urban development, untreated stormwater and other pollutants, loss of original vegetation cover, and colonisation by new species, changed its ecology and habitats, and reduced its mauri (life force), as well as its value as mahinga kai.

In 2007 a cultural health assessment of the Heathcote River / Ōpawaho was undertaken (as part of a wider study on the Avon River / Ōtakaro and Avon-Heathcote Estuary / Ihutai)[2] . This showed the river to be in poor cultural health and no mahinga kai sites of suitable quality for use. Despite this, Ngāi Tahu seek that the river's wellbeing be improved and restored, and their relationship to it, enhanced and revitilised.

Protecting and restoring areas of native vegetation that once grew there, planting riparian margins to recreate habitat and filter runoff, and reducing sediment and contaminants entering the river are some of the ways that Ngāi Tahu sees the ecological health and mauri of the river being returned. Identifying and telling stories about places of historic and cultural importance in the area also reinforces and acknowledges the Ngāi Tahu connections to this important waterway.

2 State of the Takiwā Te Āhutanga o Te Ihutai: Cultural Health Assessment of the Avon - Heathcote Estuary and its catchment, C Pauling et al 2007.

Native restoration planting along the Heathcote River/Ōpawaho.

BACKGROUND
FOLLOWING EUROPEAN SETTLEMENT

Due to its close proximity to the loess covered Port Hills, the Heathcote River/Ōpawaho is a silty river (especially following heavy rainfall events or snow melt) which physically and visually differentiates it from the similarly meandering Avon River/Ōtakaro to the north. Development of the hill suburbs has released a large amount of silt into the river over many decades.

The Heathcote River/Ōpawaho is generally narrower than the Avon River/Ōtakaro, probably because the Avon River/Ōtakaro historically carried a larger proportion of the Waimakariri floods. It has generally been perceived as less attractive than the Avon River/Ōtakaro, since its banks have been more affected by industry and urbanisation, particularly through its lower reaches. Industrial waste was discharged into the lower reaches for many years fouling the water, the banks and bed, and little regard was taken of its ecology, early history and importance to Māori.

Even today the river functions more as an urban drain than a natural waterway, performing a necessary physical role to the detriment of its natural and aesthetic values. Following initial land clearance and draining, the stretch of river covered in this plan saw the establishment of dairying operations in Beckenham and St Martins. Over time and through the onset of more intensive built development, the open lands on the flanks of the river became used for market gardening purposes.

Some industry was located in the area, most notably the Brightlings Brick and Tile Works on Centaurus Road using the loess from the deep west facing Port Hills slopes. The production of bricks was very important to the growing settlement of Christchurch, as local timber became less available. Materials were taken into the centre of the Christchurch by way of a ford river crossing near present-day Malcolm Avenue.

As Christchurch grew, the suburbs of Beckenham, St Martins and Opawa were early to establish along the banks of the river. The river corridor, created by a combination of road reserves and crown-owned river bed, became flanked by parks, schools and private residences.

Heathcote River/Ōpawaho early 20th century, courtesy Canterbury Museum.

BACKGROUND
TREES

Earlier this decade Council commenced asset management planning for the Heathcote River/Ōpawaho, including extensive tree planting. The condition of the trees that line this section of the Heathcote River/Ōpawaho, in particular the willows *Salix* spp. were assessed through arboricultural surveys which looked at tree health and anticipated life span, and public safety.

Many trees were assessed to be in a declining condition, either due to disease or structural defect. Many have succumbed to storm damage or have been removed due to their susceptibility to failure. As a result an immediate programme of maintenance and monitoring has been instigated. This has led to a substantial change in the arboreal landscape due to the removal of a number of declining trees, from small under-story to declining canopy.

Given the anticipated changes to the river and road infrastructure in the future, it is envisaged that some additional areas of open space can be created, thus enhancing planting opportunities. Specifically, some of the riverbank is limited at present and will not adequately support large trees, as they are too narrow and restrict the potential selection of replacement tree species. This applies to the replanting of trees such as willows in some areas.

The existing range of species include willow , poplar *Populus* spp., birch *Betula* spp., alder *Alnus* spp., and ash *Fraxinus* spp. These trees are the most significant either in number or size and create the essential character of the exotic riverbank landscape. Other species include *Prunus* spp., Maple *Acer* spp., and *Liquidamber styraciflua* as feature trees with some beech *Fagus* spp., elm *Ulmus* spp., lime *Tilia* spp., hornbeam *Carpinus* spp., and London plane *Platanus Xacerifolia* amongst the species developing as individual canopy trees.

With the decline and removal of many willows, the dominant canopy has been altered. This could be seen as a succession process. However, without supplementary planting, it appears that one species which is regenerating and has the potential to become the next dominant canopy is Tree of Heaven *Ailanthus altissima*. This tree exhibits weed characteristics and may need to be controlled to allow for other trees to succeed.

Whilst *Cordyline australis, Plagianthus* sp., *Hoheria* spp., *Pittosporum* spp., and *Kowhai* sp. are the current dominant native trees and feature in the sub canopy, there is potential to introduce native canopy trees e.g. beech *Nothofagus* spp. and Podocarp in some sites.

The rationale to replanting the riverbank depends upon the assessment of what is currently growing well, what is likely or desirable to grow and the site conditions and space in which the tree can grow. Hence , the proposed replacement tree list has been devised on this premise and as a guideline to future planting (see Appendix A). Priority of planting is outlined in the key goals (Community use and Enjoyment).

BACKGROUND
ROADING

The project area includes a total of approximately 9 km of local roads on both sides of the Heathcote River/Ōpawaho. As defined by the City Plan, local roads function almost entirely as neighbourhood access ways and are not intended as through routes for motor vehicles. Over the past 10 years, major roading projects have included Aynsley Terrace Living Streets, Fifield Terrace slow road and the closure of Hunter Terrace at Colombo Street (completed as to legality but not yet physically implemented).

The key issues associated with the existing road network in this area include the following:

- There is currently a greater width of road corridor than is necessary to carry local traffic (up to 15m).
- Road edges are less than 2m from the edge of river banks in places.
- 'Asphalt creep' into existing riverbanks from regular repairs to edge-break because there is no kerbed edges.
- A lack of road edge definition resulting in riverbanks being used as informal car parks.
- Informal car parking creating compaction of soil and drainage issues resulting in long term problems for riverbank trees.
- The lack of formed footpaths limit year round recreational usage.

The Masterplan for the linear park along this section of the river is based on the notion that as the roads adjacent to the river are local only, creating minimum width carriageways and single file sections in places will allow the river bank itself to be widened. This would result in increased opportunities for river corridor enhancement
works including:

- Reducing the impact of vehicle through traffic.
- Increased opportunities for future large tree planting reflective of the scale and numbers currently present.
- Formed paths and cycleways and strengthening of the existing cycle network.
- The expansion of existing parks.
- Re-grading riverbanks to allow river edges to be planted, enhance in-stream habitat values and allow safer access to the water's edge.
- Detaining and treating stormwater runoff from roads and improving the potential for managing stormwater on riverbanks.

"The serpentine course that the Heathcote River/Ōpawaho takes through the southern suburbs of Christchurch lends itself to the creation of a linear river park."

BACKGROUND

LANDSCAPE CHARACTER AND RECREATION VALUES

The Heathcote River/Ōpawaho has been described as one of the three most significant natural features contributing to Christchurch's unique landscape character, with the others being the vPort Hills and the Avon River/Ōtakaro. It is a major contributor to the amenity of the immediate residential environment as well as a recreational resource and a valuable hydrological and ecological system.

Past landscape character assessments have found that the stretch of the Heathcote River/Ōpawaho from Colombo Street to Opawa Road has significant landscape value, based on landscape variables such as the presence of large trees species, the degree of enclosure from trees or landform, bank width and slope, public and private access, pedestrian links and cycle ways, visibility of the river from houses and the road, alignment and configuration of river and adjacent land use. Those stretches of the river most valued by the public are those that display a dominant tree framework of large canopy trees and a wide, gently sloping grassed bank that is suitable for walking and recreation.

The existing landscape character around the new South Christchurch Library is predominantly an expanse of open grass and large canopy trees. The removal of the old Hunter Terrace and the adjacent pipe yards provides an opportunity to enhance this existing character and will connect this space to the river.

The existing weeping willows are also an essential part of the Heathcote River/Ōpawaho scene, much valued by the community. Tree removals and replacements offer the opportunity to preserve and enhance this character. The Heathcote River/Ōpawaho is also valued for the recreation opportunities it presents, particularly river walks and water play. Recent leisure studies have identified walking as the main casual recreation activity. Consultation has shown a public need for more picnic areas, seating and children's play areas as well as better access to the water by way of paths, bridges and canoe landings.

The serpentine course that the Heathcote River/ Ōpawaho takes through these southern suburbs of Christchurch lends itself to the creation of a linear river park, accommodating weeping willows and other large trees species where possible, areas of grassy banks, cycle and walking paths, seats, tables and picnic areas, views of the water and access to the water.

The Heathcote River/Ōpawaho: large canopy trees and wide gently sloping grassed banks.

BACKGROUND
ECOLOGY

The hydrological character of this stretch of the Heathcote River/Ōpawaho changes noticeably over its length. Near Colombo Street, the river has a few shallow, fast flowing sections, or riffles, on a gravel stream bed, interspersed with sections of sluggish flow.

Downstream the river becomes more uniform, deeper and slower-flowing, with a predominantly muddy substrate. This character has implications for the ecological health of aquatic flora and fauna that inhabit the river. Ecological studies completed on the Heathcote River/Ōpawaho have identified that the healthiest river habitat for fish and invertebrates is found in narrower, faster flowing sections of water with bank plantings that create overhangs, refuges and food sources for in-stream life. Aquatic macrophytes (plants growing in or near water that are either emergent, submergent, or floating), however, prefer an open canopy.

FISH AND INVERTEBRATES

Invertebrates are key indicators for assessing stream health. Studies of the Heathcote River/Ōpawaho have found that overall the invertebrate community (of about 20 species identified within the reach) is of low diversity, and typical of a fully urbanised river.

Some areas along the reach have a relatively healthy diversity of fish species. In 2004 a fish survey recorded 8 species of fish present in this stretch of the river, including:

- common bully *Gobiomorphus cotidianus*
- shortfin eel *Anguilla australis*
- longfin eel *Anguilla dieffenbachia*
- bluegill bully *Gobiomorphus hubbsi*
- yellow eye mullet *Aldrichetta forsteri*
- upland bully *Gobiomorphus breviceps*;
- inanga *Galaxias maculatus*.

In addition, a 1989 survey recorded low numbers of common smelt *Retropinna retropinna*, black flounder *Rhombosolea retiaria* and yellowbelly flounder *Rhombosolea leporina* - a total of eleven fish species in all.

However, spawning habitat of brown trout *Salmo trutta*, especially in the upper reaches of the Heathcote River/ Ōpawaho was observed to be declining. Brown Trout is considered an indicator species of a healthy river as they require abundant invertebrates for food and clean substrate for spawning.

"The greatest diversity of fish were found along the banks of the river that were overhung with flaxes."

Fish communities are sensitive to riverbank attributes. As many banks are steep and susceptible to slumping, selected areas of the riverbank important for aquatic ecology could be enhanced. Methods of enhancement could include reducing bank angles, terracing, building crib walls, varying the thickness of bank vegetation and the planting of marginal or semi aquatic vegetation along the channel margin close to the waterline. This planting would create additional in-stream habitat for fish, invertebrates and amphibians. This is especially important along reaches with an absence of large trees.

Methods within the natural heritage section (refer to Part 3 - Key Goals) of this document address the significant ways in which habitat could be created, enhanced or preserved for specific species along this stretch of the river.

Ecological studies and native vegetation on the Heathcote River/Ōpawaho.

BACKGROUND
ECOLOGY

OPPORTUNITIES FOR BIRDLIFE

Up to 43 bird species have been observed within the Heathcote River/Ōpawaho corridor. This includes the seasonal movement of bush birds from various forest Port Hills remnants and a variety of waterbirds. The waterbird population is dominated by the introduced mallard *Anas platyrhynchos* with a peak autumn population exceeding 1000 birds. Native waterfowl are represented by the New Zealand scaup *Aythya novaeseelandiae*, the paradise shelduck *Tadorna variegata* and Australasian shoveler *Anas rhynchotis*. A small number of feral geese and domestic ducks also live on the river, having either been released or escaped from captivity.

Fish-eating birds include the New Zealand kingfisher *Halcyon sancta*, pied cormorant *Phalacrocorax varius*, white-faced heron *Egretta novaehollandiae* and occasional royal spoonbill *Platalea regia*. Three species of gull are found on the river, mainly downstream of Waltham Road.

Native birds found within the riparian vegetation include the bellbird *Anthornis melanura*, fantail *Rhipidura fulginosa*, grey warbler *Gerygone igata*, silvereye *Zosterops lateralis* and very occasionally the kereru *Hemiphaga novaeseelandiae* and shining cuckoo *Chrysococcyx lucidas*. Welcome swallows *Hirundo tahitica neoxena* nest under many bridges and culverts.

Common introduced birds recorded within this habitat include:

- blackbird *Turdus merula*
- song thrush *Turdus philomelos*
- dunnock *Prunella modularis*
- redpoll *Carduelis flammea*
- chaffinch *Fringilla coelebs*
- greenfinch *Carduelis chloris*
- goldfinch *Carduelis carduelis*
- starling *Sturnus vulgaris*
- house sparrow *Passer domesticus*
- Australian magpie *Gymnorhina tibicen*.

Due to the sparse tree cover in certain sections along the Heathcote River/Ōpawaho it does not at present work well as a corridor for birds.

However, possible core bush bird habitat is present on both public and private land within the catchment and includes 11 sites that could be further developed.

"Up to 43 bird species have been observed within the Heathcote River/Ōpawaho corridor. This includes the seasonal movement of bush birds from various forest Port Hills remnants and a variety of water birds"

BACKGROUND
ECOLOGY

VEGETATION

In pre-settlement times, the Heathcote River/Ōpawaho meandered through a predominantly wetland forest, flaxland and sedgeland. Little remains of the forests, once dominated by New Zealand's tallest native tree, the kahikatea *Dacrycarpus dacrydioides*. Riccarton Bush is our only reminder of what these swamp forests would have been like. Some exposed stumps just downstream from Opawa Road are the only remaining sign of these great trees on the Heathcote River/Ōpawaho.

Early photos show that by the time of European settlement, the river had a tall margin of flax *Phormium tenax* and pukio/tussock sedge *Carex secta*, often with a swampy floodplain behind. The early settlers established their own trees on the riverbanks, favouring willows (especially weeping willow *Salix babylonica*), alders, poplars, elms and birches.

Very little remains of the original instream or riparian margin vegetation, these having been mostly replaced by exotics. The acquatic macrophytes have been mostly replaced by curly pondweed *Potamogeton crispus*, but there are still some stretches where native aquatics such as floating pondweed *P. cheesemanii* and millefoil *Myriophyllum propinquum* remain.

The riparian zone has however, had its remnants of original native species supplemented by plantings undertaken by Christchurch City Council, and some of these species have spread by themselves. The present riparian vegetation therefore comprises a combination of exotic plantings (mostly of large specimen trees) and native species, along with a variety of exotic weeds that must be constantly managed to ensure they do not dominate.

These weeds have especially thrived in open areas, especially around restoration plantings, and include reed canary grass *Phalaris arundinacea*, reed sweet grass *Glyceria maxima*, yellow flag *Iris pseudacorus* and giant sedge *Carex pendula* which even tolerates shade.

These plants have occupied the ideal habitat that occurs at the land to water interface. Although such riparian weeds are not declared 'pest plants', they detract from amenity and ecological values of the river margin.

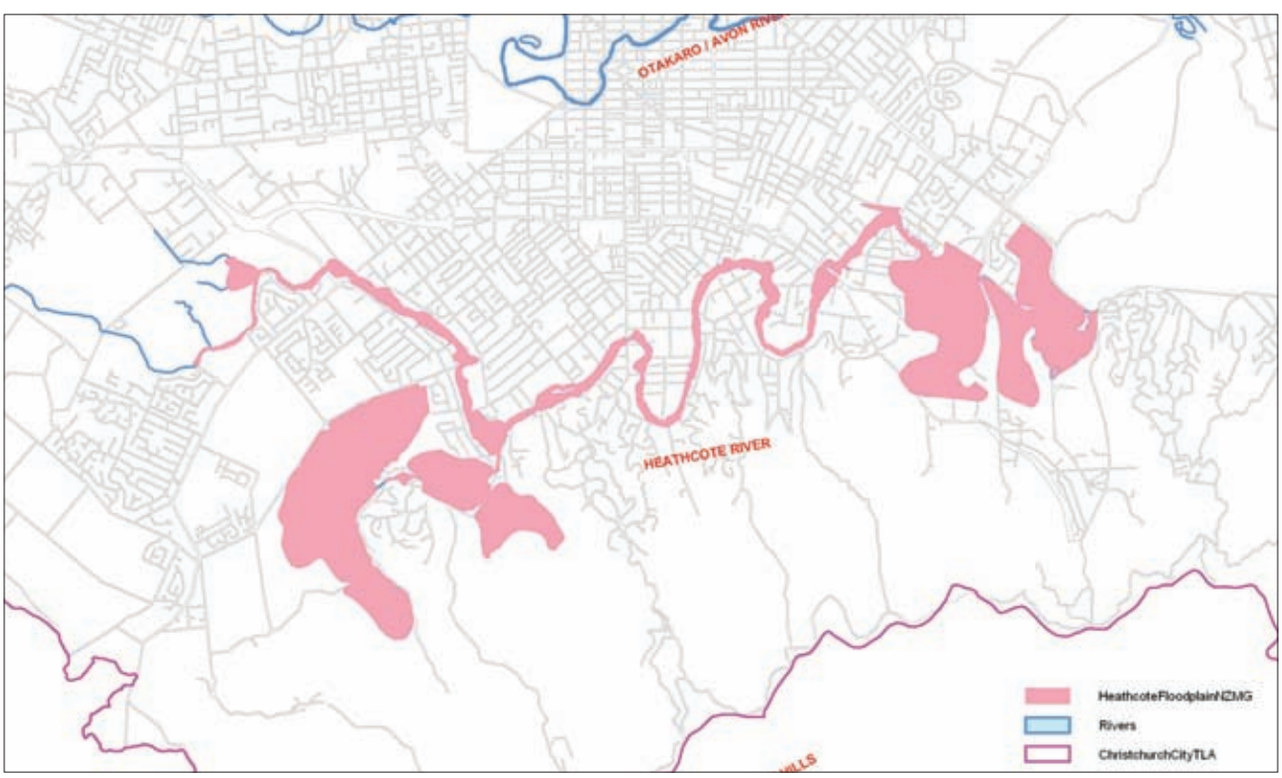
Recent native planting on the Heathcote River/Ōpawaho.

BACKGROUND
FLOODING AND BANK STABILISATION

Urban development along the Heathcote River/Ōpawaho has placed many houses within the river's floodable zone. Despite mitigation measures such as river dredging and straightening, a proportion of these houses have been affected during flood events. Development has reduced the catchment's ability to absorb water and store rainfall, perhaps increasing the frequency of flooding if not the size of major events.

Historical flood mitigation measures have included the Woolston Cut and widening and deepening of the Heathcote River/Ōpawaho channel. However in recent times the Council has adopted a more environmentally sensitive planning approach in preference to the more damaging option of channel widening. The Heathcote River/Ōpawaho Floodplain Management Strategy 1998, aims to mitigate the effects of flood damage by various means including creating stormwater detention areas in green corridors and establishing waterway setbacks along river banks.

The methods suggested for stabilising river banks to restore in-stream habitat include reducing bank angles, planting, terracing, building crib walls, forming gravel supports to unstable banks and varying the thickness of bank vegetation through planting and management regimes.



Heathcote River/Ōpawaho Flood Plain, CCC.

BACKGROUND

WATER QUALITY AND SEDIMENTATION

Excessive sediment runoff remains a key issue within the Heathcote River/Ōpawaho catchment. Fine sediment fills the spaces in stream bed gravels, coats aquatic plants and smothers immobile or slow moving in-stream life as it settles. The outcome is a reduction in the abundance and diversity of invertebrates and fish.

Sediment runoff is generated both from pastoral areas, where animals entering unfenced waterways collapse the banks; and from urban areas where construction activity and exposed soil surfaces release large amounts of sediment. The Cashmere Stream and most hill waterways will also release sediment during rainfall.

Urban contaminants such as heavy metals from road and roof runoff, litter, deliberate spillages of oils, paints and cleaners, and herbicides become trapped in fine sediments and negatively affect in-stream life.

For the river's health to improve significantly there will need to be a major reduction in sediment and contaminant inputs, and this will require a major increase in investigations, monitoring, surveillance and controls city-wide. Activities on the required scale are outside the scope of this Plan.

Improvements to water quality are most likely to come about through rules in Environment Canterbury's Natural Resources Regional Plan. For example, new subdivisions have been required since 2004 to install forms of sediment containment, and there are more controls on construction activities. The Christchurch City Council's proposed Surface Water Strategy may result in increased water quality monitoring and reduction of contaminants at source.

PART THREE: KEY GOALS

The key goals outline the ways in which the river's natural and cultural heritage can be protected and enjoyed by present and future generations.

KEY GOALS

Based on the vision, goals and objectives gathered through community consultation, the following key goals were identified:

01. Natural Heritage

Protect and improve the health, ecosystems and indigenous biodiversity of the river and its corridor.

02. Cultural Heritage

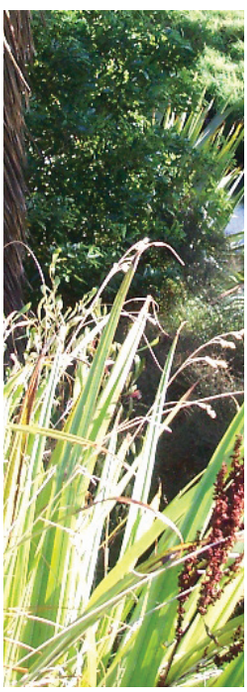
Provide for Ngāi Tahu's cultural associations with the river and foster the unique qualities that contribute to people's sense of place along the Heathcote River / Ōpawaho through sensitive landscape design, art, and historic interpretation.

03. Community Use and Enjoyment

Improve the use and enjoyment of the river and its corridor for the variety of communities who value or have an interest in the river.

04. Communication

Raise people's awareness of the river and improve people's knowledge of actions that may be taken to minimise their effects on the river.



The Council is committed to protecting and improving the health and wairua (spirit) of the Heathcote River/Ōpawaho.

01 WAYS TO ACHIEVE KEY GOALS
NATURAL HERITAGE

Protect and improve the health, ecosystems and indigenous biodiversity of the river and its corridor.

Explanation

The Council is committed to protecting and improving the health and mauri (life force) of the Heathcote River/Ōpawaho. This commitment includes the riverbed and bank edges, and their suitability as a habitat for a variety of fish, birds and insects, while maintaining the river's function as a major stormwater drain and flood relief channel for Christchurch.

A number of policies relating to the City's waterways are outlined in the Christchurch City Plan. These policies aim to maintain and improve amenity, scenic and ecological values. The Council's management of the City's waterways, including the Heathcote River/Ōpawaho, is based on six values: landscape, ecology, recreation, heritage, culture and drainage. The Council's proposed Biodiversity Strategy (2008-2035) for Christchurch also commits to conserve and restore the city's indigenous biodiversity.

The importance of the river as mahinga kai to Ngāi Tahu is recognised in the Council's commitment to improving habitats along and within the Heathcote River/Ōpawaho.




WAYS TO ACHIEVE KEY GOALS

NATURAL HERITAGE

Methods

LANDSCAPE

- Identify and protect natural landforms.
- Enhance the existing landscape character.
- Widen the river corridor by street design, tree planting and walkways.
- Recognise linkages to the Port Hills in hill waterways and green spaces.

STORMWATER MANAGEMENT

- Continue to use the river channel to drain stormwater from its urban catchment.
- Ensure that the river retains the ability to carry floodwaters and that features within the flood way can cope with being flooded from time to time.
- Replace existing high stormwater outlets with lower outlets or a rockwork cascade, in order to reduce the impact of water on the Heathcote River/Ōpawaho riverbed.

WATER QUALITY

- Liaise with Environment Canterbury in order to reduce the amount of contaminants entering the river, and to monitor success.
- Have input to the Surface Water Strategy advocating reduction of contaminants entering the Heathcote River/Ōpawaho.
- Where possible include contaminant reduction measures into new works, such as treating sources of contaminants and first flush treatment for run-off from roads and other hard surfaces.
- Communicate with residents about the problems caused by everyday activities that lead to non-point source pollution of the waterway and how these can be avoided.

FLOODING MITIGATION

- Do not obstruct the flood way (including by riparian or berm planting) unless compensatory channel widening is carried out.

WATER FLOW

- If possible, increase the variety of riffles and pools and restore stretches of gravels that encourage fish spawning by altering the shape of the river channel where appropriate.
- Re-grade selected river banks, giving a wider upper channel without altering the flowing water zone.
- Cut and re-grade sections of the bank above normal water line to create floodable lower terraces.

RIVER BED HABITAT

- Narrow the river channel in some places to speed up the water flow. The narrower, faster flowing sections of the river provide better habitat for fish and freshwater invertebrates.
- If possible, create riffle sections along straight river reaches to provide habitat for fish that prefer fast flowing water.
- Remove unwanted aquatic macrophytes annually in places where weed growth has covered fish spawning gravels, taking care to prevent sediments being washed downstream.
- Retain and plant riparian rush and sedge beds for refuge habitat for small fish (i.e. inanga, bullies) and to provide sediment trapping.
- Manage aggressive riparian pest plants (e.g. reed canary grass, reed sweet grass, yellow flag, giant sedge) to ensure that habitats of value remain.

The Heathcote River/Ōpawaho: Council policies aim to maintain and improve amenity, scenic and ecological values.

WAYS TO ACHIEVE KEY GOALS

NATURAL HERITAGE

RIVER BANKS AND BANK HABITAT

Map and monitor natural changes in the vegetation along the banks.

- Adopt design guidelines for river bank reconstruction and repair that will increase refuge and food sources for in-stream life, birds and insects. See Appendix B: River Profiles and Details for guidance.
- Retain and if necessary create areas of gently sloping banks where people can see and get down to the river.
- Stabilise stream banks using gravel for lower bank support, cribwalling etc.
- Reduce bank angles, particularly on the insides of bends, where this can be done in conjunction with tree replacement.
- Stabilise river banks by creating low terraces and planting a variety of low growing shrubs, rushes, sedges and ferns along selected areas of the river. Some areas may require crib-walling which can be screened from view with vegetation.
- Protect stream bank and aquatic vegetation from weed invasion.
- Plant low growing native riparian vegetation close to the water along most of the river to provide habitat for fish and invertebrates and to create links between existing and future stands of native shrubs/trees.

TRIBUTARIES

- Turn existing drains and piped springs into attractive features, recognising their contribution to the main flow of the river.

TREE AND RIPARIAN PLANTING

- Maintain and enhance the planting along the Heathcote River/Ōpawaho corridor, in particular trees of significance (e.g. Willows).
- Adopt a planting strategy to provide a manageable and sustainable tree canopy through succession planting and diversity.
- Provide tree planting for amenity and landscape values e.g. shade, shelter, screening and for seasonal attributes.
- Plant and maintain trees, shrubs, riparian vegetation and ground covers for habitat and as a wildlife corridor.
- Plan tree planting and maintenance, to correlate with other river, roading and open space developments and existing links to parkland and public areas .
- Increase native planting of trees and shrubs that once grew along the Heathcote River / Ōpawaho to create a balance between exotic and native plants, and to reflect the natural heritage of the area.
- Use native plantings to restore the indigenous character and biodiversity in places of cultural significance to Ngāi Tahu.
- Vary long straight reaches by varying the thickness of bank vegetation and the planting of riparian vegetation in wider sections.

02 WAY TO ACHIEVE KEY GOALS
CULTURAL HERITAGE

Provide for Ngāi Tahu's cultural associations with the river and foster the unique qualities that contribute to people's sense of place along the Heathcote River/Ōpawaho through sensitive landscape design, art, and historic interpretation.

Explanation

The river corridor expresses the values of natural heritage, Ngāi Tahu cultural heritage, the cultural heritage of early European settlement and the subsequent development of a cross-cultural Aotearoa New Zealand heritage.

Ngāi Tahu has a long cultural and spiritual association with the river, and value it as a wāhi taonga (treasured place). This stretch of the river contains a number of important Waitaha, Ngāti Mamoe and Ngāi Tahu sites, and several historic trails run through the corridor, marking access routes for Māori between catchments and from the city through to Lyttelton via Rāpaki Track.

The area also marks the sites of historic bridges, several brickworks, a flax mill, malt house, an early wheat production area and the plant nursery of New Zealand's first landscape architect, Alfred Buxton.

Within this setting, the Heathcote River/Ōpawaho offers the opportunity to explore and reveal the deep cultural traditions from which our contemporary urban setting has evolved.

Archaeological sites provide a connection to past generations and are sources of information on previous activities. In terms of the Historic Places Act 1993, the definition of an archaeological site is a 'place associated with pre-1900 human activity, where there may be evidence relating to the history of New Zealand.' The protection of these sites is regulated by the New Zealand Historic Places Trust. While there are at present no formally recorded archaeological sites along the Heathcote River/Ōpawaho corridor, sites may be unearthed in the future. In this eventuality, an archaeological authority is required from the Historic Places Trust before works can be undertaken which may destroy, damage or modify an archaeological site. Any proposal to modify such sites must also involve consultation with Ngāi Tahu.




WAY TO ACHIEVE KEY GOALS

CULTURAL HERITAGE

Methods

NGAI TAHU HERITAGE

- Liaise with Ngāi Tahu through Rāpaki and Ngāi Tūāhuriri Rūnanga during decision making about the management and development of the waterway and riverside banks within this section of the Heathcote River/Ōpawaho corridor.
- Identify, protect and restore sites of importance to Ngāi Tahu and where appropriate highlight their significance through site design, interpretation, Māori art and sculpture, and planting appropriate native vegetation.
- Ensure that changes will conserve and, if appropriate, restore Ngāi Tahu relationships with the waterway, its mahinga kai species and other fish, bird and plant species of importance to Ngāi Tahu.
- Acknowledge, interpret and celebrate the spiritual significance of protecting natural heritage and indigenous biodiversity within the corridor.
- Provide for traditional activities and resource use such as food gathering, weaving and canoeing to be undertaken by Ngāi Tahu now and in the future.
- Involve Ngāi Tahu through Rāpaki and Ngāi Tūāhuriri Rūnanga in the interpretation of their cultural history, and identification, protection and restoration of sites of importance.

ARCHAEOLOGICAL SITES

- Consult with Ngāi Tahu through Rāpaki and Ngāi Tūāhuriri Rūnanga in relation to any proposal to modify or destroy an archaeological site within the Linear River Park.

LISTED HERITAGE BUILDINGS, PLACES AND OBJECTS

- Prepare and carry out plans in order to conserve the existing heritage values of those buildings, places and objects which are protected by listing in the City Plan or the New Zealand Historic Places Trust register.
- Plans should aim to increase public enjoyment and appreciation of the river corridor through conveying the historical significance of buildings, places and objects. Important historical sites are marked on the proposed plans within Part 4 of this document.

Historic bridge detail on Colombo Street bridge.

WAY TO ACHIEVE KEY GOALS

CULTURAL HERITAGE

SETTINGS OF HERITAGE BUILDINGS, PLACES AND OBJECTS

- Include the historic setting of each listed heritage building, place and object in the conservation plan for the feature. If the evidence of a historic setting no longer exists, aim to construct a setting based on physical and documentary evidence of the original setting.

PROTECTED TREES

- Trees within the Heathcote River/Ōpawaho corridor are to be managed to ensure public safety with selected removals and replacements required as part of the ongoing city wide tree maintenance and renewal programme.

LANDSCAPE FURNITURE AND LIGHTING

- Identify existing lighting and furniture of heritage significance.

ARTWORKS

- Use artwork to record the stories of the river, its drainage, and vegetation patterns, cultural features and landmarks.

- New artworks may enhance the river corridor in accordance with the Art in Public Places policy (2002), which outlines 3 categories:

    - **Urban and Environmental Artwork –** Suggested locations for these will be developed as plans progress. Each artwork must be assessed to make sure that it is appropriate for its proposed location.

    - **Integrated Artwork -** Their incorporation into the suite of landscape furniture and lighting shall be encouraged, as a method of achieving a unity of style and reinforcing the heritage identity of the river corridor, as outlined under Goal 3 Community Use and Enjoyment.

    - **Community Artwork –** These may be considered for placement in river bank areas, when their creation is a key feature of a community commemoration or a heritage event of a city-wide significance. Each artwork must be assessed to ensure that it is appropriate for its proposed location

"Engage" by Graham Bennett at South Library. The curves reflect those of the meandering Heathcote River/Ōpawaho at the library's doorstep, the braided Waimakariri riverbed on the floodplain of which Christchurch is built and the backdrop of the undulating Port Hills.

03 WAYS TO ACHIEVE KEY GOALS
COMMUNITY USE AND ENJOYMENT

Improve the use and enjoyment of the river and it's corridor for a diversity of communities who value or have an interest in the river.

Explanation

The Heathcote River/Ōpawaho corridor is an important amenity linkage and its character contributes to the local identity of its neighbourhoods and the wider city.

Improvements to the river corridor should focus on encouraging the appreciation and enjoyment of the river corridor as a place of relaxation and 'community', increasing its use as a green pedestrian and cycling corridor. The installation of interpretation material aims to increase popular understanding of the river's natural and cultural significance.

Improvements will focus on making the Heathcote River/Ōpawaho accessible to all, promoting the inclusive nature of the Council's management of the city's parks and waterways.




WAYS TO ACHIEVE KEY GOALS

COMMUNITY USE AND ENJOYMENT

Methods

PEDESTRIAN AND CYCLE CIRCULATION

- Provide a continuous river park walkway along the banks of the Heathcote River/Ōpawaho from Colombo St to Opawa Road with circular walking links within this stretch of the river.
- Ensure that all pathways and nearby vegetation comply with the Safer Canterbury Crime Prevention Through Environmental Design guidelines co-produced by the Christchurch City Council in 2004.
- Provide clear marking and signs to minimise conflicts between pedestrians and cyclists, and devices to reduce cyclists' speed where required for safety reasons.

VEHICULAR CIRCULATION

- Continue to use the roads that border and cross the corridor as an integral part of the road hierarchy of the adjacent neighbourhood.
- Explore ways to reduce the dominance of roads and increase the recreational enjoyment of the river corridor.
- Explore ways of increasing recreational use by means including reduction of carriageway widths, slow speed roads, one way entry and exit points, shared carriageways and the closing of intersections to create culs-de-sac for local access only.

COMMERCIAL ACTIVITIES

- Only where the activities are quiet, passive in nature, do not disturb public use or enjoyment of the corridor and can be enjoyed by the general public, will any leases, licences and concessions for commercial activities and their associated support be considered.
- Any of the activities mentioned above would be considered through the standard Environment Canterbury and CCC Resource Consents process.

USE AND ENJOYMENT OF THE WATERWAY

- Provide a range of facilities including walkway routes, boating facilities, cycleways and natural play areas.
- Provide and maintain gently sloping river bank areas where people can access the water. These areas may also be suitable for launching canoes.
- Provide a clear indication of access routes on public land where private occupancy extends into or across the esplanade reserve.
- Retain open views to the waterway from surrounding areas, (e.g. using lawn areas that run down to the river edge and low planting) to ensure public surveillance of the waterway.
- Use areas of dense vegetation to frame views rather than continuous belts, obstructing them.

CAR PARKING

- Provide associated vehicle parking bays in specific areas along the river, to minimise the dominance of motor vehicles within the river corridor.
- These car parking areas are to be selected according to river depths, hard surface areas, river flow and ecological values.

LANDSCAPE FURNITURE AND LIGHTING

- Develop a co-ordinated palette of landscape furniture including seating, lighting, bollards, drinking fountains, cycle stands, rubbish bins, artwork and way-making to establish a unity of style and reinforce the identity of the river corridor. This should be consistent throughout and compliment any commemorative areas or existing furniture of heritage significance.
- Install landscape furniture including replacement of existing furniture deemed inappropriate.
- Establish a programme for the installation of interpretation panels, signs and feature lighting that is consistent throughout the river corridor. This information should guide visitors and reveal and celebrate the river's rich natural and cultural heritage.

04 WAYS TO ACHIEVE KEY GOALS
COMMUNICATION

Raise people's awareness of the river and improve people's knowledge of actions that may be taken to minimise their effects on the river.

Explanation

Consultation with the local community has identified that the Heathcote River/Ōpawaho corridor is currently highly valued for aesthetic, recreational, historic, cultural and ecological reasons. It is the intention of this Masterplan to ensure that the local community continue to understand the environment within which they live and to ensure that they can take ownership of the habitats they live within.

To enable this to occur it is important that works outlined by this Masterplan (e.g. new tree planting) are introduced to the community in a number of ways including:

- consultation to provide a forum for discussion,
- education as the feeling of ownership will increase as the community becomes more aware of how the river habitat functions,
- interpretive information to guide people on walks and provide ecological, cultural and archaeological information; and
- through partnerships with organisations linked to the river corridor (e.g. schools).

WAYS TO ACHIEVE KEY GOALS

COMMUNICATION

PROMOTION

- Strengthen the identity of the river and raise its profile as a quiet, low key, meandering river.
- Use a wide variety of communication tools to promote the river corridor such as newsletters, publications, websites, notice boards etc.
- Utilise other forms of promotion such as advocacy, education, events and links with school groups to further highlight and celebrate the corridor's natural character and heritage values.

EDUCATION

- Improve knowledge of actions to be taken to minimise negative effects on the river.
- Educate residents in co-ordination with Environment Canterbury who have established education programmes (e.g. River Guardians) about activities that lead to non-point source pollution of the waterway and how they can be avoided.
- Raise awareness of the river corridor as a potential flood plain.

INTERPRETATION

- Encourage public understanding, appreciation and celebration of the natural and cultural heritage of the river and its setting, and improve way-finding along the river corridor. Incorporate innovative, interpretive signs and publications as well as integrated art on site.
- Establish a programme of events to celebrate and increase people's enjoyment, appreciation and understanding of the river and its setting. Planning must ensure that all damage caused by such events is made good.

PARTNERSHIPS

- Establish partnerships, as appropriate, with Ngāi Tahu the community, schools, universities, professional organisations as well as local and national government organisations (e.g. Environment Canterbury), to carry out the goals of this vision.

South Library and retention pond planting along Hunter Terrace.

Eel sculpture by Bing Dawe at Farnley Reserve, the site of the old Farnley Brick and Tile Works.

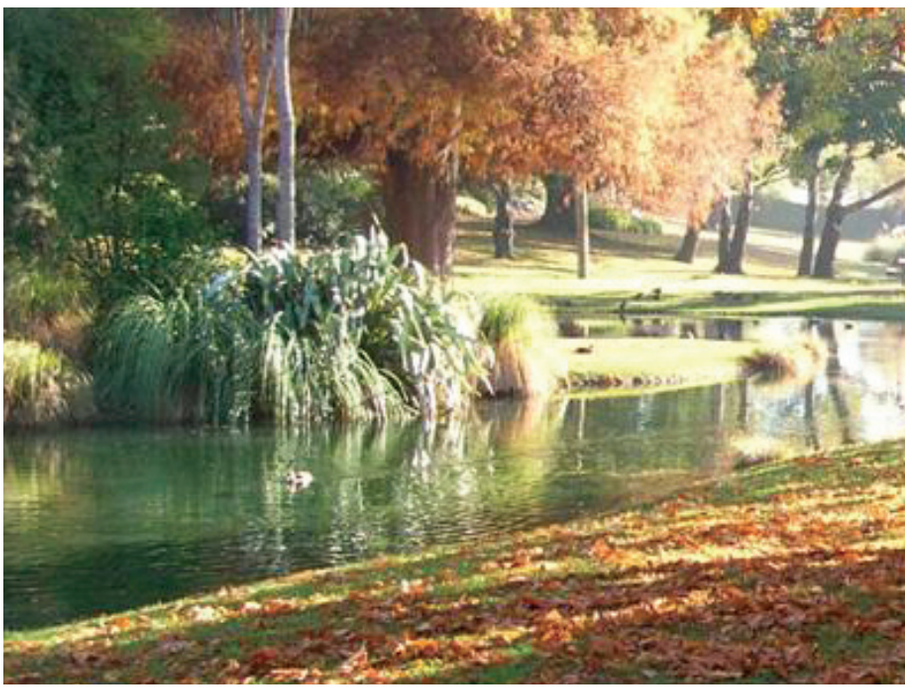
ANTICIPATED OUTCOMES

Once the strategies are implemented, the Heathcote River/Ōpawaho corridor will be improved in the following ways:

- There will be increased opportunities for tree planting following bank widening. This will provide for future large scale tree planting (of trees that will be large at maturity), reflective of the existing scale and number of trees currently present.
- The overhead tree canopy will be maintained and strengthened by new planting.
- Grassed areas will feature along the river banks in many places. This will be interspersed with an improved balance between native and exotic planting.
- Expansion of greenspace for recreation with improved views and access to the water.
- Reduction in vehicle speed, with more formed walkways and provision of cycleways.
- Continuous low growing native riparian planting will provide in-stream habitat for fish, birds and insects, while maintaining existing flood capacity.

Areas of native planting will feature along the river banks, including the large forest trees that historically grew along the Heathcote River/ Ōpawaho.

- The ecological health of the river will gradually be restored through management practices that reduce sediment inputs and improve water quality and instream habitat.
- There will be more areas of indigenous planting along the banks of the river.
- The cultural and heritage values of the river corridor will be acknowledged.
- More integrated artwork along the riverbank, celebrating the natural and cultural heritage of the river.



PART FOUR: THE PROPOSAL

The following plans provide a foundation for future planning, indicating concepts for future design work.

PLEASE FOLD OUT

THE PROPOSAL
LEGEND

Existing tree to be retained

Proposed trees
Exotic or indigenous species greater than 15m at maturity planted in river banks wider than 8m (refer Appendix)

Proposed trees
Exotic or indigenous species less than 15m at maturity planted in river banks narrower than 8m (refer Appendix)

Low growing river margin planting allowing views of water and providing habitat linkages

Open areas of maintained grass

Proposed asphalt or grit pedestrian or shared cycle / pedestrian paths

Existing riverbank footpaths

Existing road edge, footpaths on residential side to be retained

Proposed road norrowing

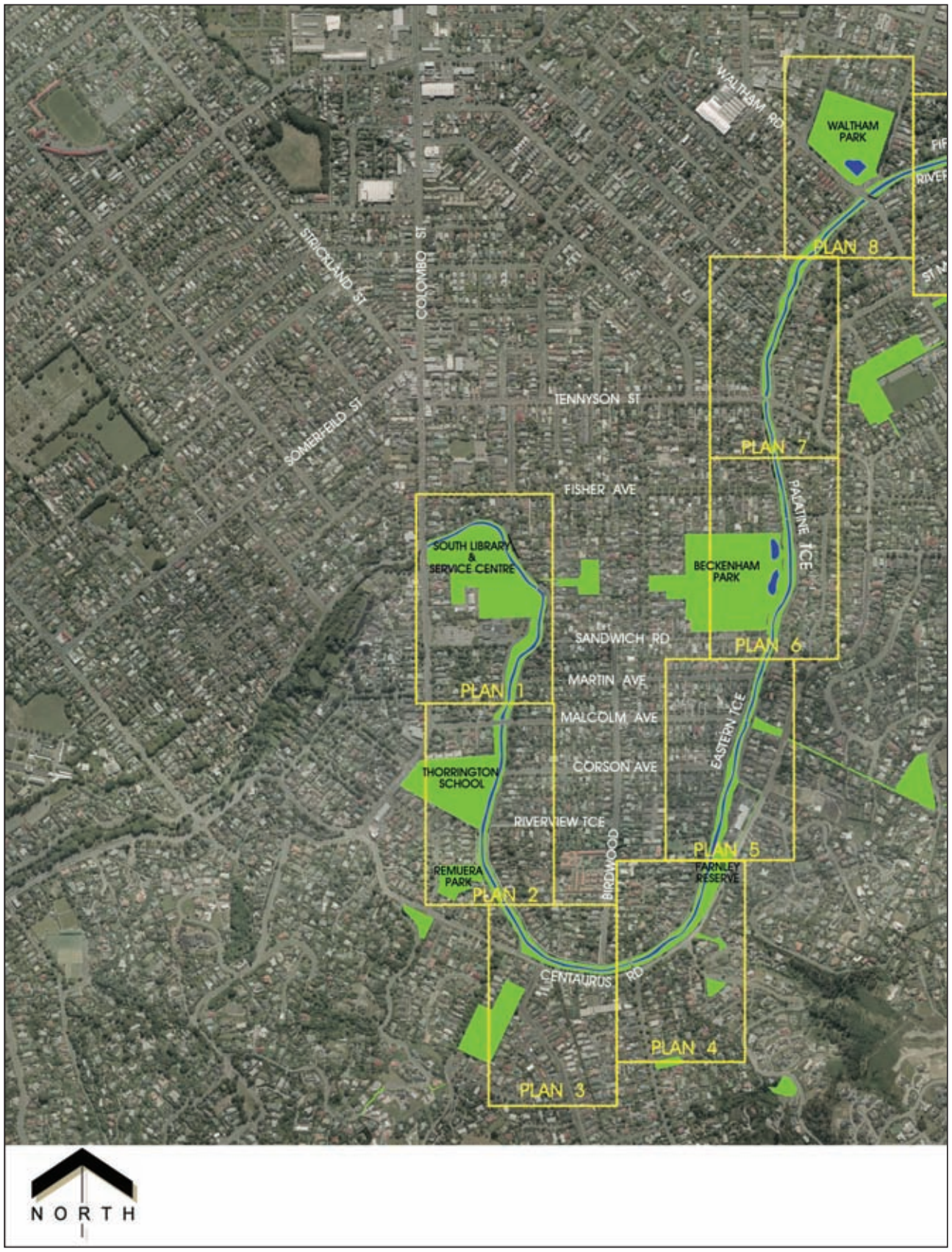
Intersection build-outs for traffic management incorporating low shrub planting, street tree planting and feature paving

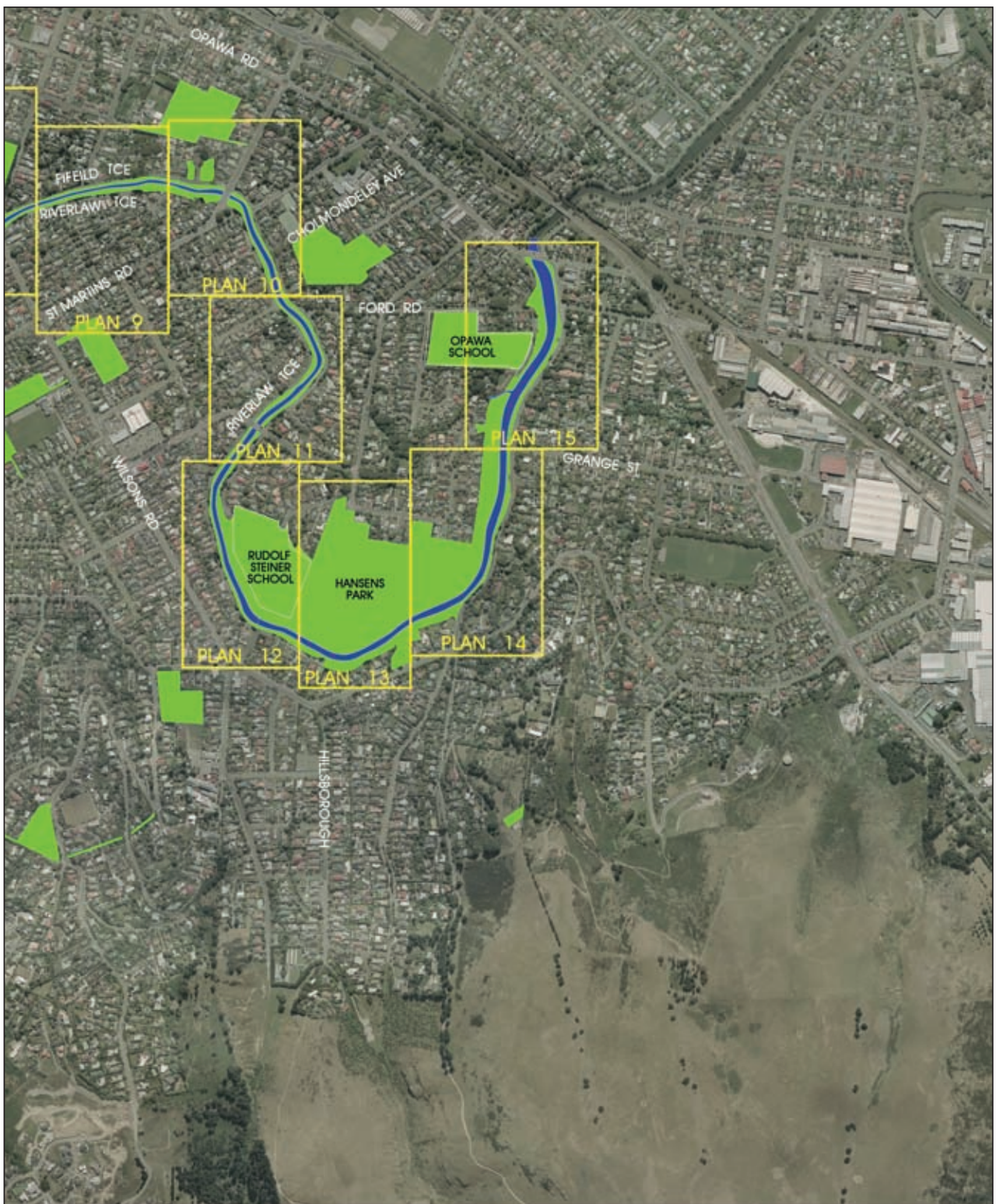
Existing canoe launching ramps

Proposed river access points eg. steps, beach, ramps or landings at approximately 200m apart each side of the river

Active wells

Car parking areas





PLAN LOCATION DIAGRAM

THE PROPOSAL
COLOMBO STREET TO MARTIN AVE

PLAN 1 OF 15

1. **Colombo St Bridge**. A 'single sided' bridge, once known as "Latter's Bridge." (Cashmere Spur used to be named Latter's Spur after the farm that was located there). The river was first bridged here in 1863. Opportunities to incorporate colour, lighting, interpretation and integrated art to the bridge as part of the overall consistent approach to built elements along the mid-Heathcote.

2. **Old Dam site**. Opportunities exist here for a new path and steps down to water.

3. The existing Graham Bennett artwork 'Engage' to be extended to connect with the river as originally proposed.

4. Riffle section of rapidly flowing water is to be retained as an important spawning area for brown trout and habitat for the native bluegill bully. There is another riffle downstream towards Malcolm Avenue. Riffles to be maintained and protected, and opportunities explored for educational interpretation.

5. Possible area for planting of flax (harakeke) for gathering and weaving.

6. Existing storm water detention pond which treats runoff from the Library car park area may be extended to the river.

7. Proposed new footbridge to enhance linkages and possible future replacement for existing footbridge.

8. **Hunter Terrace** road closure. The old Hunter Terrace has already been legally closed. The new entrance to the Library car park from Colombo Street now constitutes Hunter Terrace. Old existing seal to be removed and replaced with grass and trees and paths.

9. **Pipeyards.** This proposal involves removing the pipeyards to create a new reserve incorporating active wells, tennis court, new paths, and an enhanced BMX area. Old disused wells to be capped. Existing garage building to be relocated off site.

10. Existing Hunter Terrace carriageway to be raised and cobbled to calm traffic.

11. **Blue Stone Track**. The old name for the link from the Cashmere Club to Colombo St before Hunter Terrace was built. The name came from the blue coloured by-product from the gas works which was used along here to suppress weeds. Where possible reduce road width to minimum of 6 metres to allow formalised parallel car parking, sealed path and river bank enhancement.

12. Car parking (10-12 bays) on existing carriageway.

13. Old seal from existing car park area to be removed and replaced with grass, trees, pathway and access to the water.

14. Single slow lane 4m wide and maximum 60m long.

15. Single slow lane between cul de sacs.

16. Intersection between Hunter Terrace and Colombo Street to be upgraded to ensure safe access and egress.

NORTH

0 10 30 50 80 100

SCALE (m)

PLAN 1 of 15

THE PROPOSAL
MALCOLM AVE TO REMUERA RESERVE

PLAN 2 OF 15

1. **Malcolm Ave bridge**. Large rocks have been placed below the bridge to allow for a future walkway link under the bridge. There is an area of seating here. Good pedestrian access to the river is available via macrocarpa sleeper steps, large basalt boulders and cobblestone paving.

2. A riffle area downstream of Malcolm Avenue bridge is to be retained as it is important for instream life and oxygenating the water. Opportunities to be explored for educational interpretation.

3. **The Donkey Track**. A 1.2m wide asphalt path meanders past substantial native planting with some grassed 'clearings' and picnic tables bordering Thorrington School. There is a small jetty river access with associated painted poupou. Planting to be maintained to ensure safety for users and views of the river.

4. **Remuera Reserve**. Contains a children's playground and connections through Remuera Avenue.

5. A flat run of river flow here may have sufficient gradient to form a riffle either side of the foot bridge. This would create some hydraulic variation and new rocky material, with emergent rocks, could provide breeding sites for instream invertebrates.

6. The existing pedestrian footbridge provides opportunities to incorporate colour, lighting, interpretation and integrated art as part of the overall consistent approach to built elements along the mid-Heathcote.

7. The steepness of the bank adjacent to Sloan Terrace means there is little opportunity to reduce road width or provide a new path on the riverbank. However the road edge could be better defined to minimise "road creep" and the apparent steepness of the bank could be reduced by the creation of low terraces.


1
MALCOLM AVENUE
WAIMEA TERRACE
2
CORSON AVENUE
THORRINGTON SCHOOL
3
DONKEY TRACK
WAIMEA TERRACE
HEATHCOTE RIVER
RIVERVIEW STREET
SLOAN TERRACE
REMUERA RESERVE
4
5
6
7
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 2 of 15

THE PROPOSAL
SLOAN TCE TO BIRDWOOD AVE

PLAN 3 OF 15

1. This is an important Waitaha site, the use and extent of which needs to be clarified.

2. The steepness of the bank adjacent to Sloan Terrace means there is little opportunity to reduce road width or provide a new path on the riverbank. However the road edge could be better defined to minimise "road creep" and the apparent steepness of the bank could be reduced by the creation of low terraces.

3. An existing formed path links Sloan Terrace with Farnley Reserve. Existing established native vegetation provides good habitat linkages and shading for the water, however requires regular maintenance.

4. A flat run of river flow here between Riverview and Birdwood Avenues may benefit from the addition of new rocky material and emergent rocks to provide some hydraulic variation and breeding sites for instream invertebrates.

5. Where possible reduce road width to minimum of 6 metres to allow formalised parallel car parking, sealed path and river bank enhancement.

6. Existing native planting requires regular maintenance to provide safety along the Crime Prevention Through Environmental Design (CPTED) principles.


1
2
3
4
5
6
SLOAN TERRACE
Cross Section B
WAIMEA TERRACE
BIRDWOOD AVENUE
EASTERN TCE
CENTAURUS ROAD
LANDSDOWNE TERRACE
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 3 of 15

THE PROPOSAL
BOWENVALE AVE TO WHAKA TCE

PLAN 4 OF 15

1. Existing reserve area between Centaurus Road and river. Retain existing sealed shared walkway to Centaurus Road shops and create new pathway along top of bank to Farnley Reserve.

2. Opportunities exist for road narrowing and formalising of parallel parking bays to protect the riverbank from vehicle damage. Provide river access adjacent to some car park areas if bank steepness and location of existing trees allow.

3. **Bowenvale Bridge**. The original swivel span from the 1864 Ferrymead Bridge. Stephenson was the manufacturer of this steel "swing bridge" who had a connection with the company who built the first steam train – the "Rocket" (Stephenson who built the Rocket was his grandfather). The bridge span was uplifted and taken from Ferrymead to Swanns Road in Dallington. It was finally brought to its present site in 1955 and shortened to 35 feet long. It was strengthened to take buses and a footbridge was added in 1986. Opportunities exist to incorporate colour, lighting interpretation or integrated art as part of the overall consistent approach to built elements along the mid-Heathcote.


WHAKA TERRACE
1
2
Cross section C
2
EASTERN TERRACE
HEATHCOTE RIVER
CENTAURUS ROAD
ENTICOTT RESERVE
ENTICOTT PLACE
MAJOR AITKEN DRIVE
3
BOWENVALE AVENUE
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 4 of 15

THE PROPOSAL
CENTAURUS RD SHOPPING CENTRE TO MARTIN AVE

PLAN 5 OF 15

1. **Malcolm Avenue to Martin Avenue.** Single slow lane 4m wide and maximum 60m long with parking bays. This section of riverbank could be significantly enhanced with pedestrian/cycle access, regraded banks, additional planting around the footbridge and jetty access to the waters edge.

2. Protect and enhance existing riffle sections as brown trout spawning habitat by adding additional substrate material to the river bed (and regularly removing sediments).

3. Reduce road width at Palatine Reserve with kerb extension to slow traffic and improve pedestrian access to the Malcolm Avenue Bridge and proposed jetty access.

4. Originally the site of a ford river crossing used to carry bricks from the Farnley Brickworks in to the Beckenham Loop area. Prior to 1937 the banks were approximately 1 metre lower resulting in flooding and the merging of the ' ponds' area with the river itself. Potential to explore integrated art/interpretation opportunities.

5. Vary width of the long straight stretches of river by varying the thickness of bank vegetation in widened sections of the river to improve stream habitat values without compromising flood capacity.

6. Opportunities at the Corson Avenue intersection with Eastern Terrace include road narrowing to improve the potential for large tree planting, bank regrading, and jetty access to the river edge.

7. Where possible reduce road width to minimum of 6 metres to allow formalised parallel car parking, sealed path and river bank enhancement.

8. **Farnley Reserve**. Features jetty access to the river, seating, substantial native riparian planting and a bronze sculpture by artist Bing Dawe (sponsored by the Soroptimist International and Christchurch City Council).


MARTIN AVENUE
MALCOLM AVENUE
CORSON AVENUE
EASTERN TERRACE
PALATINE TCE
PALATINE RESERVE
CENTAURUS ROAD
WOODLAU RISE
FARNLEY RESERVE
HEATHCOTE RIVER
1
2
3
4
5
6
7
8
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 5 of 15

THE PROPOSAL
SANDWICH RD TO FISHER AVE

PLAN 6 OF 15

1. **Fisher Avenue/Eastern Terrace intersection.** Due to narrowness of the Eastern Tce river bank between Fisher Ave and Tennyson St the proposed river walkway should be directed across to the existing footpath on the residential side of the road.

2. Existing footbridge recently replaced the old timber footbridge. Opportunities to incorporate colour, lighting, interpretation and integrated art as part of the overall consistent approach to built elements along the mid-Heathcote.

3. Vary width of the long straight stretches of river by varying the thickness of bank vegetation and the planting of marginal vegetation in widened sections of the river to improve stream habitat values without compromising flood capacity.

4. **Historic nursery site**. Part of Alfred Buxton's Nursery 1902-1925. This was initially known as "Premier Nursery", and later called the "Opawa Nursery". Alfred Buxton (1872-1950) was New Zealand's first Landscape Architect and the distinctive Arcadian style of the Beckenham Ponds layout on the other side of the Heathcote River/Ōpawaho may well have been influenced by him or designed by a colleague of his. There are potential opportunities to reflect this heritage in future design work and site interpretation.

5. Vehicle turnaround areas. Carpark numbers and locations to be determined at detail design stage.

6. Single slow lane 3.5m wide and maximum 60m long. Gives opportunities to slow traffic and allows for safer access to the river edge. Also allows for large trees and river planting and designated pedestrian/cycle paths.

7. New bus bay/short term drop off area for school. Possibly also a car parking area when not required by bus.


FISHER AVENUE
RIVERJAW TERRACE
BUXTON TERRACE
Cross Section D
BECKENHAM PARK
BECKENHAM PONDS
BECKENHAM SCHOOL
PALATINE TERRACE
KOWHAI TERRACE
SANDWICH ROAD
EASTERN TERRACE
1
2
3
4
5
6
5
7
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 6 of 15

THE PROPOSAL
TENNYSON ST TO HUME ST

PLAN 7 OF 15

1. Potential for road narrowing and/or formalising of parallel parking area with opportunities for bank regrading, a river access point, and river edge and large tree planting.

2. Reducing the width of both Eastern Terrace and Riverlaw Terrace would provide significant opportunities for bank regrading, planting of large tree species, safer designated cycle and pedestrian paths, formalised car parking bays and safer river access points.

3. Steeper sections of river bank to be planted with low growing native plant species to ensure that views of the river can still be enjoyed by pedestrians and neighbours while establishing connective linkages along the banks.

4. Existing fast water riffle section is valuable bluegill bully habitat to be protected from siltation and improved if practicable. Planting of steeper sections of river bank and regrading where possible would minimise potential for erosion.

5. Potential for road narrowing and formalising of parallel parking area opposite the corner dairy with enhanced bank / river edge planting and river access on the Eastern Terrace side. The Tennyson St bridge, the upper most point of tidal influences on the river, provides opportunities to incorporate colour, lighting, interpretation or integrated art as part of the overall consistent approach to built elements along the mid-Heathcote.

6. **Bell Flax Mill and old dam site**. Constructed in 1869, a water wheel was used but later removed due to flooding problems. Potential to explore integrated art/interpretation opportunities.


1
2
3
4
5
6
RIVERLAW TCE
EASTERN TERRACE
HEATHCOTE RIVER
ST MARTINS ROAD
Cross section E
TENNYSON STREET
BURNBRAE STREET
EASTERN TERRACE
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 7 of 15

THE PROPOSAL
HUME ST TO WILSONS RD

PLAN 8 OF 15

1. Existing public pool, playground, half court basketball, public toilets, skate bowl and playing fields at Waltham Park.

2. The existing jetty provides access to the narrow grit path running along the river bank on the Fifield Terrace side. If the pedestrian bridge underpass is constructed, a new section of path would be required on the riverbank linking the underpass to the jetty.

3. The shallow fast water riffle area immediately downstream of the bridge could possibly be improved with additional substrate material to enhance invertebrate egg laying sites. Below this riffle the river becomes deeper and slower and would benefit ecologically by the planting of more overhanging and emergent vegetation along the river bank margin.

4. **Wilsons Road bridge**. Formerly known as 'Crawfords Bridge' when it linked both sides of Wilsons Road 50m downstream from its current position. Prior to the 1850's it consisted of a pair of totara logs used by early surveyors prior to settlement. Potential exists to develop pedestrian access under the bridge to provide an alternative means of crossing busy Waltham Road. Opportunities exist to incorporate colour, lighting, interpretation or integrated art as part of the overall consistent approach to built elements along the mid-Heathcote.

5. Existing width of Eastern Terrace is overly wide. By reducing road width the potential exists for regrading the steeper parts of the river bank, including formalised 90° car parking, a seating/paved area with river access, generous space for shared pedestrian/cycle path and extensive large tree and river edge planting.


BUYNAN STREET
WALTHAM PARK
1
WILSONS ROAD
WALTHAM ROAD
POOL
FIFEILD TERRACE
2
3
RIVERLAW TERRACE
4
HUME STREET
HEATHCOTE RIVER
RIVERLAW TERRACE
WILSONS ROAD SOUTH
EASTERN TERRACE
5
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 8 of 15

THE PROPOSAL
WILDING ST TO ESHER PLACE

PLAN 9 OF 15

1. **Riverlaw Terrace/Wilding Street intersection**. New kerb extensions and low planting to narrow the existing street widths and slow traffic.

2. Retain existing narrow grit path along Fifield Terrace riverbank. Replacement tree planting should recognise narrow bank widths. Additional low planting to bank would improve river values both aesthetically and ecologically while ensuring improved visibility of path users from Fifield Terrace and adjacent properties.

3. Existing wide grassed river bank provides opportunities for:

    - new sealed shared pedestrian/cycle path linking to existing path,
    - regrading of the river bank edge,
    - the retention of existing healthy large trees and the planting of additional large trees, and
    - the retention of large areas of open lawn with safer easy access to the waters edge.

4. Along the edges of the deeper sections of the river, marginal or semi aquatic vegetation could be planted to create enhanced instream habitat for fish and invertebrates as long as flood capacity was not compromised.


HASSALS LANE
YORK STREET
FIFEILD TERRACE
HEATHCOTE RIVER
RIVERLAW TERRACE
ESHER PLACE
WILDING STREET
ST MARTINS ROAD
1
2
3
4
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 9 of 15

THE PROPOSAL
ACORN CLOSE TO CLAXTON PLACE

PLAN 10 OF 15

1. **Ensors Road/St Martins Road bridge**. The river was bridged here for the first time as late as 1969. There is opportunity to develop a walking link under this bridge accessible during low tides.

2. Narrow track on bank may be widened and enhanced.

3. Road narrowing gives opportunities for a wider bank, new path, better river access and the planting of larger tree specimens.

4. This section of river channel is slow flowing and wider compared to upstream reaches. The depth of the water is tide dependent. On high tides some marine fish such as yellow belly flounder and stargazer may swim upstream to here. Potential exists to enhance the habitat without compromising the flood capacity of the river.

5. Popular white baiting stands in this area to be retained and possibly enhanced by the addition of seating and river margin planting.


ENSORS ROAD
ACORN RESERVE
ACORN CLOSE
ACORN RESERVE
Cross Section F
1
2
3
4
5
LOCARNO STREET
HEATHCOTE RIVER
RIVERLAW TERRACE
Cross Section G
FIFEILD TERRACE
CHOLMONDELEY AVENUE
ST MARTINS ROAD
CLAXTON PLACE
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 10 of 15

THE PROPOSAL
DERRETT PLACE TO BECKFORD RD

PLAN 11 OF 15

1. Existing footbridge provides opportunities for integrated bridge art. As recently as 1965 there was a narrow vehicle bridge near this spot.

2. Proposed low growing river margin plants ensure views of the water can be enjoyed while establishing connective habitat linkages.

3. This section of the river channel is slow flowing and wider compared to upstream reaches. The depth of the water is tide dependent. On high tides some marine fish such as yellow belly flounder and stargazer may swim upstream to here.

4. Narrowing of existing road gives opportunity to provide extra car parking and a new path. Wider banks also allow the planting of larger tree species. The other side is narrower and steeper in places due to bank slumping. A wider bank may allow the existing rough path to be enhanced.

5. Popular white baiting stands in this area to be retained and possibly enhanced by the addition of seating and river margin planting.

6. Low growing river margin plants ensure views of the water can be enjoyed while establishing connective habitat linkages.

7. **Beckford Road bridge.** Built in 1882, was originally constructed of ironbark and totara on concrete abutments. Opportunities exist to incorporate colour, lighting, interpretation or integrated art as part of the overall consistent approach to built elements along the mid-Heathcote.

8. While the river is tidally influenced along this reach, it consists of wholly fresh water. Short fin eel, common bully, giant bully and yellow eye mullet are common here. Potential exists to enhance the habitat without compromising the flood capacity of the river.

NORTH

0 10 30 50 80 100

SCALE (m)

PLAN 11 of 15

THE PROPOSAL
RUDOLF STEINER SCHOOL TO HANSENS PARK

PLAN 12 OF 15

1. Wide bank provides opportunities for a new path, extra car parking and access to the river.
2. Wide cul-de-sac area has room for a new planted roundabout for improved traffic flow and to reduce large area of seal.
3. Proposed new secondary path closer to the river's edge. This path may be narrower and constructed of crusher dust. Cyclists should be encouraged to use the existing upper path through Hansen's Park.
4. Wide banks allow for planting of large specimen trees.
5. River widens here to approximately 12m. While the river is tidally influenced along this reach, it consists wholly of fresh water. River banks can be planted to provide improved erosion control and river edge habitat values.
6. Existing footbridge gives opportunity for integrated bridge art to incorporate colour, lighting, interpretation or integrate art as part of the overall consistent approach to built elements along the mid-Heathcote.
7. Proposed low growing river margin plants ensure views of the water can be enjoyed while establishing connective habitat linkages.


RIVERLAW TERRACE
HEATHCOTE RIVER
FIFIELD TERRACE
Cross Section H
1
2
3
4
5
6
7
OMBERSLEY TERRACE
RUDOLF
STEINER
SCHOOL
HANSENS
PARK
HEATHCOTE RIVER
RIVERLAW TERRACE
WILSONS ROAD SOUTH
ARMSTRONG AVENUE
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 12 of 15

THE PROPOSAL
HANSENS PARK

PLAN 13 OF 15

1. Proposed realigning of the existing path allows more formal and safer access to the waters edge could be formalised and made safer. Steeper sections of the bank to be stabilised, perhaps by slope reduction and planting. Large canopy trees and low underplanting will ensure both visibility of the river is retained and ecological values enhanced.

2. Path between Riverlaw Terrace and King George V Reserve is to remain as a grassed path.

3. Realigning the existing path back into the park and away from the steeper parts of river bank will allow regrading of the bank and more intense planting to provide improved erosion control and river edge habitat values.


BUTLER STREET
Public toilets
Clubrooms
Playground
HANSENS
PARK
3
KING GEORGE
V RESERVE
HEATHCOTE RIVER
1
RIVERLAW TERRACE
2
Victory Drain
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 13 of 15

THE PROPOSAL
HANSENS PARK EAST

PLAN 14 OF 15

1. Enhance existing large tree planting especially close to the rivers edge for aesthetic, erosion control and ecological reasons. Provide a pedestrian path along the river's edge as an alternative route to existing wide shared cycle path. Regrade areas of bank to increase number of river access points. Plant steeper ungraded sections of bank with low planting to improve ecological values while retaining views of the river.

2. Formalise, and possibly seal, existing angled parking bays so their layout is more obvious and useable throughout the year. Protect the balance of the river bank from informal car parking by bollards, kerbs and/or planting. Retain and/or improve visibility of the river from car park areas.

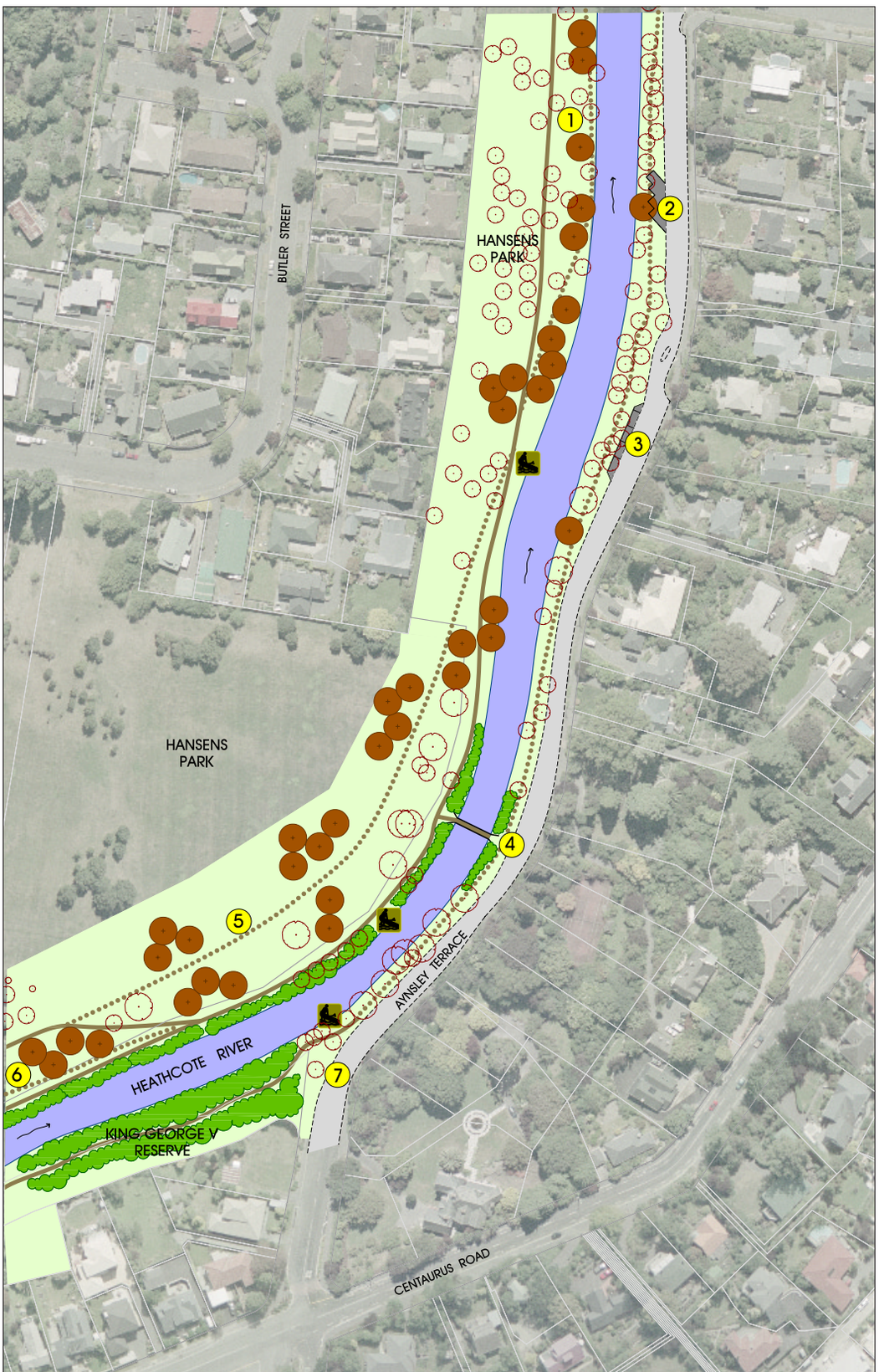
3. Provide additional sealed parallel parking opportunities along Aynsley Terrace where appropriate and restrict vehicle access on to river bank throughout to enhance the safety of pedestrians and cyclists on the proposed shared path. Strengthen the existing character and tree cover by planting additional larger trees where river bank width permits. Regrade steeper banks and grass or plant as appropriate where bank width allows.

4. Existing footbridge linking Aynsley Terrace with Hansens Park provides opportunities to incorporate colour, lighting and integrated art as part of the overall consistent approach to built elements along the mid-Heathcote. Canopy tree and low shrub planting around the bridge ends should ensure safe sight lines for both bridge and path users. Steeper banks to be planted with large canopy trees and low underplanting to ensure both visibility of the river is retained and ecological values enhanced.

5. Continue alignment of existing shared pedestrian/cycle path along the edge of the existing playing fields to provide a wider, safer alternative route for users passing through the park.

6. Realigning the existing path back into the park and away from the steeper parts of the river bank will allow regrading of the bank and more intense planting to provide improved erosion control and river edge habitat values.

7. Improve car parking at the entry to King George V Reserve, provide a safer river access point, and continue the existing path along the Aynsley Terrace side of the river bank.



NORTH

0 10 30 50 80 100

SCALE (m)

PLAN 14 of 15

THE PROPOSAL

HANSENS PARK TO OPAWA ROAD

SHEET 15 OF 15

1. **Opawa Road bridge**. Marks the end point of the mid-Heathcote study area. The bridge provides potential opportunities through colour, interpretation, lighting and integrated art to be linked to the other built elements along this section of river. While the steeper banks should be planted with a combination of large canopy trees and low underplanting for erosion control and ecological and aesthetic reasons, it will be important to maintain safe sight lines for both bridge and path users.

2. Existing pedestrian bridge and stepped 'beach' access. The bridge provides opportunities to incorporate colour, lighting and integrated art as part of the overall consistent approach to built elements along the mid-Heathcote. Canopy tree and low shrub planting around the bridge ends should ensure safe sight lines for both bridge and path users.

3. Formalise and possibly seal existing angled parking bays so their layout is more obvious and useable throughout the year. Protect the balance of the river bank from informal car parking by bollards, kerbs and/or planting. Retain and/or improve visibility of the river from car park areas.

4. Improve safety surveillance and visibility of path users and the river through this narrow section by selective removal of existing plants. Replant the area with lower growing species and possible path alignment and width improvements.

5. Existing footbridge provides opportunities to incorporate colour, lighting and integrated art as part of the overall consistent approach to built elements along the mid-Heathcote. Improve access to and visibility of Jacksons Creek from the river bank by removing some of the existing vegetation and regrading the bank.

6. Provide additional sealed parallel parking opportunities along Aynsley Terrace where appropriate and restrict vehicle access on to river bank throughout to enhance safety of pedestrians and cyclists on proposed shared path. Strengthen existing character and tree cover by planting additional larger trees where river bank width permits. Regrade steeper banks and grass or plant as appropriate where bank width allows.

7. Enhance the existing large tree planting especially in areas close to the rivers edge for aesthetic, erosion control and ecological reasons. Provide a pedestrian path along the rivers edge as an alternative to the existing wide shared cycle path. Regrade areas of bank to increase number of river access points. Plant steeper ungraded sections of bank with low planting to improve ecological values and replace historical inanga spawning sites while retaining views of the river.


OPAWA ROAD
AYNSLEY TERRACE
GARLANDS ROAD
FORD ROAD
LIBRARY
OPAWA SCHOOL
LOUISSON PLACE
HEATHCOTE RIVER
JACKSONS CREEK
AYNSLEY TERRACE
HANSENS PARK
GRANGE STREET
1
2
3
4
5
6
7
NORTH
0 10 30 50 80 100
SCALE (m)

PLAN 15 of 15

THE PROPOSAL

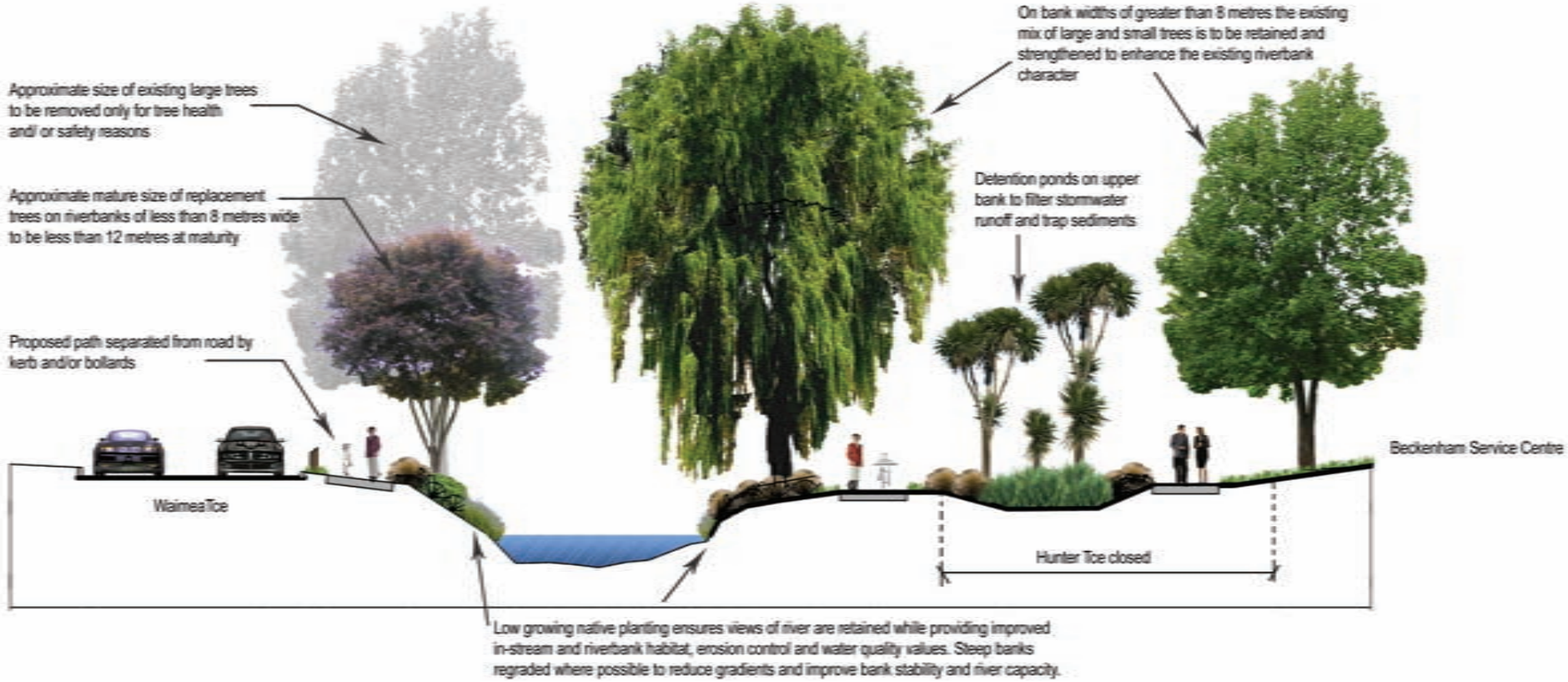
CROSS SECTION A

For the location of this cross section refer to Plan 1, page 51

View looking upstream - Waimea Tce

View looking upstream - Waimea Tce

View looking downstream - Waimea Tce



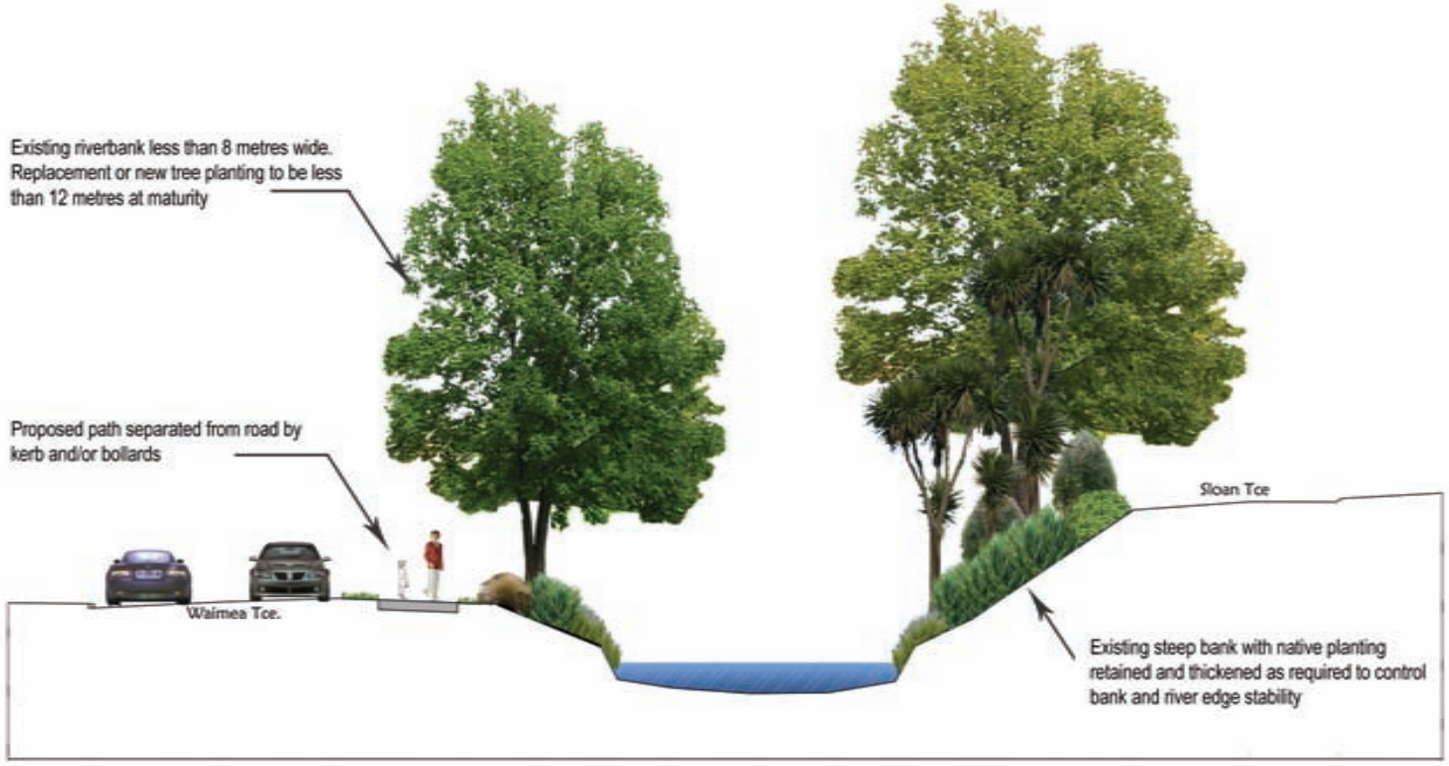
Cross Section A view looking downstream *section adapted from Heathcote River Catchment Investigation Sept. 1985 Christchurch Drainage Board*

CROSS SECTION B

For the location of this cross section refer to Plan 3, page 55

View looking upstream - Waimea Tce

View looking downstream - Waimea Tce



Cross Section B view looking downstream - *section adapted from Heathcote River Catchment Investigation Sept. 1985 Christchurch Drainage Board*

THE PROPOSAL
CROSS SECTION C

For the location of this cross section refer to Plan 4, page 57

View looking upstream - Eastern Toe

View looking downstream - Eastern Toe

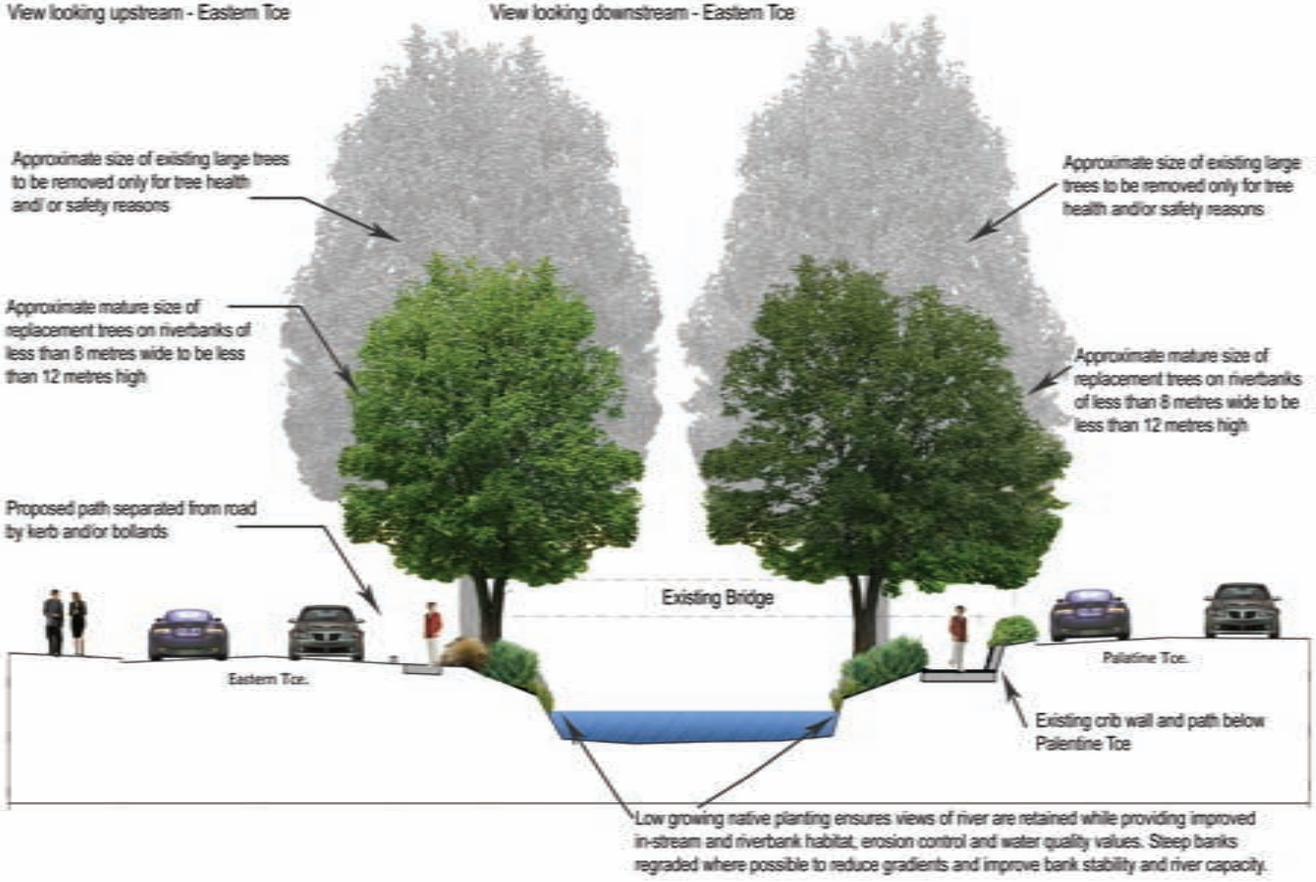
Cross Section C view looking downstream - *section adapted from Heathcote River Catchment Investigation Sept. 1985 Christchurch Drainage Board*

CROSS SECTION D

For the location of this cross section refer to Plan 6, page 61

View looking upstream - Eastern Toe

View looking downstream - Eastern Toe



Cross Section D view looking downstream - *section adapted from Heathcote River Catchment Investigation Sept. 1985 Christchurch Drainage Board*

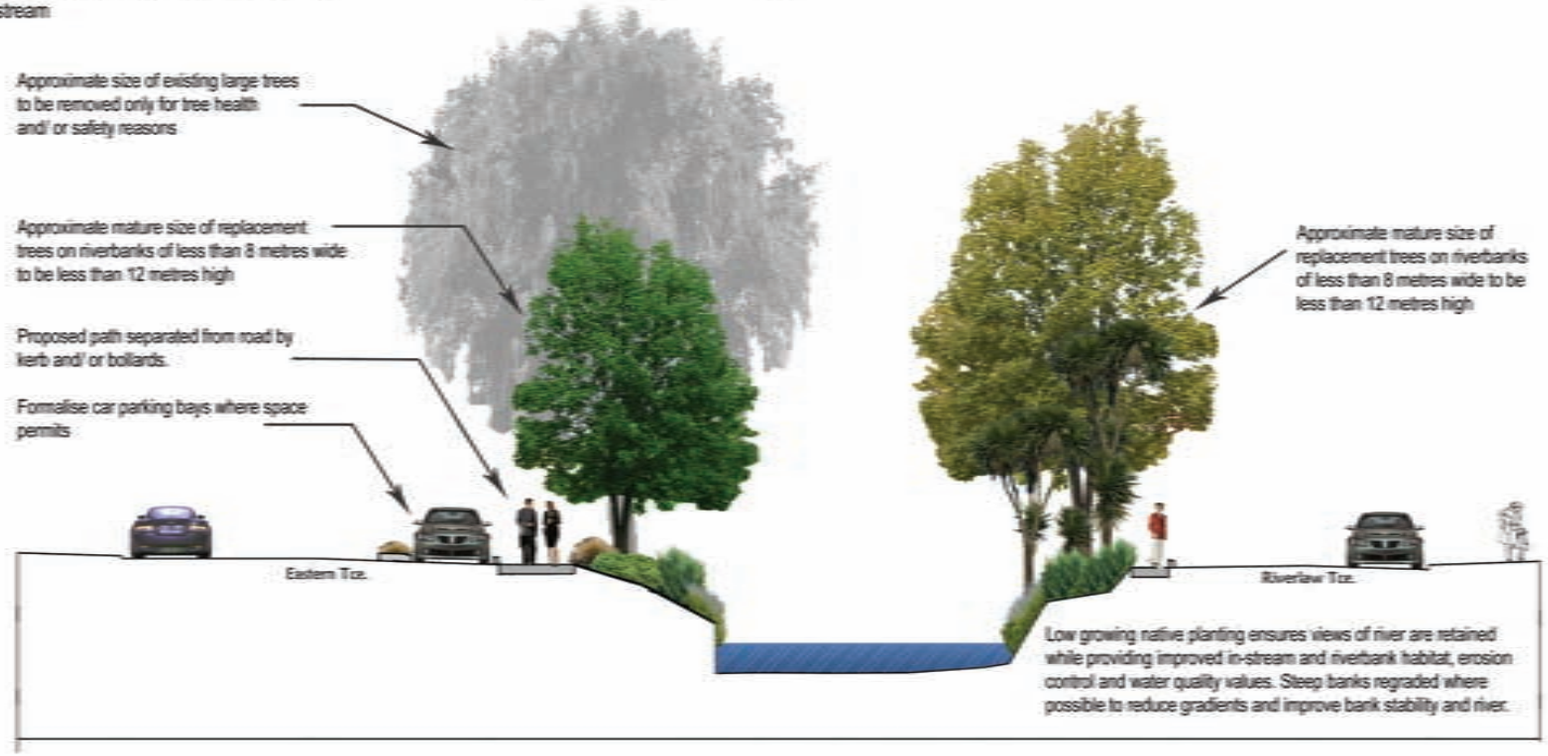
THE PROPOSAL

CROSS SECTION E

For the location of this cross section refer to Plan 7, page 63

Centre of Tennyson Street bridge - view looking downstream

Centre of Tennyson Street bridge - view looking upstream



Cross Section E view looking downstream - *section adapted from Heathcote River Catchment Investigation Sept. 1985 Christchurch Drainage Board*

CROSS SECTION F

For the location of this cross section refer to Plan 10, page 69

View looking upstream - Fifield Tce

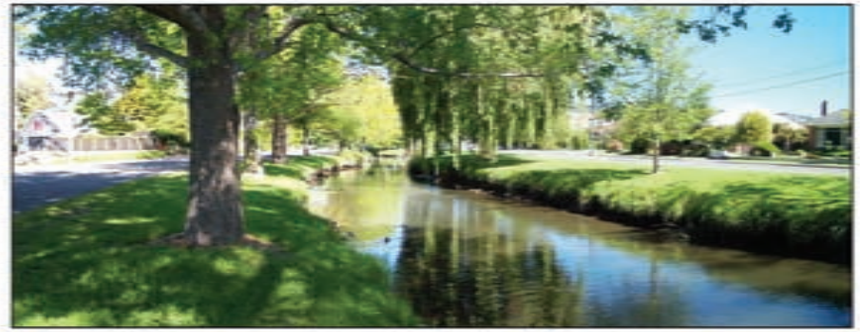
View looking downstream - Fifield Tce

Cross Section F view looking downstream - *section adapted from Heathcote River Catchment Investigation Sept. 1985 Christchurch Drainage Board*

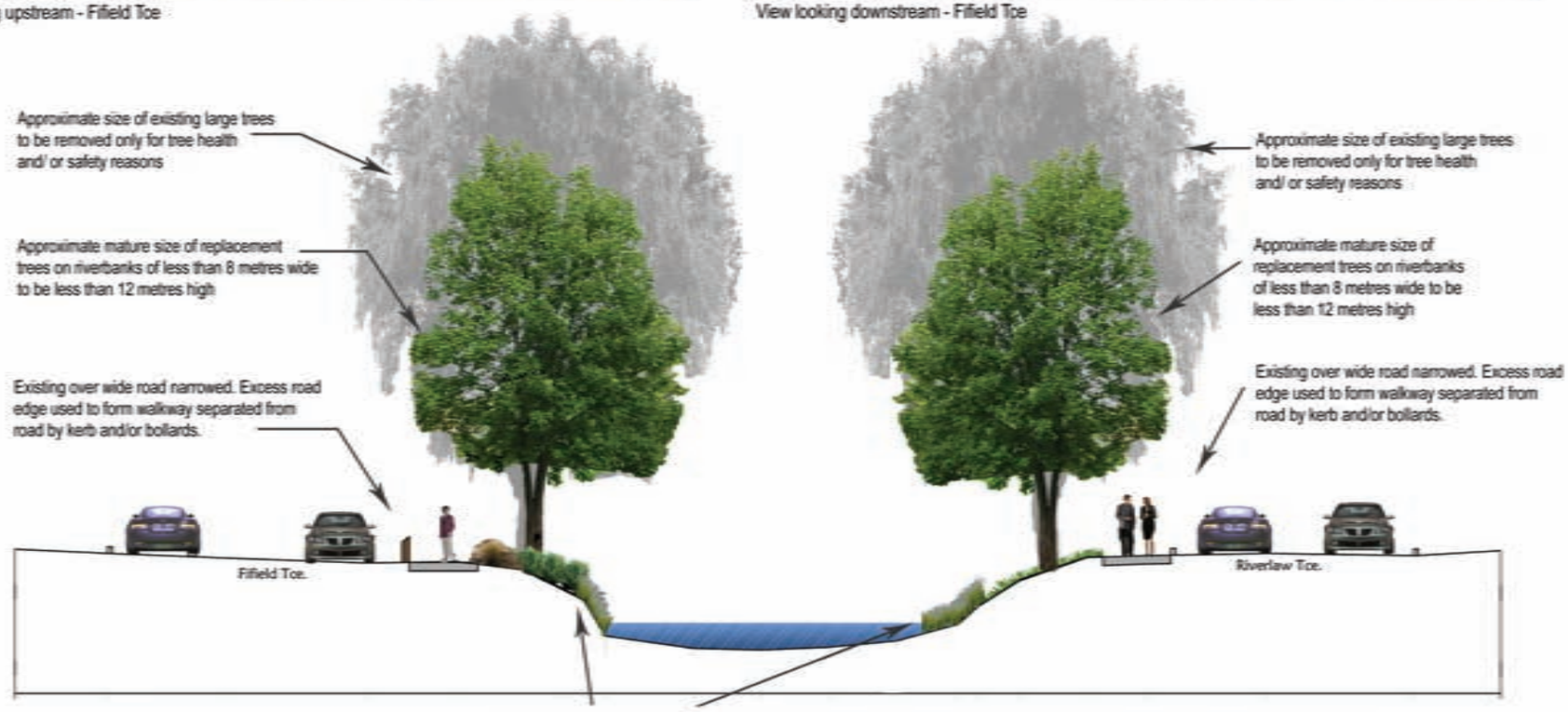
THE PROPOSAL
CROSS SECTION G

For the location of this cross section refer to plan 10, page 69

View looking upstream - Fifield Tce



View looking downstream - Fifield Tce



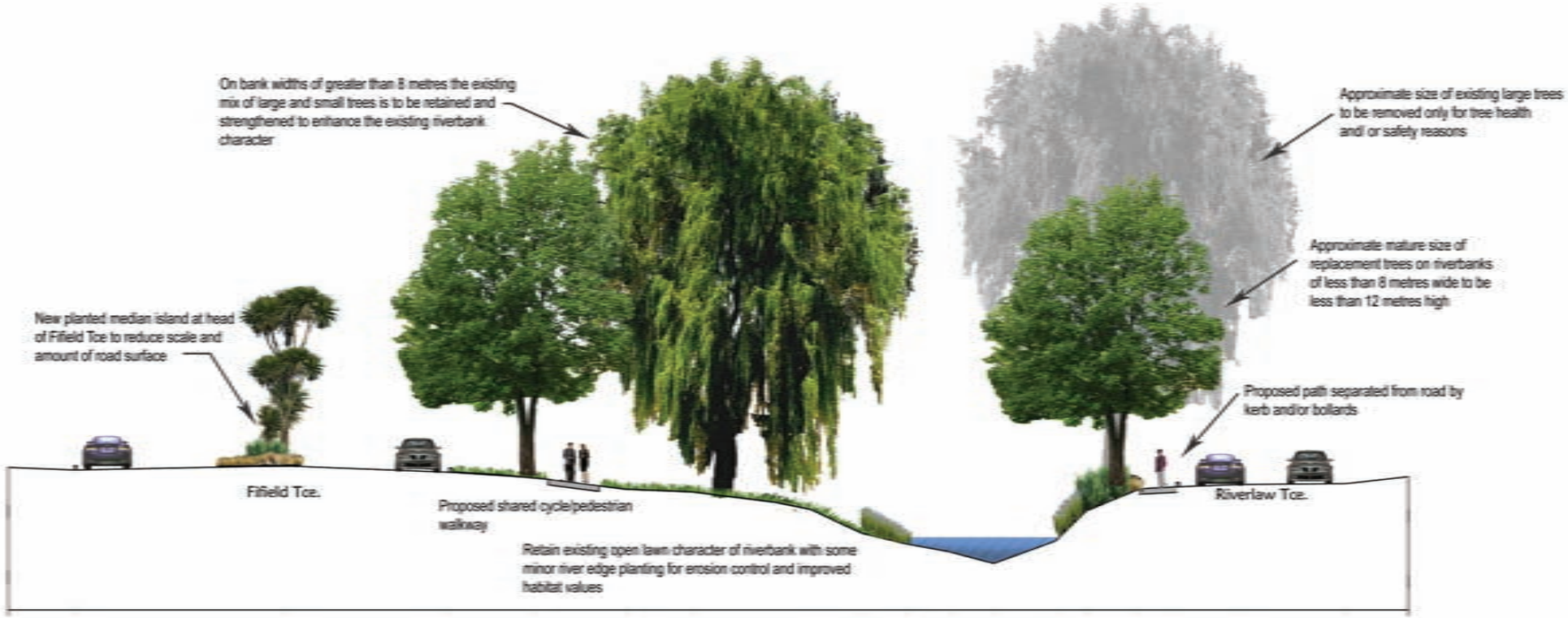
Cross Section G view looking downstream - *section adapted from Heathcote River Catchment Investigation Sept. 1985 Christchurch Drainage Board*

THE PROPOSAL

CROSS SECTION H

For the location of this cross section refer to Plan 12, page 73

View looking upstream - Fifield Tce



Cross Section H view looking downstream - *section adapted from Heathcote River Catchment Investigation Sept. 1985 Christchurch Drainage Board*

Heathcote River/Ōpawaho looking upstream from Malcolm Ave bridge.

THE PROPOSAL
SUGGESTED TIMETABLE

Reflecting community requirements, identified during the consultation process, two priority projects have been selected (indicated below). To address the high priority of these works these projects will be completed first. The remainder of the works will be completed sequentially. Works will commence in Section 1 and progress along the river. It is anticipated that completion of the full project will take 12 years.

Section 1	Colombo St to Malcolm Ave Priority Project – Conversion of pipeyard into reserve
Section 2	Malcolm Ave to Bowendale Ave Bridge
Section 3	Bowendale Ave Bridge - Tennyson St Bridge
Section 4	Tennyson St Bridge - Wilsons Road Bridge
Section 5	Wilsons Road Bridge - Ensors Road Bridge
Section 6	Ensors Road Bridge - Beckford Road Bridge
Section 7	Beckford Road Bridge - Hansens Park Footbridge
Section 8	Hansens Park Footbridge to Opawa Road Priority Project - Improvement of Aynsley Terrace

PART FIVE: APPENDICES

Reference material includes a tree replacement list, river profiles, road edge treatments, relevant plans and policies, background documents and acknowledgments.

APPENDICES

APPENDIX A: CANOPY TREE REPLACEMENT LIST

Objectives

- To provide a long term sustainable schedule of canopy tree species appropriate to the range of river bank types, road edges and adjacent reserves of the heathcote River/Ōpawaho corridor from Colombo Street to Hansen Park/Opawa Road.
- To provide a mix of exotic and indigenous tree species reflective of both community values and site specific issues such as bank stability, bank width, proximity to road edge, bank steepness, and maintenance requirements.
- To ensure the tree species used are reflective of, or contribute to, the six values of the Christchurch City Council Natural Asset Management philosophy : culture, drainage, ecology, heritage, landscape and recreation.
- To provide a sound basis for:
    - short-term (0-3 years) maintenance and renewal of the existing tree stock;
    - medium term (3-10 years) planning with specific attention to key node planting (e.g. bridges, intersections, traffic calming points;
    - a long term (10+ years) cohesive vision allowing for a co-ordinated approach to the planning and implementation of replacement and new tree planting.

For river bank widths of less than 8 metres.

Trees to be planted no closer than 2m to road edge and 2m to river edge.

Indigenous small trees (under 12m high at maturity)

Latin Name	Common name
Carpodetus serratus	putaputaweta
Cordyline australis	cabbage tree/ti kouka
Elaeocarpus dentatus	hinau
Plagianthus regius	ribbonwood/manatu
Pittosporum eugenoides	lemonwood
Pseudopanax crassifolius	lancewood
Sophora microphylla	kowhai
Griselinia littoralis	broadleaf/kapuka
Sophora tetraptera	narrow-leaved lacebark

Exotic Small Trees (under 15m high at maturity)

Latin Name	Common Name
Acer campestre	field maple
Acer palmatum (fungus resistant varieties to be selected)	Japanese maple
Alnus cordata	Italian alder
Alnus rubra	red alder
Magnolia kobus	magnolia, deciduous variety
Nyssa sylvatica	Chinese tupelo
Parrotia persica	Persian witch hazel
Schinus molle	pepper tree

APPENDICES

APPENDIX A: CANOPY TREE REPLACEMENT LIST

For river bank widths of greater than 8 metres.

Trees to be planted no closer than 4m to edge of seal and 2m to river edge

Indigenous large/feature trees (greater than 15m high at maturity)

Latin Name	**Common Name**
Dacrycarpus dacrydioides	kahikatea
Dacridium cupressinum	rimu
Nothofagus fusca	red beech
Podocarpus totara	totara
Prumnopitys taxifolia	matai
Elaeocarpus hookeriana	pokaka

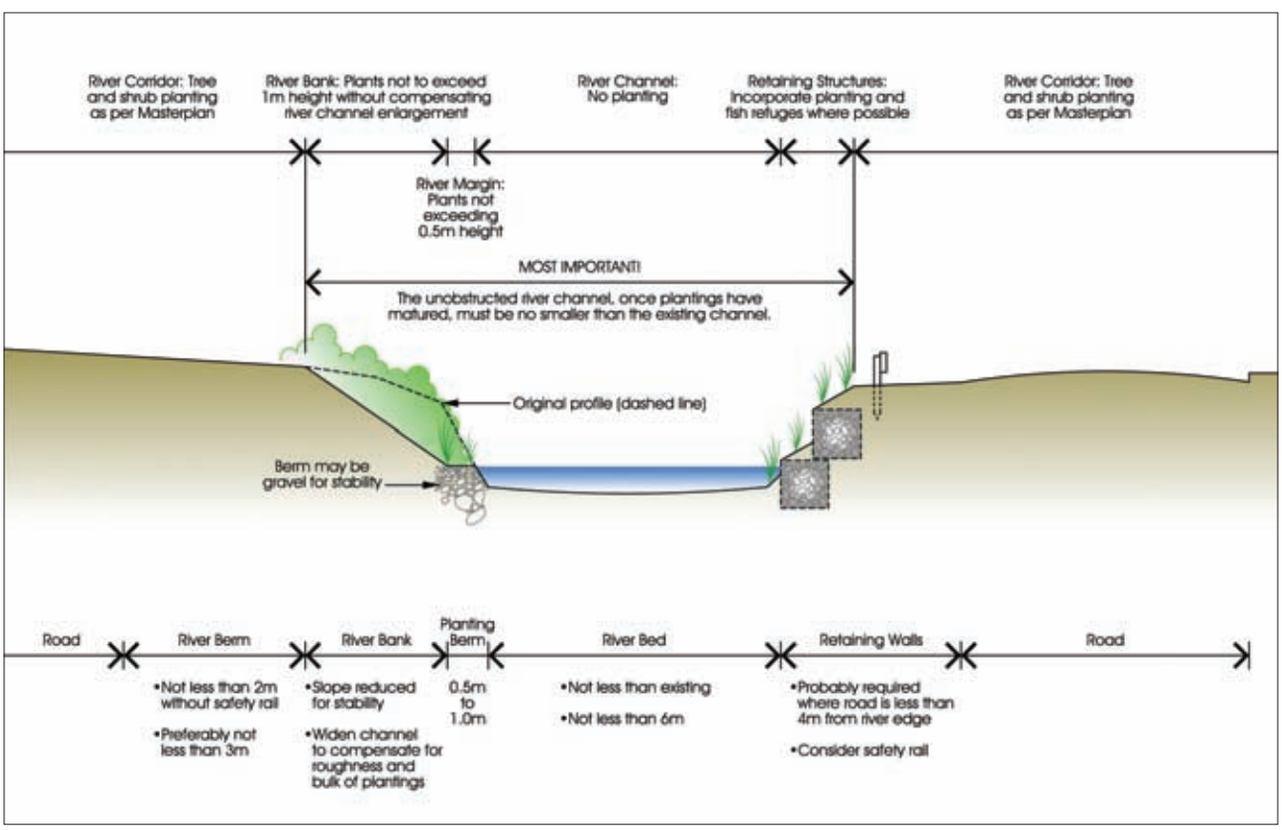
Exotic large/feature trees (greater than 15m high at maturity)

Latin Name	**Common Name**
Acer platanoides	Norway maple
Acer rubrum	red maple
Castinea sativa	sweet chestnut
Carpinus betulus	European hornbeam
Fagus sylvatica	common beech
Fagus sylvatica 'purpurea'	copper beech
Fagus sylvatica 'pendula'	weeping beech
Fraxinus excelsior	common ash
Gingko biloba	gingko
Liriodendron tulipifera	tulip tree
Metasequoia glyptostroboides	dawn redwood
Platanus orientalis	oriental plane
Populus nigra italica	lombardy poplar
Quercus coccinea	scarlet oak
Quercus palustris	pin oak
Quercus phellos	willow oak
Salix babylonica	weeping willow
Taxodium distichum	swamp cypress
Taxodium distichum	swamp cypress

This tree list is comprised of species that will form/retain the high canopy that is characteristic of the Heathcote River. In addition these species have been selected as they are typically disease resistant, long lived species, a potential source of food to birds and invertebrates, their known to absorb air pollutants and/or they are species that would have been native to Christchurch's waterways.

APPENDICES
APPENDIX B: RIVER PROFILES/DETAILS

River Bank Stabilisation Guidelines -
Typical River Cross Section after Stabilisation



Weeping willows on the Heathcote River/Ōpawaho.

APPENDICES

APPENDIX C: RELEVANT PLANS, STRATEGIES AND REFERENCE DOCUMENTS

The Heathcote River/Ōpawaho Linear Park Masterplan establishes a methodology that will achieve goals and policies in the City Plan and in several strategies and policy statements prepared by the City Council. Brief summaries of the key documents follow.

CITY PLAN

The City Plan identifies the city's rivers as outstanding natural features. Within this context, the Heathcote River/Ōpawaho and its environs assumes particular significance as an important identifying feature of Christchurch. Protection of its outstanding natural character and its historic heritage from inappropriate subdivision, use and development are matters of national importance under the Resource Management Act 1991.

The City Plan objectives relevant to this section of the Heathcote River/Ōpawaho are listed below and are detailed in the Waterways and Wetlands Asset Management Strategy (1999):

a. Natural environment objective (Volume 2, Section 2). Maintenance and enhancement of the quality of natural resources and their ability to meet the needs of present and future generations.

b. City identity objective (Volume 2, Section 4). A distinctive city where for amenity and heritage values are maintained and enhanced.

c. Open space and recreation objective (Volume 2, Section 14). Quality open space and a range of recreational opportunities in the City.

The City Plan and the Register of Historic Places under the Historic Places Act 1993 list a number of buildings, places and objects within the Heathcote River/Ōpawaho corridor as protected heritage items. The City Plan contains rules for the protection of these heritage items.

The City Plan contains many other policies relevant to the management of the river corridor.

WATERWAYS AND WETLANDS NATURAL ASSET MANAGEMENT STRATEGY (1999)

The Heathcote River/Ōpawaho is a key element of the network of waterways and wetlands within Christchurch. Management of the network is directed by the Waterways and Wetlands Natural Asset Management Strategy (1999), which is divided into fourteen individual project areas, of which the Heathcote River/Ōpawaho is Section 13.

This document takes a values-based approach in order to satisfy the Council's responsibility to maintain its assets in good condition and to deliver on the objectives and policies of the City Plan. The six values to be taken into account are landscape, ecology, recreation, heritage, culture and drainage.

APPENDICES

APPENDIX C: RELEVANT PLANS, STRATEGIES AND REFERENCE DOCUMENTS

The strategies for the Heathcote River/Ōpawaho listed in the Waterways and Wetlands Natural Asset Management Strategy relate directly to the implementation plans contained in this document, outlined in pages 50-79. These strategies are:

- To prepare concept plans for the River Park in conjunction with Council key partners, neighbourhood improvement plans, and through consultation with individual neighbourhoods.
- To widen the river corridor by street design, tree planting and the incorporation of open green spaces.
- To develop partnerships with schools to provide access, education and recreation opportunities.
- To create habitat for selected aquatic fauna.
- To work in partnership with Tangata Whenua to identify, protect and restore sites of importance.
- To create linkages such as cycleways and walkways to the Port Hills, surrounding neighbourhoods and other green spaces.
- To improve accessibility to the river with steps, landings, canoe ramps, etc.
- To seek additional green space in land prone to flooding, through purchase and partnerships with private development.
- To improve the serenity and safety of river-side recreation areas by road narrowing or closure.
- To provide distinctive focal points within individual neighbourhoods with destination sites, recreation opportunities, art works, restored heritage structures, cafes and community shopping centres.
- To over time replace culvert and pipe outlets and hard structures with natural contours, planting and stone protection.
- To implement flood management and mitigation measures where necessary.

Vision for the future - Heathcote Neighbourhood River Park

The Heathcote River/Ōpawaho meanders through many neighbourhoods in Christchurch. It passes through schools, hospitals, sports fields and areas of ecological importance. The neighbourhood river park concept aims to develop the river as a focus for community recreation, education, relaxation and as an attractive environment for walking and cycling through the city. The Heathcote River/Ōpawaho can be further developed to reinforce community values and neighbourhood identity.

We believe the Heathcote River/Ōpawaho can be managed to strengthen physical and community connections to the river through close consultation with neighbourhoods. Options to achieve this include; extending the green space of the river by narrowing or closing roads where feasible, creating community nodes with artworks, outdoor furniture, and other facilities, and highlighting areas of particular ecological, heritage and cultural significance that are special within each neighbourhood. Working in close partnership with Tangata Whenua, schools, hospitals and neighbourhood groups to support community pride and ownership of the river.

Purchasing of land prone to flooding would enable the river corridor and the river park to be extended. Walkways and cycleways could be developed further to encourage recreational sightseeing along the river. Facilities for encouraging further use of the river for canoeing, rowing, whitebaiting and possibly swimming in the upper spring fed catchment could be created.

APPENDICES

APPENDIX C: RELEVANT PLANS, STRATEGIES AND REFERENCE DOCUMENTS

HERITAGE CONSERVATION POLICY

From open sports fields in the upper catchment to ecological restoration of the lower salt marsh area with heritage interpretation and walks, the Heathcote River/ Ōpawaho provides many opportunities for greater interaction between people and the natural environment of the river.

In order to safeguard its heritage for present and future generations, Christchurch Otautahi has a general responsibility to adopt the highest of professional conservation standards. These standards are outlined in the International Council on Monuments and Sites (ICOMOS) New Zealand Charter which sets out a frame of reference to guide the conservation of places of cultural heritage value in New Zealand. The guidelines set out the need to:

- understand the significance of heritage places
- ensure that an understanding of their significance guides decisions
- retain the historic integrity of heritage places by doing 'as much as is necessary' to preserve their fabric but as 'little as possible' to alter it
- to keep records of what is done

The City of Christchurch Heritage Conservation Policy (1999) includes Policy 4.1, which is to:

'…prepare conservation plans for all appropriate heritage buildings, places and objects in Council ownership that are listed in the City Plan. A conservation plan is defined a s a 'document which sets out what is significant about a place and, therefore, what policies are appropriate to enable that significance to be retained in its future use and development.'

The ICOMOS Charter explains that the historical setting of a place should be conserved with the place itself. If the historical setting no longer exists, construction of a setting based on physical and documentary evidence should be the aim. The extent of the appropriate setting may be affected by constraints other than heritage value. (see http://www.historic.org.nz/heritage/archsites_brochures.html for more information).

PROPOSED CHRISTCHURCH CITY BIODIVERSITY STRATEGY 2008-2035 (JUNE 2008)

The Biodiversity Strategy sets a vision for the city whereby 'The biodiversity of Christchurch and Banks Peninsula is valued, promoted, protected and enhanced. Local communities, iwi and the Council work together to sustain the full range of species and habitats which are special to the hills, valleys, coast, lakes, waterways and plains of the Banks Peninsula and Christchurch'.

This Masterplan takes into account the vision set by the Biodiversity Strategy and has sought to find a balance between the development of native habitats and the enhancement of the landscape character that the community currently associate with the Heathcote River / Ōpawaho.

It is considered that this Masterplan will assist in delivering three of the Goals set down in the Biodiversity Strategy:

- Conserve and restore Christchurch's and Banks Peninsula's indigenous biodiversity
- Raise awareness and understanding of indigenous biodiversity.
- Encourage widespread participation in support of indigenous biodiversity conservation.

The Biodiversity Strategy provides a list of important habitats within Christchurch which includes the Heathcote River / Ōpawaho. It states that 'water quality improvement and reduced sediment loads in the river system are highly desirable as well as protection and enhancement of riparian vegetation, fish and invertebrate habitats. The wooded portions of the upper Heathcote and Canterbury Park are important as native bird corridors and habitat areas. New native forest patches in this area would complement the existing river corridor. Any bank planting will fit within the City's overall Garden City landscape character which includes planting of appropriate exotic trees'

APPENDICES

APPENDIX C: RELEVANT PLANS, STRATEGIES AND REFERENCE DOCUMENTS

OTHER STRATEGIES AND POLICIES OF RELEVANCE

Reference was also made to the following strategies and policy documents in the preparation of the Heathcote River/Ōpawaho Linear Park Masterplan:

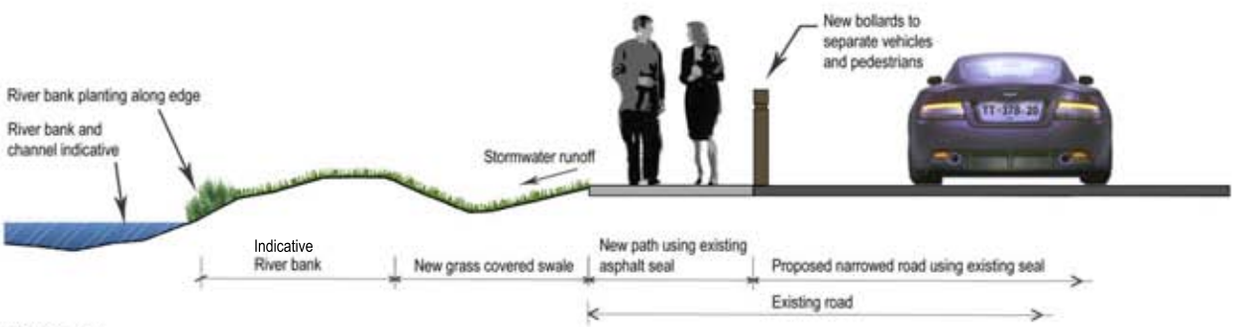
- Beckenham Neighbourhood Improvement Plan (c1990)
- Christchurch City & Lowland Canterbury Streamside Planting Guide (2005)
- Crime Prevention Through Environmental Design (2005)
- Indigenous Ecosystems of Otautahi Christchurch (1997)
- Infrastructure Design Standard, (Draft 2007)
- New Zealand Historic Places Trust archaeology brochures http://www.historic.org.nz/heritage/archsites_brochures.html
- Streamside Planting Guide: what to plant and how to maintain native plants along freshwater streams in Christchurch (undated)
- Waterways, Wetlands and Drainage Guide, Ko Te Anga Whaka mo Nga Arawai Repo (2003)

BACKGROUND DOCUMENTS

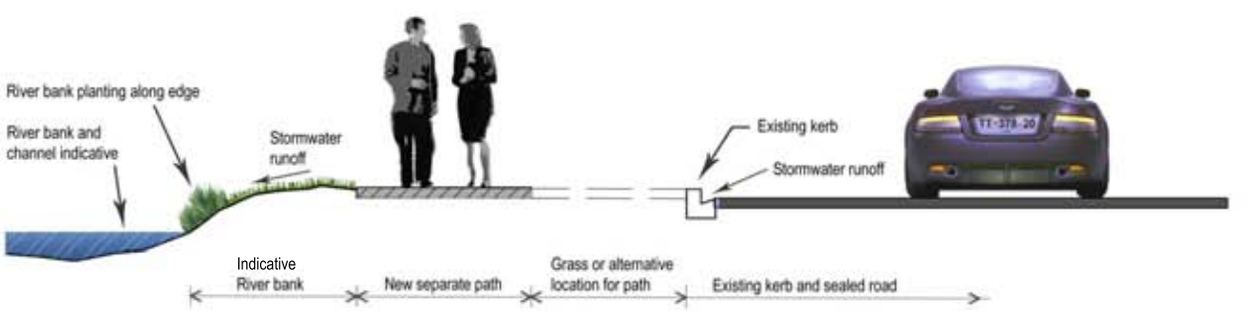
- Attracting Native Bush Birds back to Christchurch (undated)
- Avon River/Otakaro (Central City) Masterplan (2007)
- Boffa Miskell Study – Heathcote River/Ōpawaho Environmental Impact Assessment (1985), Boffa Miskell & Partners
- Ecological Values and Waterway Design Considerations of the Heathcote River: Stage 1; Colombo Street to Hansens Park AEL Report No. 30 (2nd Draft, June 2005)
- Heathcote River/Ōpawaho Vision public submissions (Mar-May, 2005)
- Heathcote River/Ōpawaho Floodplain Management Strategy, 1998 (Paul Dickson)
- Insite report: Heathcote River, Prepared for Rachel Barker, Asset and Network Planning (19 January 2007)
- Post-1847 changes in the Avon-Heathcote Estuary, Christchurch: a study of the effect of urban development around a tidal estuary. NZ Journal of Marine and Freshwater Research, 1988, Vol 22: 101-127
- Spreydon/Heathcote Leisure Parks and Waterway Study Christchurch City Council (Global Leisure Group, January 2002)

APPENDICES

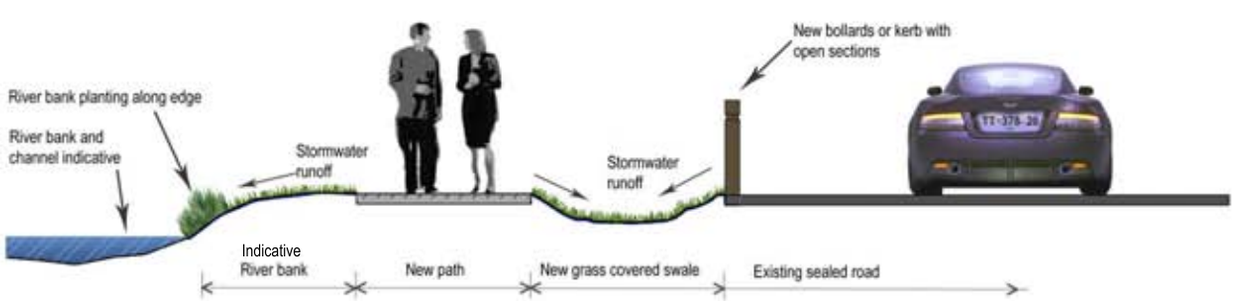
APPENDIX D: OPTIONS FOR ROAD EDGE TREATMENT



Option 1



Option 2



Option 3

MID-HEATHCOTE RIVER / OPAWAHŌ LINEAR PARK MASTERPLAN
ACKNOWLEDGEMENTS

» Rachel Barker, Wetlands Planner - Ecologist
» John de Zwart - Project Manager
» Shelley McMurtrie and Mark Taylor, EOS Ecology - Ecologists
» Davinia Mikkelsen, Christchurch City Council - Graphic Designer

Heathcote River/Ōpawaho Steering Group:

» Ann Campbell, Parks and Waterways Area Advocate
» Barry Cook, Roading Engineer
» Paul Dickson, Drainage Engineer
» Jennifer Dray, Landscape Architect
» Kristi Gray, Communication Services Manager
» Jeremy Head, Consultant Landscape Architect
» Wendy Hoddinott, Consultant Landscape Architect, Opus International Consultants Ltd
» Richard Holland, Planning and Investigations Team Manager
» Lyndsey Husband, Waterways Planner - Ecologist
» Trevor Partridge, Botanist
» Wayne Rimmer, Consultant Landscape Architect. Opus International Consultants Ltd
» David Sissons, Parks & Waterways Planner
» Gayle Williams, CAD Draughtsperson Landscape
» Nadine Sargent, Landscape Architect, Opus International Consultants Ltd.

Christchurch
City Council