





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

#### Exotic Small Trees (under 15m high at maturity)

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

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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
<i>Dacrycarpus dacrydioides</i>	kahikatea
<i>Dacridium cupressinum</i>	rimu
<i>Nothofagus fusca</i>	red beech
<i>Podocarpus totara</i>	totara
<i>Prumnopitys taxifolia</i>	matai
<i>Elaeocarpus hookeriana</i>	pokaka

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

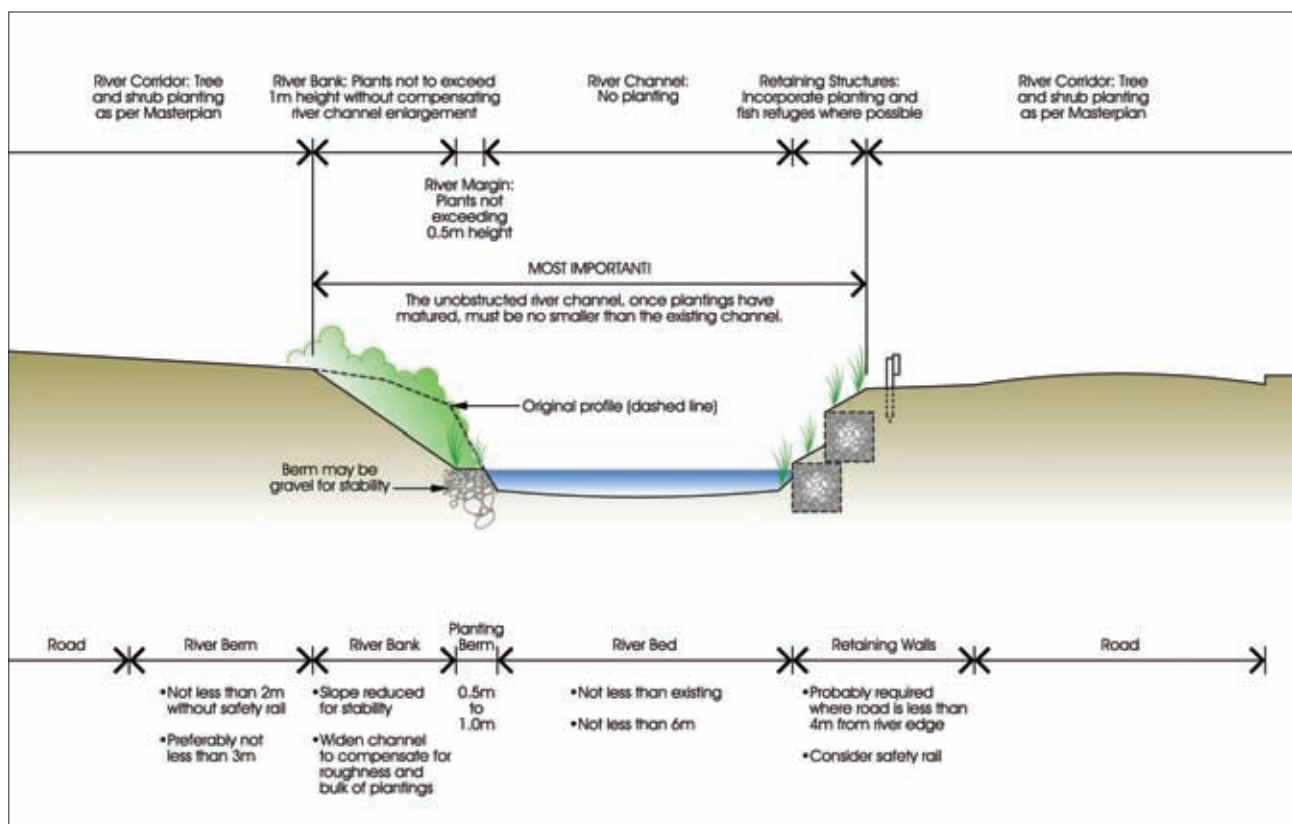
Latin Name	Common Name
<i>Acer platanoides</i>	Norway maple
<i>Acer rubrum</i>	red maple
<i>Castanea sativa</i>	sweet chestnut
<i>Carpinus betulus</i>	European hornbeam
<i>Fagus sylvatica</i>	common beech
<i>Fagus sylvatica 'purpurea'</i>	copper beech
<i>Fagus sylvatica 'pendula'</i>	weeping beech
<i>Fraxinus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

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## 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.

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## 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.



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## 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 Ōtautahi 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 as 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](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'

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### 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](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

