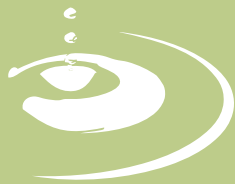


# WATER

## 7. Waterways and Catchments

WATER



The Whittlesea Green Wedge contains the critical upper and middle catchments of a number of metropolitan waterways, including:

1. Plenty River
2. Merri Creek
3. Darebin Creek
4. Diamond Creek

In the east, the Plenty River is the largest river within the Green Wedge and is naturally the only perennial watercourse. Scrubby Creek, Bruces Creek and Barbers Creek flow into the Plenty River. The Merri Creek runs substantially along the western boundary of the municipality, falling from the foothills of the Great Dividing Range. Edgars Creek, Curly Sedge Creek and Central Creek are all tributaries of the Merri Creek. The entire upper and middle catchment of the Darebin Creek is located within the City of Whittlesea. This includes the sub-catchments of Findon Creek and Henderson Creek. A small portion of the Diamond Creek runs through the far north-east of the municipality.

This equates to approximately 476 kilometres of rivers, creeks and tributaries and seven wetlands within the broader Yarra Catchment. The water supply catchments and water storage reservoirs associated with Toorourrong and Yan Yean Reservoirs are also located in the municipality. Groundwater held in aquifers also contributes to surface water supplies.

This interwoven relationship between surface and groundwater resources, and how activities on the land affect water health, relies on integrated catchment management to tie together the range of considerations.

## Key goal and directions

The water goal for the Whittlesea Green Wedge is as follows:

### GREEN WEDGE GOAL

**Water:** Sustainable water use and healthy waterways, wetlands and groundwater

This section of the Management Plan will focus on the following sub-theme:

### WATER Sub-theme

1. Waterways and catchments

Each sub-theme describes key features and values, conveys community views, identifies planning controls and guidelines, and summarises key programs. Relevant actions are listed in Part 3: Action Plan.

## Legislative framework

Protection and management of waterways within the City of Whittlesea is influenced by a range of legislation:

- Surface and ground water is protected from pollution by the *Environment Protection Act 1970* with its supporting State Environment Protection Policies (SEPPs).
- The formation of authorities, such as Melbourne Water, to manage and protect water resources is enabled by the *Catchment and Land Protection Act 1994*, the *Water Act 1989* and the *Melbourne Water Corporation Act 1992*.
- The *Catchment and Land Protection Act 1994* also enables the declaration of Special Areas for water supply catchment areas that supply Victoria's potable water (previously referred to as Proclaimed Water Supply Catchments). In order to assist the regulation of some land uses, Special Areas Plans can be developed and linked to local planning schemes. This Act also requires Councils to have regard for any regional catchment strategies which apply to land within their area.
- Protection of waterways and protection from flooding is enabled the *Planning and Environmental Act 1987* through the Victorian Planning Provisions and the Whittlesea Planning Scheme, administered by the City of Whittlesea.
- Victoria's Native Vegetation Management Framework and the NERO Report - Sites of Faunal and Habitat Significance in North East Melbourne.



## 7.1 Objective

The objective for this sub-theme is:

### Waterways and catchments objective

**To protect and improve the environmental health, and social and economic values of waterways, wetlands and aquifers.**

The Whittlesea Green Wedge contains the critical upper and middle catchments of a number of metropolitan waterways. These areas provide opportunities for restoration, revegetation and passive recreation.

## 7.2 Features and Values

Waterways within the municipality provide valuable environmental, social and economic benefits for residents and visitors alike.

### 7.2.1 Waterways

The waterways within the municipality display a prominent north-south alignment. The northern section, with its strongly dissected slopes and valleys, contributes to the catchment system associated with the Yan Yean and Toorourrong Reservoirs. This area also comprises the south western part of the Great Dividing Range.

Here the elevation and numerous spurs and valleys provide the beginning, or upper reaches, of a number of small streams that flow into the Plenty River to the east, and the Merri Creek and Darebin Creek to the west.

Four defined sub-catchment areas contribute to the Yarra Catchment within the City of Whittlesea: the Plenty River, the Darebin Creek, the Merri Creek and to a lesser extent the Diamond Creek Catchment (refer to Map 19 over the page).

Many smaller tributaries feed these systems, such as Barbers Creek, Bruces Creek and Scrubby Creek, that all flow into the Plenty River. Many other smaller streams, often ephemeral in nature, also contribute to the water flow of these waterways.

The following is a brief summary of the municipality's watercourses (City of Whittlesea 2000a; City of Whittlesea 2000b).

## Plenty River Catchment

Approximately 80% of the Plenty River Catchment is contained within the City of Whittlesea. From its northern headwaters in the Great Dividing Range, the drainage catchment of the Plenty River experiences seasonal variations in water flow, but is the only perennial watercourse within the municipality.

Due to the steep ridges and valleys in the headwaters, gully erosion is occasionally a problem. Where the terrain levels out, the Plenty River settles into a floodplain. This floodplain is more than a kilometre wide in some places and the river is frequently inundated between the Whittlesea Township and Mernda.

The Plenty River Catchment feeds the Yan Yean and Toorourrong Water Storage Reservoirs and passes through forests, open pasture and grazing land to the Whittlesea Township. Here the terrain levels out and the Plenty River settles to a floodplain. This floodplain is more than a kilometre wide in some places and the river is frequently inundated between Whittlesea and Mernda.

From this middle reach, the Plenty River passes through the increasingly urban areas of Doreen and South Morang. This river catchment leaves the municipality at the Plenty Gorge Parklands then continues onto Bundoora and the Yarra River. Scrubby Creek, Bruces Creek and Barbers Creek are the three major tributaries of the Plenty River Catchment located within the City of Whittlesea.

# WATER

## 7. Waterways and Catchments

WATER



### Merri Creek Catchment

Approximately 25% of the Merri Creek Catchment is located within the City of Whittlesea. This comprises the eastern portion of the upper and middle reaches of the catchment area.

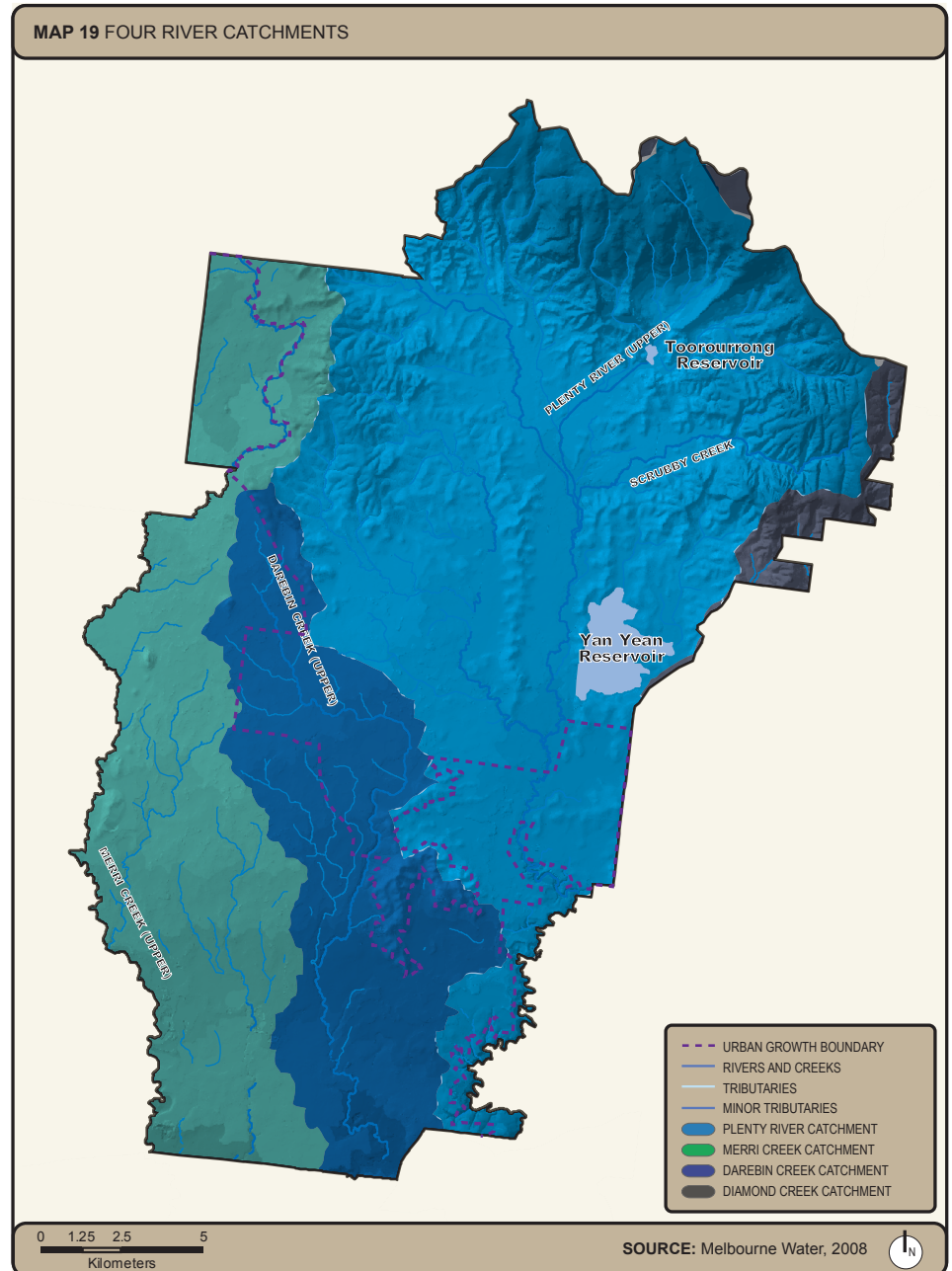
The upper portion of the Merri Creek Catchment enters the municipality at the north-eastern boundary in Beveridge. South of Beveridge, near the Bald Hill area, the Merri Creek forms the City's municipal boundary with Hume City. The Creek leaves the municipality at Thomastown before entering Darebin, Moreland and Yarra municipalities and enters the Yarra River at Dights Falls.

The alignment of the Merri Creek has been derived from lava spread, occurring in depressions, fractures and joints in the volcanic rock. Low rainfall in the upper reaches has led to intermittent and ephemeral stream flows. Beyond the Donnybrook area, the water flow generally increases to a perennial basis.

Within the municipality, Edgars Creek, Curly Sedge Creek and Central Creek are the three sub-catchments of the Merri Creek Catchment.

### Diamond Creek Catchment

A small portion of the Diamond Creek catchment is contained at the eastern most point adjoining the Shires of Murrindindi and Nillumbik. This portion of the Diamond Creek Catchment includes Running Creek which continues into Kinglake National Park.





## Darebin Creek Catchment

Three quarters of the Darebin Creek Catchment lies within the municipality, comprising of the entire upper and middle reaches of the catchment. From its headwaters in the gently undulating sandstone hills to the north-west of Grants Road, the Darebin Creek flows down to the western plains through to Woodstock and Wollert. Within these plains, Darebin Creek and its tributaries once formed typical pool and riffle formations. Today, pressures ranging from draining, to filling for development, has led to highly disturbed flow regimes within the middle (and lower) reaches of the catchment.

As the Darebin Creek moves into the increasingly residential areas of Epping and the established suburbs of Mill Park and Thomastown, water flow is assisted by urban runoff. This catchment leaves the municipality at Settlement Road then flows through Thornbury, entering the Yarra River at Alphington.

Findon Creek and Henderson Creek (with its headwaters in Quarry Hills) are the two major tributaries of the Darebin Creek Catchment within the City of Whittlesea.



Darebin Creek Catchment



### 7.2.2 Wetlands

The City of Whittlesea contains a number of wetlands scattered throughout the municipality. Wetlands are an important habitat for many land and water animals and their continuation is imperative for many bird species.

Accordingly, these wetlands also appear on the list of sites of biosignificance (as discussed in the Biodiversity Section).

The Yarrambat-Morang wetlands, located adjoining the Plenty River in South Morang is recognised as a wetland of national biosignificance.

Hernes Swamp, located in the north-western corner of the municipality, and O'Herns Road wetland, adjacent to Craigieburn grasslands, are recognised as sites of state biosignificance. Several other wetlands such as Camoola Swamp, Towts Swamp and Tununda wetlands have been identified as having regional biosignificance.

Human activity has also created new wetland environments such as reservoirs, sewage treatment plants and storm water treatment plants. It is estimated that these artificial wetlands now comprise around 22 per cent of the region's wetland coverage (PPWCMA 2004).

Within the rural areas of the City of Whittlesea, the creation of farm dams is on the increase, particularly due to low rainfall levels and water restrictions.

### 7.2.3 Water supply catchments

Of the 157,000 hectares reserved for harvesting water for Melbourne's water supply (DSE 2006b), the City of Whittlesea contains around 8000 hectares of closed water supply catchments. These drainage areas feed the municipality's two water storage reservoirs: Yan Yean and Toorourrong.

Toorourrong Reservoir is located within the Kinglake National Park. This reservoir is linked by channels to the Yan Yean Reservoir, seven kilometres further south. Due to the February 2009 bushfires, public access is now restricted from Jacks Creek Road and the reservoir could be offline for the next decade. Prior to the fires, the grounds contained introduced specimen trees, conifers and bbq facilities, in addition to a platypus 'hide', courtesy of the Australian Platypus Conservancy.

Melbourne's oldest water storage site, Yan Yean Reservoir, was constructed in 1853 and originally supplied potable water for the north of metropolitan Melbourne. Surrounded by an extensively planted catchment of eucalypts and some exotic trees, today low water flows mean this reservoir is rarely used to supplement Melbourne's potable water supply. However, limited public access is available to well maintained grounds with bbq facilities and well preserved heritage items such as bluestone-lined pumps and aqueducts.

Map 20 over the page shows the distribution of wetlands and water storage reservoirs within the City of Whittlesea.

### 7.2.4 Groundwater

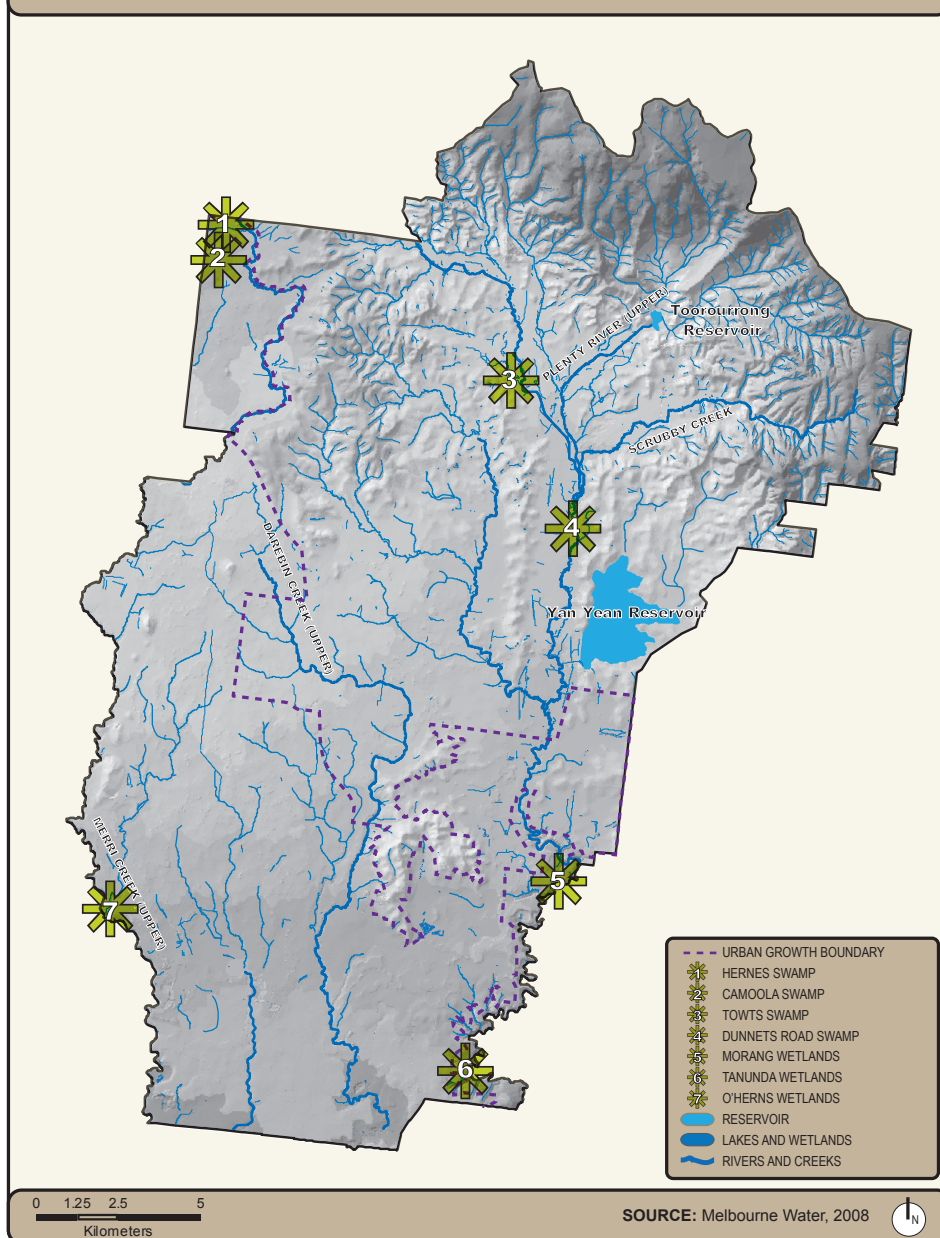
According to the most recent Regional Catchment Strategy, knowledge of the complex dynamics of groundwater is incomplete (PPWCMA 2004). Yet groundwater is an important component of the total water resource, especially when it occurs close to the surface, interacting and contributing to the flow and health of waterways and wetlands.

Within the City of Whittlesea, any groundwater contained within aquifers (layers of soil that can hold and transport groundwater), could be suitable to be pumped to the surface in bores and used for a variety of purposes.

Groundwater extraction is commonly used for stock, irrigation and domestic purposes. However, as the municipality does not fall within one of the eleven Groundwater Management Areas (Southern Rural Water 2003), ground water extraction via bores is not subject to licence conditions from water authorities.



MAP 20 WETLANDS AND WATER STORAGE RESERVOIRS



### 7.3 What the Community is Saying

Consultation was undertaken with residents and community groups through a series of community forums and supplemented by workshops with government departments and agencies with an interest in the Whittlesea Green Wedge.

Despite the range of opinions expressed, a common thread can be drawn from the feedback received:

- **Our municipality is located at the headwaters of several significant water catchments, yet few restrictions are placed on the location of farm dams and the number of bores.** Lack of knowledge of the hydrological cycle has been identified as an issue, while opportunities to tap into existing waterways incentives have been applauded.

Refer to the *Community Views Final Report* for a detailed summary of community responses.





## 7.4 Issues

The main areas requiring action in order to protect and improve the waterways and catchments of the Green Wedge are:

- Lack of promotional and interpretive signage identifying location and importance of the catchments
- Limited interaction and custodianship between residents, landholders and our municipality's waterways
- Increased development adjacent to waterways affecting water health
- Unrestricted access to water resources via the sinking of bores, development of farm dams and stock to waterways
- Continued consolidation of lots in Eden Park
- Fragmented planning policy approach to the protection of the municipality's waterways
- Concern over the unknown affects of global warming on waterway health

This is not an exhaustive list, but rather an overview of the current key areas requiring action.

## 7.5 Planning Provisions

The State Planning Policy Framework of the Victorian Planning Provisions supports the protection of catchments through its objective to assist *the protection and, where possible, restoration of catchments, waterways, water bodies, groundwater, and the marine environment* (Whittlesea Planning Scheme, Clause 14.02-1). Clause 14.02 focuses on floodplain management.

A key area identified for immediate improvement is the treatment of waterways from a water quality and abutting land use perspective (Whittlesea Planning Scheme, Clause 21.02-09).

Within the Whittlesea Green Wedge, the Public Use Zone has been applied to water storage catchments. The preferred zoning is the Public Conservation and Resource Zone.

Specific zones and overlays within the Whittlesea Planning Scheme that are relevant to the protection and improvement of the health of waterways and catchments include:

- *Public Use Zone (Schedule 1)* protects land set aside for service and utility uses and includes the water supply catchment areas associated with Toorourrong and Yan Yean Reservoirs.
- *Green Wedge, Green Wedge A and Rural Conservation Zone* require a planning permit for any works that disrupt the natural flow of water. This includes the construction of farm dams, equine ménages and raised access roads.
- *Rural Floodway Overlay* applies to land to the west of Plenty Road near the Whittlesea Township.
- *Land Subject to Inundation Overlay* is applied to several established residential areas, including the Whittlesea Township, where it recognises land affected by the 1 in 100 year flood. A planning permit is required for all buildings and works inclusive of fences, swimming pools and dwellings.

- *Environmental Significance Overlay* has the purpose of ensuring proposed development is compatible with identified environmental values, including waterways and floodplains. The Merri Creek and environs (Schedule 3) is specifically protected by this overlay. Subdivision, buildings and works within these areas require a planning permit.

Map 21 over the page provides a summary of the waterway and catchment protection controls afforded by the Whittlesea Planning Scheme.

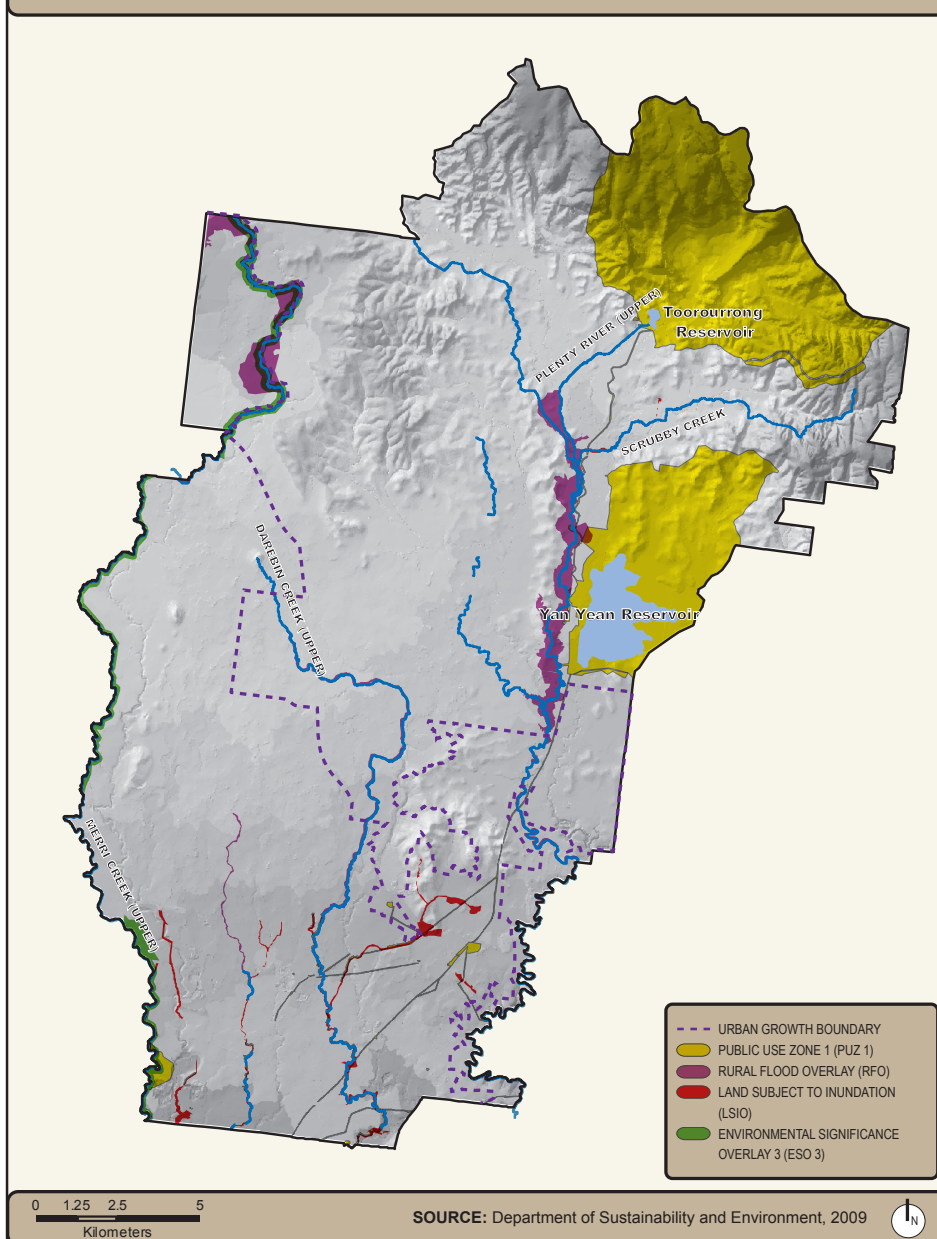
## 7.6 Planning Guidelines

Within the context of broader green wedge values, the following provides a guide for Council in its decision making regarding waterways and catchments:

- All land use and development applications to respect the value of *waterways*. Activity that could adversely affect the water quality or quantity of the municipality's watercourses or groundwater is unlikely to be supported. Adopt a precautionary approach to activities proposed within 50m of the bank of a watercourse.
- Promote and encourage opportunities to *restore, revegetate* or utilise waterways for passive recreation. Encourage interpretative signage at all waterways
- Discourage *unrestricted access* to water resources via the sinking of bores, installation of farm dams or access by stock to waterways.
- Strengthen *planning policies* to protect the municipality's waterways.



MAP 21 WHITTLESEA PLANNING SCHEME WATERWAYS AND CATCHMENTS



### 7.7 Incentives And Programs

Melbourne Water's 'Stream Frontage Management Program' is open to private landowners with waterway frontages over 50m in length, or to a group of adjoining property owners working in collaboration. Applications can be made at any time.

The purpose of the 'Stream Frontage Management Program' is to assist landowners to protect and improve stream frontages. Participating landholders are offered educational opportunities and funding assistance. Typical projects include fencing to exclude stock from waterways, riparian weed control and revegetation. Funding may be ongoing for several years if a project needs to be completed in stages. For further information contact Melbourne Water's partnership officer for the Upper Yarra or Merri Creek.

'WaterWatch' is another initiative of Melbourne Water that aims to involve local communities, including schools, in the monitoring and education of water quality and impacts on water health.

Port Phillip and Westernport Catchment Management Authority (PPWCMA) and Melbourne Water run a community grants program that supports the community and local government to improve the health of land, biodiversity and water resources in the region. Contact PPWCMA on [www.ppwcm.vic.gov.au](http://www.ppwcm.vic.gov.au) or Melbourne Water River Health Partnership Officers at [www.melbournewater.com.au](http://www.melbournewater.com.au).







Toorourong Reservoir prior to the February 2009 bushfires

### 7.8 Actions

Refer to Part 3: Action Plan for the full range of actions proposed to sustain the Whittlesea Green Wedge into the future.

In summary, key actions proposed include:

- Explore opportunities to further the promotion and uptake of Melbourne Water's 'Stream Frontage Management Program' in order to assist rural residents better manage river and creek frontages
- Investigate options for funding signage for all waterways, particularly at major road and pathway intersections
- Continue to encourage good water sensitive urban design from new developments abutting waterways in order to protect aquatic values
- Strengthen planning provisions targeted at the protection and improvement of waterway health as part of the Whittlesea Planning Scheme review process.
- Investigate opportunities to contribute to research on surface and sub-surface water use, especially relating to farm dams and bores.

