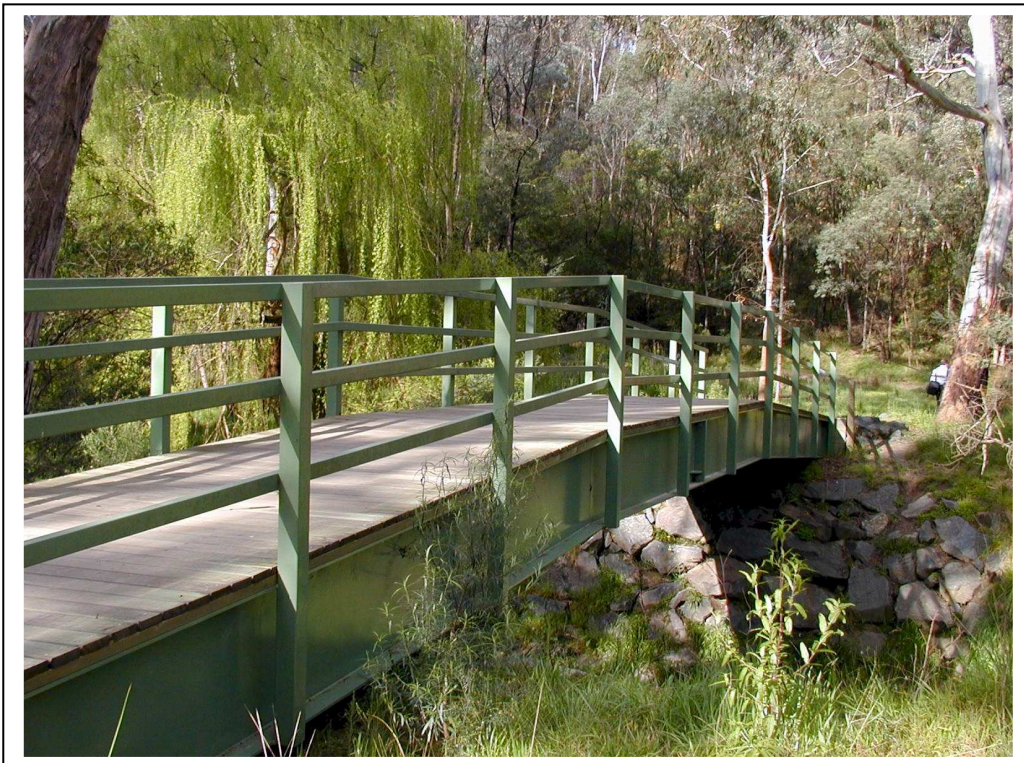




MULLUM MULLUM CREEK LINEAR PARK STAGE 2

MANAGEMENT PLAN



AUGUST 2005

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PLAN: Mullum Mullum Creek Linear Park Stage 2

Appendix 1. Fauna Species Recorded at or within 1 km of the Study Site

Appendix 2. Draft plans for the Cross-Country Course/Whites Orchard.

1 INTRODUCTION

The City of Manningham's Open Space Strategy (2004) recognises the importance of Linear Parks for the provision of recreation, as wildlife corridors and as strategic links to other areas of open space and community facilities. The Mullum Mullum Creek Linear Park is a significant waterway and is the most important Linear Park next to the Yarra River within the municipality, as it contains significant riparian vegetation, forms an important faunal corridor and caters for a variety of recreational activities. The park is currently used for recreational walking, walking dogs, nature walks, cycling, horse riding and provides access to sporting facilities. It provides an important strategic link to the main Yarra Trail at Tikalara Park. Manningham City Council gives its continued planning and development a high priority for Manningham within the open space network.

The Mullum Mullum Creek Linear Park begins where the creek originates near Cherry Tree Grove, Croydon and extends 16 kilometres which ends at the confluence of Mullum Mullum Creek and the Yarra River at Tikalara Park, Templestowe.

The Mullum Mullum Creek Linear Park Stage 2 (MMCLP Stage 2) comprises the area of public land along both sides of the Mullum Mullum Creek between Reynolds Road and Tindals Road, Donvale. Covering an area of approximately 40 hectares, this section of the Linear Park extends approximately 1.3 kilometres. The western boundary includes the Mullum Mullum Reserve creek flats as well as abuts residential land uses and Carey Baptist Grammar School, whereas the eastern boundary adjoins larger rural properties and the Donvale Christian College. The study area includes Buck Reserve.

The purpose of the 2005 Mullum Mullum Creek Linear Park Stage 2 (MMCLP Stage 2) Management Plan is to provide a guide for the future use, development, landscaping, management and maintenance of the Mullum Mullum Creek Linear Park from Reynolds Road to Tindals Road, Donvale. The plan contains recommendations for capital works as well as long term aims and objectives for this section of the Linear Park. It is envisaged that this Management Plan will be reviewed in 5 years.

The Management Plan is structured to provide:

- Background information;
- Policy context;
- Outline of how the draft Management Plan was developed;
- Vision for Mullum Mullum Creek Linear Park Stage 2 and a set of objectives on how to implement that vision;
- Recommendations for environmental management, waterway management; recreational opportunities, fire management, cultural heritage, community involvement, ongoing management, maintenance and monitoring; and
- A capital works program plan to implement recommendations of the Management Plan.

2 BACKGROUND

In 1992 a concept plan was prepared which proposed staged development of the MMCLP. In 1996, a management plan for the Reynolds Road to Tindals Road section was prepared as the second stage in the overall development and implementation of the Linear Park. A review of the management plan five years from the completion of the recommended capital works was a recommendation of the plan.

This review of the MMCLP Stage 2 Management Plan (1996) addresses a number of issues including:

- The need to incorporate land recently purchased by Council being part 159 Tindals Road, formerly known as Whites Orchard, into the MMCLP Stage 2 study area;
- The need to identify and review fire management issues and practices including access for fire fighting purposes;
- The need to re-locate the equestrian cross-country course from Buck Reserve hillside to the Whites Orchard in light of recommendations of the Buck Reserve Management Plan (1996);
- The need to consider outcomes of the Study of Sites of Botanical Significance within the City of Manningham; and
- The need investigate the feasibility of a pedestrian path along the eastern side of the creek.

The MMCLP Stage 2 Management Plan (1996) identified issues relevant to the future use, development, landscaping and maintenance of the Stage 2 section of the Mullum Mullum Creek Linear Park. These recommendations included short-term immediate actions, which have been undertaken by Council as well as long-term strategies. Recommendations also related to actions required by Melbourne Water (MW) as the agency responsible for the ongoing development and maintenance of the creek channel.

Melbourne Water is the responsible authority for the management and maintenance of the bed and banks of the Mullum Mullum Creek. The MMCLP Stage 2 Management Plan contains recommendations that relate to areas of responsibility for Melbourne Water, which will assist in coordination between management authorities and provide an opportunity to achieve sustainable management of open space for this section of the Mullum Mullum Creek.

2.1 Study Area

The study area of MMCLP Stage 2 is shown in Figure 1 and comprises areas of public land on both sides of the Mullum Mullum Creek including Springwood Close Reserve and Buck Reserve. Springwood Close Reserve is a Neighbourhood Park of local significance and links Dellview Court with Springwood Close and is dissected by a drainage reserve. It is an attractive open space which also provides access to the Linear Park from the adjoining residential area.

The study area also includes the eastern boundary of the Mullum Mullum Reserve comprising the creek flats. The Mullum Mullum Reserve is classified as a Regional Sport Reserve, which provides a range of sporting facilities including hockey, bowls and tennis. The southern area of the Mullum Mullum Reserve is flat land and has been set aside for the development of future sporting facilities. It is used casually by horse riders as an informal practice area and formally by the Donvale Pony Club four times a year as an over flow area when holding gymkhanas at Buck Reserve.

In 1995 a management plan was prepared and implemented for the Mullum Mullum Reserve which was subsequently revised in 2001. As a recommendation of the plan picnic facilities, including a BBQ and shelter, have been built on the creek flats, the section of the reserve located within the Linear Park.

Buck Reserve is included in the MMCLP Stage 2 Study Area and is approximately 14.8 hectares. It is classified as Municipal Sport Reserve, and provides a range of sport and recreation opportunities for Manningham residents and the wider community.

Buck Reserve is used by Donvale Adult Riding Club and the Donvale Pony Club for a range of horse riding activities including cross-country, dressage and show jumping. The reserve is also used casually by residents for pursuits such as walking dogs casual horse riding, and nature appreciation. The reserve also contains an area of significant remnant vegetation.

In 1995 a Concept Plan for Buck Reserve was prepared and implemented. A major recommendation of the plan was to relocate the cross-country activities from Buck Reserve to a more suitable site within 7 years. The orchard land immediately south of Buck Reserve was considered a suitable site to relocate the cross-country activities which was recently purchased by Council. This issue is discussed in more detail in section 7 of this plan.

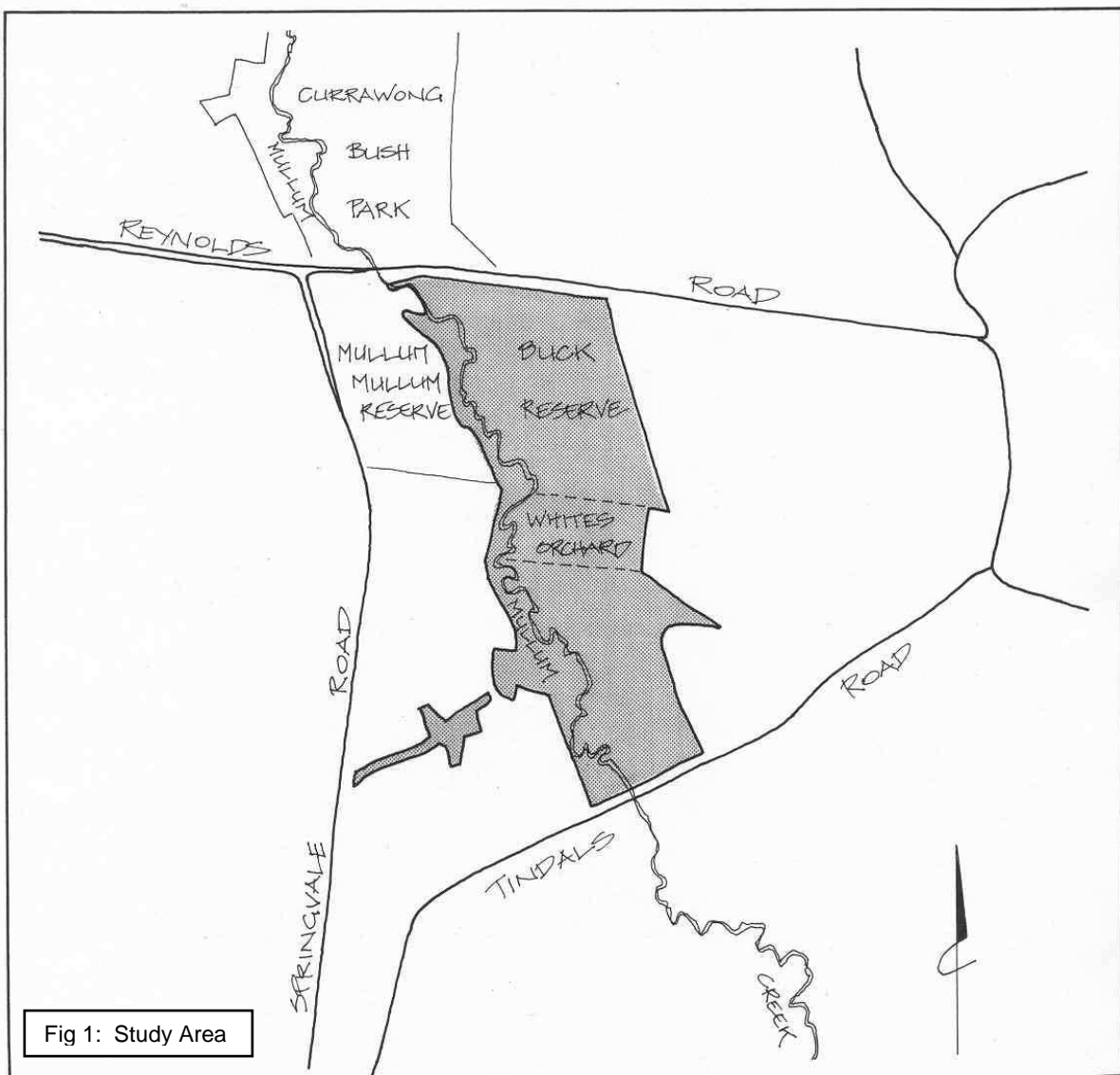


Fig 1: Study Area

2.2 Relationship to Surrounding Open Space

Currawong Bush Park

Currawong is a regionally significant Conservation Reserve comprising 60 hectares and is located immediately north of the MMCLP Stage 2 Study area on Reynolds Road. Informal recreation facilities provided within the park have been upgraded to include a new picnic area. Nature walks are a feature of the park including the section of trail through to Orchard Grove.

In 2002 a management plan was prepared which recommends development be sympathetic to significant fauna and flora values of the park. Future planning should concentrate on integrating the park into the Mullum Mullum Creek Linear Park.

Mullum Mullum Creek Linear Park Stage 4 (Tindals Road to Park Road)

The Mullum Mullum Creek Linear Park (MMCLP Stage 4) is located immediately upstream of MMCLP Stage 2 and extends for 1.9 kilometres southward along the Mullum Mullum Creek between Park Road, Park Orchards and Tindals Road, Donvale.

In 2003, a management plan was prepared for this section of the Mullum Mullum Creek which recommends that a 2.5 metre path be constructed with the provision of low key picnic facilities at Conos Court Reserve, Donvale. Implementation of this plan is dependent upon significant capital works funding.

2.3 Community Consultation Program

Council recognises the importance of community consultation in the preparation and review of the management and development plans for its open space areas.

As part of the Review of MMCLP Stage 2, initial submissions regarding issues/opinions on the MMCLP Stage 2 were sought via Council's web site and through advertisements in the Manningham Leader on 24 September 2003 and the Warrandyte Diary on 1 October 2003. A letter inviting submissions was also sent to residents in adjoining areas.

Six submissions were received and the following points were made:

- Remove old woody wattle trees planted around Hockey field and replant with shrubs (not trees);
- Remove trees and large shrubs on north side around the hockey ground which currently prevent the lowering of floodlight poles;
- Provide playground near BBQ area on creek flats;
- Provide public toilets for visitors to the park and walkers on the track. The Bowls /Hockey Club toilet is located in a secured area and are not open to the public if club members are not in attendance.
- General security of Mullum Mullum Creek requires upgrading. There is late night drag racing and trail bikes are a major problem.
- The dog off lead area has attracted a high number of dog owners. Dogs are often not under control.
- Provide a link from Baradine Terrace to Springvale Road via the drainage easement.
- Ban domestic cats within a certain distance from the park.
- Donvale Pony Club and the Donvale Adult Riding Club wish to work with Council in the re-location of the cross-country course. Detailed information and recommendations are provided in relation to horse riding requirements.
- FOMDAC (Friends of Manningham Dogs and Cats) request more off-lead areas. MMCLP Stage 2 should be declared an off- lead area.
- Signage for etiquette of park users is supported.

Further detailed consultation was undertaken with specific stakeholders involved with the MMCLP Stage 2, which contributed to the development of management plan for Mullum Mullum Creek Stage 2. A meeting was held between Council Officers, the Donvale Pony Club

and the Donvale Adult Riding Club on 2 September 2003 to discuss the proposed re-location of the Cross-country Course from Buck Reserve to Whites Orchard land. Further consultation was also undertaken with the Donvale Christian College regarding fire management and access.

The MMCLP Stage 2 Draft Management Plan was placed on public exhibition on 22 April, 2005 until 3 June 2005. Consultation on the draft plan was undertaken through:

- An informal workshop with Council officers and members of the Donvale Pony Club and Donvale Adult Riding Club;
- Circulation of the Draft Management Plan to people who made an initial submission; and
- Advertisements of the public exhibition of the draft management plan in the local papers inviting submissions.

Fourteen submissions were received and considered by Council. The major issues in the submissions included:

- The need for a public toilet along the Mullum Mullum Creek Linear Park, preferably at Mullum Mullum Reserve;
- Maintenance requirements of vegetation under the power lines;
- Detailed requirements/concerns of the Donvale Pony Club and Donvale Adult Riding Club, Wyena Horse and Pony club, and Templestowe Pony Club support draft plan.
- Proposed dog controls should allow dogs off lead on the Buck Reserve flats. Dogs off lead should be allowed on Whites orchard.
- CFA comments on fire management.

POLICY BACKGROUND

3.1 State Policies and Studies

3.1.1 Melbourne 2030

In 2003 the State Government adopted Melbourne 2030 a strategy for future development within metropolitan Melbourne for the next 30 years. Melbourne 2030 encourages public land agencies and local government to adopt the set of principles for the development of liveable neighbourhoods and a Parklands Code contained in the strategy. The strategy contains several policies and initiatives relevant to the MMCLP Stage 2 including:

- Improve and maintain community safety;
- Improve the quality and distribution of local open space;
- Ensure the long term protection of public open space;
- Rectify gaps in the network of metropolitan open space by creating new parks and ensure major open space corridors are protected and enhanced; and
- Give more priority to cycling and walking in planning urban development.

3.1.2 Metropolitan Open Space Strategy 2002

In September 2002, the State Government released *Linking People and Spaces, A Strategy for Melbourne's Open Space Network* prepared by Parks Victoria. The Strategy provides for the long term planning of open space and protection of areas of environmental significance within metropolitan Melbourne.

The Vision of the Strategy is a linked network of open space for all to enjoy as a part of everyday life, preserved and enhanced into the future. The five key objectives to achieve this vision across metropolitan Melbourne are:

- Partnerships between state government, local government, non-government agencies and community;
- Equity of access;
- Provision of diverse recreation opportunities in response to our multicultural society and changing community needs and values;
- Flexible and responsive planning and management of open space with input from communities; and
- Safe and sustainable open space.

The strategy divides the metropolitan area into five geographical areas and allocates priorities and actions necessary to implement the Metropolitan Open Space Strategy. The City of Manningham is located in the East Region. Open space areas within this region have a high visitor use and high conservation value particularly waterways, such as the Mullum Mullum Creek as they support a variety of functions, including protection of natural values and habitat corridors, trail linkages and recreational opportunities. The key focus for this region is to enhance existing facilities at a range of sites, to protect open space areas of environmental significance from increasing visitor numbers and pressure for recreation facilities and enhance vegetation links, especially along streams. Actions have been prioritized into more immediate needs with 0-3 year actions, along with 4-9 year actions and longer term actions.

The Metropolitan Open Space Strategy outlines *Strategic Directions* for the Eastern Region of Melbourne which have implications for the MMCLP Stage 2 Management Plan including:-

- Protecting environmentally significant areas from potential threats as a result of high numbers and inappropriate use; and
- Implementing native vegetation management actions in line with the priorities set out in the Port Phillip and Westernport Native Vegetation Plan.

The Metropolitan Open Space Strategy advocates effective partnerships between management agencies and the broader community. Complementary management of open space will ensure that solutions based on agreed priorities and community consultation will meet broader social and environmental goals. The Metropolitan Open Space Strategy nominates lead agencies to implement the immediate and longer-term actions that provide a direction to open space managers for co-operative management in the allocation of funds, meeting the immediate and long term needs of the community and satisfying environmental objectives. Lead Agencies nominated for actions relevant to the MMCLP Stage 2 below are presented in the following manner

Parks Victoria	PV
Department of Natural Resources and Environment	DNRE
Melbourne Water	MW
Local Government	LG

0-3 Year Actions relevant to the MMCLP Stage 2 Management Plan relate specifically to the creation of new areas of open space where Council will need to incorporate the recently purchased land by Council formerly known as Whites Orchard into the Linear Park. There is also a need to protect and enhance existing riparian vegetation and improve habitat values along waterways:

- *When creating new areas of open space, where possible, give priority to incorporating and protecting Lowland Forest, Swamp Scrub and Valley Grassy Forest (LG,PV,MW,DNRE,CoM);*
- *Increase the cover of depleted Riparian Forest by revegetating the Yarra River and other waterways (LG, PV, MW, DNRE,CoM);*
- *Implement a co-ordinated Yarra River Biolink program in order to connect, revegetate gaps and improve habitat condition in the strategic corridors of the Yarra River and its key tributaries, (LG, PV, MW, DNRE).*

4-9 Year Actions relevant to the MMCLP stage 2 include: -

- *Link the Koonung Creek trail to the Mullum Mullum Creek Trail, and extend the Mullum Mullum Creek Trail south, from Currawong Bush Park to Ringwood Lake and north from Currawong Bush park to the main Yarra trail at Petty's Orchard (LG,VR,PV).*

3.1.3 Mullum Mullum Creek Waterway Management Activity Plan (2001)

In 2001, Melbourne Water developed a Waterway Activity Plan for the Mullum Mullum Creek which provides a broad strategic direction for the publicly owned land within the floodplain, as well as some privately owned land adjacent to the waterway. It also outlines actions for specific reaches of the creek and provides a framework to enable Melbourne Water to prioritise works for the next 10-15 years. It will assist in the co-ordination between management agencies in the provision of recreation and management of open space, and the need to improve community amenity and recreation along stream corridors. The Waterway Management Activity Plan for Mullum Mullum Creek addresses key waterway issues for which Melbourne Water is responsible and include:

- Stream form, system and stability;
- Flooding and regional drainage management;
- Facilitation of water quality improvement; and
- Facilitation of stream vegetation and natural resource management.

The Mullum Mullum Creek Waterway Management Activity Plan (2001), recognizes that there is a need to obtain a moderate level of stream health for the Mullum Mullum Creek. Future management direction of the Mullum Mullum Creek will be to retain and improve remnant corridor values where sustainability can be achieved through remediation and rehabilitation works which mitigate degrading impacts on the creek environment.

Key Management Objectives for the Mullum Mullum Creek system through which rehabilitation is sought includes:

- Flow Management;
- Stream Channel and Valley Morphology;
- Water Quality;
- Riparian Vegetation and Stream Management Zone Management; and
- In-stream Habitat.

The Waterway Management Plan divides Mullum Mullum Creek into nine Reaches. Prescribed actions are outlined for each Reach, address the following aspects:-

- Drainage and Flood Management;
- Water quality;
- Stream System Values;
- Vegetation; and
- Community Interface

Each action has a priority assigned to it in terms of Very High, Moderate and Low. The Agency responsible for the implementation of each action is also identified. The majority of actions are the responsibility of Melbourne Water, with others being the responsibility of Local Government and other Government Agencies. However, it should be noted that these actions are not binding on Local Government.

The Reach identified in the Waterway Activity Plan which occurs within the MMCLP Stage 2 Study Area is:

- Reach 7 Berrima Road to Reynolds Road.

The prescribed actions for this reach are discussed in regard to water quality, stream system values, vegetation and community interface in Section 8 of this plan

3.1.4 Native Vegetation Management Framework (Net Gain)

In 2002, the State Government released the new framework for the protection of native vegetation and biodiversity, *Native Vegetation Management- A framework for Action*. The government's policy *is to incorporate environmental and conservation considerations into all aspects of planning and government program delivery and build the principles of ecologically sustainable development into the process of decision-making across the whole government.*

The primary goal for native vegetation management in Victoria is to achieve *A reversal, across the entire landscape*. Local Government is also required to implement Victoria's Native vegetation Management Policy. Manningham Council's Green Wedge Strategy will develop a process for Manningham to implement the Native Vegetation Management Framework as required

Within the MMCLP Stage 2 all land east of the Mullum Mullum Creek is located within the Green Wedge and is subject to the provisions of the Native Vegetation Management Framework.

3.1.5 Road Safety Act 1986

The Road Safety Act 1986 The Road Rules – Victoria are the Victorian edition of the Australian Road Rules developed by the National Road Transport Commission. The Warrandyte Walk is considered a *shared path* and is defined in the 'The Road Rules – Victoria' as:-

An area open to the public (except a separated footpath) that is designated for, or has one of its main uses, use by both the riders of bicycles and pedestrians, and includes a length of path for use by both bicycles and pedestrians beginning at a shared path sign and ending at nearest of the following:

- (a) an end shared path sign;
- (b) a no bicycles sign or no bicycles road marking;
- (c) a bicycle path sign;
- (d) a road (except a road related area); and
- (e) the end of the path.

In accordance with the Road Safety Act Division 2.4 – Roads and Public Places horse riders must only use roads and public places on footways that have been designated for that use and state:

Behaviour on Roads and in Public Places

240 *A person must not, on any road or in any public place -....*

- (f) ride or drive a bicycle, skateboard, roller blades or the like thing, horse or other beast of burden on a footway, other than a footway designated for such purposes.

3.2 Local Studies and Policies

3.2.1 Manningham Council Plan (2004-2008)

The 2004~2008 Council Plan is a strategic plan that aims to improve Manningham for the benefit of the whole community and outlines the objectives and strategies for Manningham City Council to achieve the Community Vision. The Community Vision is for '*Quality lifestyles balancing our community, our environment and our economic growth*'. The Vision is expanded in the Council Plan to ensure that Manningham is a liveable, caring, sustainable, innovative and connective city for now and in the future.

The Council Plan details objectives with a series of strategies and indicators to monitor and evaluate the implementation of the plan.

In relation to the MMCLP Stage 2 the relevant Council Plan objectives, strategies and action statements include:

- Objective 4** Protect, maintain and enhance the natural environment of Manningham.
- Objective 5.** Encourage participation and involvement in recreation, recognizing the benefits this brings to the community and individual well being.
- Strategy 5.2** Enhance the open spaces of Manningham to provide a range of recreation opportunities in response to the evolving needs of our community.

3.2.2 Open Space Strategy 2004

The Open Space Strategy for the City of Manningham (2004) provides for the strategic planning, development, management and maintenance of the open space network within the

municipality. In 2004 Council reviewed the 1999 Open Space Strategy and prepared a Draft Open Space Strategy which was released for public exhibition. Following consideration of submissions Council approved the final Open Space Strategy in September 2004.

The Open Space Strategy defines Linear Parks as continuous Linear Park systems and as an important part of the open space network for the municipality, which provide opportunities for a range of informal recreation and wildlife habitats. Linear Parks often form significant strategic links to other areas of open space, community facilities and corridor links for wildlife that enable fauna to move from one area to another. The potential for the development of recreational facilities within a Linear Park will vary depending on the ecological sensitivity of each area and ease of public access.

The Open Space Strategy identifies the MMCLP as a Linear Park of regional significance as it provides one of the most important informal recreation opportunities within Manningham. Since 1996, Council has been working in partnership with many Government Agencies and community groups to develop the MMCLP Stage 2 including Melbourne Water, VicRoads, Parks Victoria, Friends of Mullum Mullum Valley and residents.

3.2.3 Green Wedge Strategy

The State Government "Urban Growth Boundary" as introduced around the edge of Melbourne in October 2002. All land outside of the Urban Growth Boundary became part of a Green Wedge. The Green Wedge Strategy for the City of Manningham provides for the strategic planning, use and management of non-urban land area. Most of the Green Wedge was re-zoned Rural Conservation Zone, which aims to protect and enhance the natural environment and natural processes for their historic, archaeological, scientific, landscape, fauna habitat and cultural values. The zone provides for agricultural use consistent with the environmental and landscape values of the area.

Within the MMCLP Stage 2 all the land east of the Mullum Mullum Creek is located in the Green Wedge.

3.2.4 Mullum Mullum Creek Linear Park Concept Plan

In 1992, the Mullum Mullum Creek Linear Park Concept Plan was commissioned by the then City of Doncaster and Templestowe and Melbourne Water. The Concept Plan was prepared by Biosis Research, Ratio Consultants and Neil Craigie and Associates. A steering committee comprising representatives from Melbourne Water, Councils, Friends of Mullum Mullum Valley Inc., and community representatives oversaw the preparation of the Concept Plan.

The Mullum Mullum Creek Linear Park Concept Plan contains an assessment of the existing natural features of the Mullum Mullum Creek valley. The Concept Plan contains the following objectives for the development of the Linear Park:

- to retain and enhance remnant native vegetation, and to provide revegetated links across gaps in the wildlife corridor;
- to maintain and enhance the existing landscape character;
- to provide opportunities for informal recreation in a planner manner;
- to provide a range of linear tracks (pedestrian, bicycle, horse) in appropriate areas that link with existing or planned networks in the region;
- to identify and promote locations for environmental education;
- to stabilise and rehabilitate the waterway; and
- to involve the community in the management of the valley.

The Concept Plan divides the entire Linear Park into stages to assist in the development of the Linear Park. The MMCLP Stage 2 commenced development in 1997 over a three year period in accordance with the recommendations in the MMCLP Stage 2 Management Plan (1996).

The main objective of the Mullum Mullum Creek Linear Park Concept Plan was to create a park which stretched from the upper catchment of the creek to its junction with the Yarra River. To achieve this aim, in 1995, Council's Open Space Advisory Committee identified properties as important to continuity of Linear Park and recommended that these properties should be purchased when available."

The Whites Orchard property, 155-181 Tindals Road, was identified for land purchase, as it was the only private property in the Stage 2 section. Council's recent purchase of the property in 2003 has ensured that all land along the Mullum Mullum Creek in section 2 is in public ownership.

3.2.5 Recreation Needs Study

A Recreation Needs Study was undertaken by Council in December 2003 to assess the current and future culture and leisure needs of residents within Manningham. Walking was identified as the most popular sporting or recreation activity and was also the most frequently participated in with 28% of the respondents indicating that they walk. Of these, 34% of the respondents indicated that they walk everyday and 38% indicated that they walk 3-5 times a week

3.2.6 Bicycle Strategy

The 2001 Bicycle Strategy for the City of Manningham aims to develop a framework to facilitate the implementation of bicycle facilities throughout the municipality. Action plans are provided and are supported by a five-year capital works program, management framework and an educational, safety and promotional strategy.

The Bicycle Strategy indicates that the existing shared trail along MMCLP Stage 2 part of the existing bicycle network within the City of Manningham. It is envisaged that it will become increasingly important in the future as it will become a major link for cyclists to Croydon from the Main Yarra Trail when the Mullum Mullum Trail (MMCLP Stage 3) is eventually completed.

3.2.7 Horse Riding Strategy (2001)

The Horse riding Strategy (2001) for the City of Manningham aims to improve the horse network and local horse keeping practices towards environmental sustainability. The Strategy recognizes the need to develop an environmentally sustainable horse trail network, reduce road safety risks and develop further off-road riding links within the municipality. Priority should be given to upgrading trails that connect riders from agistment properties to horse club facilities and major horse riding destinations as well as providing for long distance riding and circuits.

The large lot subdivision east of the Mullum Mullum Creek located in the Green Wedge suggest that horse riding is likely to remain a part of the semi-rural lifestyle of the area in the future and continued access to pony clubs and key riding destinations will be essential to maintain levels in the sport. There is an economic advantage to have the sport exist within the municipality which may influence the long term viability of the Green Wedge policy, where reliance on the upkeep of larger lots is an integral part to its success, thus encouraging the horse owner to reside in the municipality.

The Horse riding Strategy identifies the Mullum Mullum Linear Trail on the western side of the creek as a formal horse riding trail and the need to maintain horse riding access to the Donvale Pony Club and the Donvale Adult Riding Club grounds at Buck Reserve from agistment properties.

3.2.8 Domestic Animals Strategy (2004)

The Domestic Animals Strategy was reviewed and adopted by the Manningham City Council in June 2004 and aims to:-

- Promote responsible dog and cat ownership;
- Provide for the welfare and safety of dogs and cats;
- Ensure public safety and enhance the amenity and environment;
- Harness the benefits of dog and cat ownership; and
- Ensure that the expenditure of registration fees addresses domestic animal issues.

The Strategy identifies strategies and actions to implement the mission statement which promotes and facilitates responsible ownership of dogs and cats, animal welfare and the benefits of animal companionship focusing on the legitimate needs of pets and their owners, while respecting the rights of other members of the community and protecting the environment.

Dogs and their owners are significant users of public open space, however some dogs cause problems for other park users and the environment. The Strategy aims to resolve these issues through its Dog in Public Places policy by declaring on and off lead areas and areas where dogs are prohibited within the City of Manningham.

The Domestic Animals Strategy 2004 sets out Council's policy on *Dogs in Public Places* that states that:

- Dogs and their owners are significant users of public open space, however some dogs cause problems for other users and the environment.
- A range of on and off lead areas is required as well as areas from which dogs are excluded.
- Future master plans need to consider the legitimate needs of dog owners to have access to open space for recreational purposes with dogs. Consistent signage is essential.

In accordance with the Strategy, Mullum Mullum Creek Linear Park (MMCLP) is declared an on lead area for environmental reasons with the exception of an *off lead* area of the park between Reynolds Road and Parklands Close located on the eastern side of the Mullum Mullum Creek in the Mullum Mullum Reserve.

Dogs are prohibited from fenced areas containing significant remnant vegetation within the MMCLP, which will have implications for areas identified with significant vegetation on the eastern side of the Mullum Mullum Creek within the study area. This issue is discussed in more detail in section of the Management Plan. Buck Reserve is declared an on lead area on days when the reserve is being used for organised horse riding and sporting events and is declared an off lead area on all other times. The Domestic Animals strategy gives a high priority to policies which effect the MMCLP Stage 2 by way of an order or local law adopted by Council which is the responsibility of Health and Local Laws, Manningham City Council.

3.2.9 Manningham Planning Scheme

The Manningham Planning Scheme provides a policy framework for the implementation of State and local policies affecting land use and development within the City of Manningham.

Local Planning Policy Framework (LPPF)

This section of the Manningham Planning Scheme sets out the Municipal Strategic Statement (MSS) and the Local Planning Policies that apply to the City of Manningham. The policy framework requires Council to balance conflicting objectives in favour of net community benefit and sustainable development. The MSS provides the strategic basis for the application of the zones, overlays and planning controls that apply to all land within the City of Manningham.

The Municipal Strategic Statement recognises the important recreational, environmental and natural values of the Mullum Mullum Creek which states:

The Yarra River Catchment

The Yarra River, Mullum Mullum Creek and Koonung Creek form part of a larger regional network of open space and recreational opportunities. The Yarra River catchment is a major environmental, recreational, and cultural and tourist resource within the region.

Open Space

Waterways in the municipality (including the Yarra River, Mullum Mullum Creek and Koonung Creek) form part of a larger regional network of open space, which provide recreation opportunities and include areas of significant environmental value.

Zones and Overlay Controls

The MMCLP Stage 2 is covered by a number of zones and overlay controls contained in the Manningham Planning Scheme. A description of the zones and overlay controls is provided below.

Public Conservation and Resource Zone (PCRZ)

The Public Conservation and Resource Zone (PCRZ) covers all of the Council owned land within the MMCLP Stage 2 Study Area with the exception of the creek frontage on the eastern side of the Mullum Mullum Creek within Buck Reserve and the area of Council land known as Whites Orchard. The purpose of this zone is to protect and conserve the natural environment and natural processes for their historic, scientific landscape habitat and cultural values.

Public Use Zone Service and Utility (PUZ 1)

The creek frontage on the eastern side of the Mullum Mullum Creek within Buck Reserve is included in the Public Use Zone 1 (Service and Utility). The purpose of this zone is to recognise public land use for public utility and community services and facilities.

Rural Conservation Zone 3 Schedule 3 (RCZ 3)

Conservation Values

The area of council land known as Whites Orchard is zoned Rural Conservation Zone 3 and should be rezoned to Public Park and Resource Zone (PPRZ) as the land was recently purchased by Council to be integrated into the Mullum Mullum Creek Linear Park and developed for an equestrian cross-country course. The RCZ 3 covers private land and its purpose is to protect and enhance the natural environment and natural processes for their historic, archaeological and scientific interest, landscape, faunal habitat and cultural values. The conservation values sought for the land are that the existing character, view lines and other wildlife movement characteristics of the area are protected and enhanced in an equitable and sustainable manner.

Schedule 2 to the Environmental Significance Overlay (ESO2)

Areas of Botanical or Zoological Significance

Statement of environmental significance

The ESO2 applies to all the Council land within the MMCLP Stage 2 Study area including the creek frontage along the section of the former Whites Orchard land, but excludes the remainder of the former orchard property. The purpose of this overlay is to protect areas of botanical and zoological significance.

Schedule 1 to the Significant Landscape Overlay (SLO1)

SIGNIFICANT LANDSCAPE AREAS

The SLO1 covers the tip of Council land located east of the transmission line easement within the Tindals Road hillside area within the MMCLP Stage 2 Study Area and is adjacent to the Donvale Christian College. The purpose of this overlay is to ensure that the visual impact of development is minimised and that the development of land and the removal of vegetation are not detrimental to the natural environment, character of the area, heritage values or any other environmental features or identified values.

Schedule 4 to the Significant Landscape Overlay (SLO4)

NON URBAN SIGNIFICANT LANDSCAPE AREA

The SLO 4 covers the former Whites Orchard property. The purpose of this overlay is to ensure that the visual impact of development in the non urban area is minimised and that the development of land and the removal of vegetation is not detrimental to the natural environment, non urban character, heritage values or any other environmental features or identified values.

Land Subject to Inundation Overlay (LSIO)

The LSIO covers all of the creek frontage and flats along the Mullum Mullum Creek within the Study Area and includes the drainage line between Buck Reserve and the old orchard property. The purpose is to identify land in a flood storage or flood fringe area and implement floodplain management objectives.

Public Acquisition Overlay 1 (POA 1)

The POA 1 applies to the former Whites Orchard property, which was purchased by Manningham Council in 2003 and is therefore no longer relevant.

Proposed Wildfire Management Overlay (WMO)

The Wildfire Management Overlay covers all Council land on the eastern side of the Mullum Mullum Creek within the MMCLP Stage 2 Study Area

The aim is to create risk treatments for development to meet a 1 in 50 year wildfire scenario, with one agreed hazard map to be used for both the Bushfire Prone Areas and the Wildfire Management Overlay. To ensure development is treated consistently under both codes, risk treatments such as vegetation management, provision of access, water supplies and the level of construction are to be considered as part of the site assessment process at the planning stage. It is at this stage of the development process that the public can benefit from flexible solutions that permit the trade off between the environmental considerations of vegetation management and the associated construction requirements.

3.2.10 Manningham's Local Law

Council enforces restrictions on use in *Manningham's General Law Part 3 Reserves* that aims to ensure that Council reserves are used in a safe and orderly manner. Relevant provisions of the local law are outlined below:-

Restrictions on Use

- 3.1 Except with a permit, or except as otherwise authorised in writing, a person must not, on a reserve -
- (i) ride or drive a horse or a motor vehicle, or other vehicle or any bicycle except that this sub-clause does not apply to:
 - (iii) the riding of a bicycle in a manner that does not interfere with the enjoyment of the reserve by any other person;
 - (v) a designated roadway or bicycle path; or
 - (vi) the riding of a horse where that has been permitted by Council.

4. VISION AND OBJECTIVES

Vision

To sustain, protect and enhance the natural environment of the MMCLP Stage 2 as an important Linear Park within Manningham City Council's open space network and continue to provide visitor enjoyment and appreciation of the reserve for a range of recreational opportunities while protecting the cultural values of the reserve.

Objectives

Environmental Management

- Protect and enhance the existing indigenous vegetation within MMCLP Stage 2;
- Protect, improve and enhance the wildlife corridor function of MMCLP Stage 2 as a habitat link which extends from Ringwood to the Yarra River faunal corridor and provide revegetated links across gaps in the MMCLP faunal corridor;
- Develop and implement a weed and pest control program to reduce the impact on indigenous flora and fauna;
- Encourage natural regeneration of indigenous vegetation;
- Maintain, protect and enhance the bushland areas, and extend areas of riparian vegetation in MMCLP Stage 2;
- Develop a vegetation management plan for MMCLP Stage 2 and monitor and record flora and fauna species;
- Foster efforts to maintain and improve the population of the platypus in the MMCLP Stage 2;
- Support works by Melbourne Water to stabilise/ rehabilitate the banks along the Mullum Mullum Creek between Reynolds Road and Tindals Road; and
- Monitor the impact of capital works undertaken as part of this Management Plan.

Landscape

- Maintain and enhance the landscape values of the MMCLP Stage 2.
- Develop an appropriate design theme for all elements including fences, barriers, signage and picnic facilities consistent with the natural character of the MMCLP Stage 2; and
- Retain elements of the former Whites Orchard as a component of the park landscape.

Recreation

- Provide a range of informal recreation opportunities that do not jeopardize the cultural, environmental and landscape values of the area;
- Provide recreational opportunities that are accessible to all members of the community, where possible and appropriate;
- Manage the Linear Park between Reynolds Road and Tindals Road for the safe and enjoyable use of all users;
- Maintain and improve, where necessary the existing asphalt path on the western side of the Mullum Mullum Creek and provide a loop walk which links to a proposed 1.5 metre wide low key crushed rock path along the eastern side of the creek;
- Enhance recreation opportunities, which provide for quiet enjoyment of the area;
- Promote the high public appreciation values of the MMCLP Stage 2 and foster community awareness of the significant environmental values of the area including increased opportunities for environmental education; and
- Re-locate the existing cross-country form Buck reserve hillside to Whites Orchard.

Cultural Heritage- European and Aboriginal.

- Undertake archaeological survey, where appropriate, prior to implementation of any capital works.
- Conserve and interpret the cultural/ historical values of the area.

Community involvement and education

- Promote community involvement and education in the planning, use and management of the MMCLP Stage 2;
- Provide a range of interpretative signage outlining the environmental significance and bushland management of the MMCLP Stage 2;
- Inform and educate the community including school groups about the value of the MMCLP Stage 2 and appropriate use of the area;
- Involve the community in tree planting programs and maintenance of vegetation within MMCLP Stage 2;
- Support the ongoing work by the Friends of Mullum Mullum Creek; and
- Foster a sense of local and broader community ownership of the MMCLP Stage 2.

Relationship to Adjoining Land

- Identify, manage and minimise the impact of adjoining properties on the MMCLP Stage 2;
- Assist land owners in environmental management, such as weed control and revegetation; and
- Support and improve links from adjoining residential areas and the Donvale Christian College to the main shared path along both sides the Mullum Mullum Creek.

Management and Maintenance

- Monitor and review the implementation of MMCLP Stage 2 Management Plan annually and implement any resulting changes;
- Investigate opportunities for future sources of revenue for the ongoing maintenance;
- Carry out a review of the MMCLP Stage 2 Management plan five years after the completion of the capital works recommended in this plan.

5. ENVIRONMENTAL MANAGEMENT

5.1. Vegetation Management

5.1.1 Description

Ecological Vegetation Classes (EVCs) are frequently used for describing and assessing vegetation for biodiversity planning and management. An EVC represents one or more plant “communities” or groups of plants with similar affinities, occurring in similar types of environments.

The remnant vegetation in the MMCLP Stage 2 study area can be defined into four EVCs. The following descriptions are a typical example of each of those EVCs, summarised and adapted from the Manningham City Council Biosites - Sites of (Biological) Significance Review, 2004. The full description of each EVC including species assemblages can be found on the appendices to that report. Map 2 shows the distribution of each of these EVCs across the study site.

Valley Grassy Forest

Manningham Distribution: A dominant element fringing riparian and minor drainage lines throughout the municipality except along the Yarra River flood plain in the far west at Bulleen. One of the most abundant EVCs in Manningham.

Position in landscape: With the exception of the upper most minor gullies, Valley Grassy Forest is found fringing or buffering either Riparian Forest or Creek line Herb-rich Woodland.

Ecological notes: Valley Grassy Forest occupies the lower, middle section of a characteristic topography widespread throughout the foothills of north-east Melbourne. On a transect from ridge tops to the creek or river valleys the sequence is: Grassy Dry Forest; Valley Grassy Forest; (Creek line-herb rich Forest); Riparian Forest. Often the transition with Grassy Dry Forest involves mixed ecotones that may even represent discrete Floristic Communities or EVCs. Both the floristic and structure of this vegetation, suggest fire is likely to be as important to the ecology of Valley Grassy Forest as it is to Grassy Dry Forest.

Structural and floristic description:

A medium forest (to 30 m) to woodland of the lower slopes of foothill valleys encasing riparian vegetation dominated by a canopy of medium to short mixed eucalypts over a range of tall to prostrate shrubs (< 5 m) virtually all of which are indigenous. The ground layer consists of a range of medium to small (<1 m) tussock and non-tussock forming grasses plus some mat-rushes and sedges interspersed with a range of medium to small herb-like plants. Some common ground ferns and climbers/scramblers are also present. In general the Valley Grassy Forest of Manningham is likely a “dry” variant of that described for the greater Port Phillip region in Oates and Taranto (2002), and perhaps represents a discrete Floristic Community closely related to Grassy Dry Forest, or a “wet” variant of Grassy Dry Forest or maybe even a complex mix of these two EVCs.

Riparian Forest

Manningham Distribution: Yarra River, upstream of Westerfolds Park in Lower Templestowe, Mullum Mullum Creek from Templestowe to Donvale and along Jumping Creek in Wonga Park.

Position in landscape: Alluvial flats or terraces of rivers and larger streams.

Ecological notes: Riparian Forest is only occasionally subject to short periods of inundation as it occupies the higher alluvial terraces. In places, such as along the

margins of permanent or semi-permanent watercourses or in minor wetlands and billabongs, vegetation with aquatic or semi-aquatic flora is present.

Structural and floristic description:

A tall, open forest (30 to 50+ m) to tall open woodland restricted to riparian environments dominated by a canopy of tall eucalypts over a range of other eucalypts and tall to small shrubs virtually all of which are indigenous. The ground layer consists of large to medium tussock and non-tussock forming grasses, indigenous mat-rushes and some sedges interspersed with a range of medium-sized herbs. Roughly half the herbs and the tussock and non-tussock forming grasses are exotics and are usually a visually conspicuous element of the vegetation. Whilst some very common ground ferns and climbers are present, these are not dominant or characteristic elements of the vegetation.

Grassy Dry Forest

Manningham Distribution: A dominant element of the drier sections of the low hills common across the eastern portion of Manningham from Donvale and Templestowe to Wonga Park. The most abundant EVC in the municipality.

Position in landscape: Usually on the mid slopes and ridge tops of low hills and occasionally in minor gullies at higher elevations, particularly on northern and westerly aspects.

Ecological notes: Grassy Dry Forest occupies the upper section of a characteristic topography typical of the region's vegetation patterning and widespread throughout the foothills of north-east Melbourne particularly in the Shire of Nillumbik. On a transect from ridge tops to the creek or river valleys the sequence is: Grassy Dry Forest; Valley Grassy Forest; (Creek line Herb-rich Woodland); Riparian Forest. Often the transition with Valley Grassy Forest involves mixed ecotones that may even represent discrete Floristic Communities or EVCs. Although the vegetation can be saturated for long periods during winter and spring, being situated at the very top of the landscape on very shallow well-drained soils, it is also capable of surviving prolonged period of extreme drought. Its occupation of the drier aspects suggests that this EVC was historically frequently burnt and therefore likely to be well adapted to fire. The presence of relatively short-lived shrubs, particularly those well adapted to fire, imply that frequent fire plays some role in the ecology of Grassy Dry Forest.

Structural and floristic description:

A medium to short forest (10 - 30 m) to woodland of dry environments such as ridgetops and hill slopes of north and west aspects dominated by a canopy of medium to short mixed eucalypts over a large range of tall to prostrate shrubs (< 5 m) virtually all of which are indigenous. The ground layer consists of a range of medium to small (<1 m) tussock and non-tussock forming grasses plus some mat-rushes and sedges interspersed with a range of medium to small herb-like plants. Primarily due to its occupation of the least arable, drier portions of the landscape, Grassy Dry Forest supports a limited range of exotics, although in the more degraded sites, these can represent a visually conspicuous element of the vegetation.

At some sites the richness of grasses and grass-like plants, especially the tussock-forming grasses can be extremely high (up to ~25% of total species richness). Whilst often in great abundance, it is interesting to note that only two exotic grasses occur frequently in this vegetation. A great richness of herb-like plants are usually found in abundance in between the grasses. This vegetation is often renowned for its orchid richness, and has many lilies. Anecdotal evidence suggests orchids were formerly much more abundant and only dropped out of remnants in recent decades as a result of poaching and habitat fragmentation accompanying urban sprawl.

Climbers/scramblers are frequently present in this EVC and ferns are usually absent or at best restricted to isolated patches that are relatively sheltered and moist.

Creekline Herb-rich Woodland

Manningham Distribution: Widespread throughout the eastern half of the study area.

Position in landscape: Situated in the minor gullies of Yarra River tributaries usually flowing into Riparian Forest associated with permanent and semi-permanent watercourses. At the highest elevations Creek line Herb-rich Woodland typically merges with either Valley Grassy Forest or Grassy Dry Forest.

Ecological notes: The Creek line Herb-rich Forest occupies seasonally active gullies or creek lines with relatively well developed bands of alluvium supporting deep soils. Although the transition with other EVCs maybe gradual, Creek line Herb-rich Woodland is distinctly different in both floristic and structural characteristics as driven primarily by the increasing influence of moisture along the gradient from the dry ridge tops down to the riparian corridors and associated permanent water bodies. Although affected greatly by human disturbance (especially gold mining), in a natural state, runoff is not of a sufficient volume or energy to form permanent water channels gouged into the alluvium.

Structural and floristic description:

A medium (to 30 m) woodland to open woodland dominated by a canopy of medium mixed eucalypts over a range of tall to prostrate shrubs (to 10 m) virtually all of which are indigenous. The ground layer consists of a range of medium to small (<1 m) tussock and non-tussock forming grasses plus some mat-rushes and sedges interspersed with a range of medium to small herb-like plants. Some common ground ferns and climbers/scramblers are also present. A range of exotics occur frequently in this vegetation but can become visually dominant in the more degraded sites. Some species typical of Riparian Forest become dominant further down stream. A range of shrubs typical of drier vegetation also frequently occur in this EVC.

5.1.2 Status & Significance

Table 1: Status of the EVCs in the study area:

EVC	Status
Valley Grassy Forest	Vulnerable
Riparian Forest	Least Concern
Grassy Dry Forest	Least Concern
Creekline Herb-rich Woodland	Endangered

As a Manningham ‘Biosite’ the Mullum Mullum Stage 2 has *State Significance* as it contains two EVCs that have a High or Very High Conservation Status (Creekline Herb-rich Woodland and Valley Grassy Forest). The determination of significance is made according to a number of criteria and sub criteria which for this site are:

Criteria 1, Ecological integrity and viability, Local

- Sub-Criteria 1.1.1., L, Mullum Mullum Creek
- Sub-Criteria 1.2.5., L, Mullum Mullum Creek corridor
- Sub-Criteria 1.2.6., L, Mullum Mullum Creek corridor
- Sub-Criteria 1.3.1., L, Strategic restoration of habitat would only be of local importance and/or such restoration is unrealistic (freehold land)

Sub-Criteria 1.3.2., L, Mix of relatively degraded habitat. Restoration of habitat in cleared or degraded areas would result in a minimal increase in habitat area of local importance and/or such restoration is unrealistic (freehold land).

Sub-Criteria 1.3.3., L, Mix of relatively degraded habitat. Restoration of habitat in cleared or degraded areas would result in a minimal increase in habitat area of local importance and/or such restoration is unrealistic (freehold land)

Criteria 2, Richness and diversity, Nil

Criteria 3, Rarity/Conservation status of assets, State

Sub-Criteria 3.1.2., R, Vert: Great Egret, vul, Lis; Hardhead, vul. Vas: Green Scentbark, r

Sub-Criteria 3.1.3., R, Great Egret, vul, Lis; Hardhead, vul

Sub-Criteria 3.2.3., S, Creekline Herb-rich Woodland (EVC 164); Valley Grassy Forest (EVC 47)

Criteria 4, Representativeness of type, Nil

Criteria 5, Scientific and educational value, Nil

Source: *Manningham Biosites 2004*

The significance of the site and its management must also be considered in context of its close proximity to and connection with Currawong Bush Park, another Biosite of State Significance as habitat for one nationally listed threatened species, known habitat for 3 Flora & Fauna Guarantee listed or State threatened species and as high quality habitat for a State threatened listed species. Along with Currawong the study area forms the largest habitat node along the Mullum Mullum Corridor.

5.1.3 Management Zones

For the purposes of managing and maximising the biodiversity values of the area, a number of “Environmental Management Zones” have been identified (refer map 1)

The zoning is broadly based on the indigenous vegetation of the site, which in turn reflects other natural attributes such as topography, aspect and soil type. However, the zones also reflect current and past human impacts and disturbances including land uses, tracks and other features. The zoning has the practical application of dividing the study area into discrete, manageable areas for implementing and monitoring actions. The Manningham Indigenous Vegetation Strategy (currently being prepared) recommends this approach for management planning for all of Manningham’s remnants.

In each zone a number of management issues are discussed with the overall objective of at least maintaining, if not enhancing biodiversity values.

Zone 1 - Riparian Zone

Definition:

A number of studies and reports recognise the importance of the Mullum Mullum Creek Valley as a wildlife corridor as well as significant habitat in its own right (*Beardsell & Flood unpub., Meredith unpub., in Yugovic et. al. 1990; Bedgood et al. 1992*).

Critical factors that affect the viability of such habitat corridors include

- Continuity,
- Width (especially at narrowest points),
- Habitat quality, and
- Presence of larger habitat areas (nodes) along the corridor. (*Biosis 1992*).

To maximise these values it is proposed to establish a minimum 60m wide “buffer” Riparian Zone (i.e. 30m either side of the creek) comprising the creek, creek flats and adjacent land either side of the Mullum Mullum Creek. The overall objective for this zone should be to maintain a minimum 30m vegetated buffer on either side of the creek managed primarily for stream and habitat protection and enhancement. Where possible, existing “gaps” and open

spaces in the 30m vegetated buffer should be progressively revegetated, with canopy and mid-storey species. In places where the indigenous vegetation extends further back than 30m from the creek edge the boundary of the zone follows the extent of the vegetation. The zone approximates the distribution of the Riparian Forest EVC.

Management Issues:

Provision of Recreation Opportunities & Facilities

A number of facilities are provided within this zone for passive recreation and human enjoyment of the area including picnic shelters, and seating. In places the Mullum Mullum Trail winds through the zone. However, in principle, the aim should be to provide such facilities outside of the Riparian Zone where possible. It is recognised that due to the overall narrowness of the park and other practical requirements, future facilities and recreation opportunities may still need to be sited within the zone.

Mowing and Park Maintenance

The current mowing regime appears to be having adverse impacts in some areas e.g. by mowing too close to the ground with consequent “scalping” of the soil surface and by mowing in boggy areas or at wet times causing soil damage and tyre ruts. Incremental widening of the mowed areas over time is also encroaching upon the remnant vegetation in places.

Creek & Embankment Rehabilitation

Melbourne Water is undertaking an ongoing program of creek stabilisation and remediation. Refer section 6.

Canopy & Habitat Loss

Manna Gums *Eucalyptus viminalis* are the large eucalypts dominating the canopy of this zone. Their large size and hollow forming nature as they age means they are a vital habitat component of not only the Riparian zone but the whole Mullum Mullum creek valley. Past disturbance and weed invasion over time has obliterated much of the indigenous understorey vegetation. The resultant dense, weedy understorey in many places has a smothering effect, hindering any natural regeneration of the Manna Gums from natural seed fall. Consequently as these trees senesce they are often not being replaced and the functioning of the Mullum Mullum creek valley as an important wildlife corridor and habitat refuge is threatened. This is exasperated by the loss of mature eucalypts and their hollows by creek embankment erosion and slumping.

Zone 2 - Hill Tops & Slopes

Definition:

That area defined as per map 1. Comprises the remnant vegetation of the slopes and hilltops in the study area that broadly encompasses the *Valley Grassy Forest* and *Dry Grassy Forest* EVCs of the study area.

Management Issues:

Track Rationalisation and Closure

As discussed in section 7 many of the existing horse tracks are inappropriately located on steep slopes or in vulnerable areas of remnant indigenous vegetation that require protection. Uncontrolled horse use of some of the tracks has caused erosion and excessive widening. These tracks have been identified and will be progressively closed and regenerated, with signage, fencing where appropriate and the laying of brush across the track. The taking of ‘shortcuts’ through the bush and subsequent creation of new tracks is also an issue that may require fencing in some spots to allow natural regeneration.

Kunzea Thickets

In a number of places in the Study Area and indeed elsewhere in bushland in the municipality, the native shrub *Kunzea ericoides* is dominating the vegetation to the exclusion of other indigenous species, thus potentially threatening biodiversity values. This

may be a 'natural' response to disturbance and the dense thickets of *Kunzea* may eventually 'open up' to allow greater diversity. It is however worth experimenting with cutting out some of the dense patches where they may be threatening to smother 'grassy glades' and monitor the results of any recruitment. Cut out *Kunzea* branches can be used to cover tracks identified for closure.

Weeds

A number of weed species in this zone are considered either high priority 'primary threats' to the biodiversity of the site or lower priority 'secondary threats':

Table 2: Weed Species & Threat Level

Common Name	Scientific Name	Threat
Watsonia	<i>Watsonia meriana</i> var. <i>bulbillifera</i>	P
Smilax	<i>Asparagus asparagoides</i>	P
Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	P
Gladiolus species	<i>Gladiolus sp.</i>	S-P
Blackberry	<i>Rubus spp.</i>	S-P
Cootamundra Wattle	<i>Acacia Cootamundra</i>	S
Pines	<i>Pinus spp.</i>	S
Plum	<i>Prunus spp.</i>	S
Ash	<i>Fraxinus spp.</i>	S
Maples	<i>Acer spp.</i>	S
Willow	<i>Salix spp.</i>	S

Infestations of *Gladiolus sp.* may be more or as threatening within this zone as *Watsonia*. All infestations of both of these two species should be GPS mapped and control works trialled and implemented. The secondary threat weeds above are largely easily controlled woody weeds and thus are a lower priority. Closure and rehabilitation of tracks and eliminating horses from some tracks on the Buck hillside, will aid in long term weed control by reducing disturbance and nutrients within the zone. Disturbance is a main vector for weed invasion and horse faeces combined with accelerated breakdown of damaged plants are factors that lead to increased nutrients in the soil, a situation that favours weed establishment and growth.

Zone 3 & 4 - Swamp Gum Gully & Silver-leaf Gully

Definition:

Both these gullies are remnants of an endangered EVC – Creek-line Herb-rich Woodland. However they represent two different vegetation communities - one dominated by a eucalypt canopy of Swamp Gum *Eucalyptus ovata* with a disturbed, degraded and in some places non-existent groundstorey, another with a canopy dominated by Silver-leaf Stringybark *Eucalyptus cephalocarpa* and an understorey of Tall sedges *Carex appressa* and other indigenous species.

Management Issues:

Sedimentation & Nutrients

Both have similar management issues including increased sedimentation and nutrient loads due to run-off further upstream. Proposed construction developments up stream will dramatically increase the problem. Consideration should be given to working with Donvale Christian College to improve the filtering and buffering capacity and performance of its wetlands along Silver-leaf Gully. The feasibility of constructing sediment ponds along Swamp Gum Gully should be investigated.

Dieback

Due to a complex interaction of issues (but often primarily changed hydrological patterns and increased nutrient levels), dieback of the eucalypt canopy is often a feature of gully line vegetation. If weed invasion or other factors are concomitantly preventing recruitment, over time the canopy is completely lost. Revegetation of the open areas along swamp gum gully should occur. Dieback in these gullies requires monitoring and efforts made to ensure continual recruitment. Bell Miner-Lerp interactions, Phytophthora fungus or other factors may also be involved. The complexity and prevalence of this problem across the municipality justifies further research effort possibly in conjunction with a tertiary institute.

Ferns

A few remnant indigenous ferns exist along Swamp Gum gully. These should be identified, protected and propagated, as tree ferns are absent from or infrequent along most of the Mullum Mullum corridor.

Track Crossings

Informal or poorly constructed crossings of gullies are points for erosion, sedimentation, nutrient increase and weed invasion. Existing crossings require assessment and some need protection works to ensure none of these factors are impacting adversely upon the vegetation. New crossings need to be properly constructed to minimise damage to the vegetation.

RECOMMENDATIONS: VEGETATION MANAGEMENT

1. **Provide additional funds for ongoing bushland management and weed works as outlined in the management plan.**
2. **Manage the site in a manner consistent with the management of Currawong Bush Park.**
3. **Identify and progressively regenerate or revegetate with canopy & middle-storey species as many “open areas” or “gaps” in the 30m riparian buffer zone as possible.**
4. **Review the current mowing regime to identify “mow” and “no-mow areas” with a view to minimising any mowing activity within the Riparian zone.**
5. **Investigate the appropriateness of bollards or similar delineation to identify, define and protect the “no mow” areas.**
6. **Wherever possible, site new tracks and other passive recreation facilities outside of the Riparian Management zone.**
7. **Research a range of management techniques to stimulate and promote natural recruitment of Manna Gums, including patch burning.**
8. **Continue to work with Melbourne Water to undertake creek stabilisation and rehabilitation works.**
9. **Close and rehabilitate disused and or inappropriate tracks within MMCLP Stage 2.**
10. **Negotiate a land management agreement with SPI PowerNet over the transmission line easement including through Currawong Bush Park.**
11. **Review status of Kunzea ‘infestations’ and if appropriate trial ‘cutting and painting’ of Kunzea in trial plots.**
12. **Investigate function and feasibility of sediment/nutrient treatment ponds along gully lines and at Donvale Christian College.**
13. **Revegetate open areas along swamp gum gully.**
14. **Continue to support Carey Baptist Grammar School in managing its bushland and school environs.**
15. **Experiment with GPS/GIS technologies to map, manage, monitor and report on indigenous vegetation.**
16. **Investigate methodologies to establish environmental indicators and monitor biodiversity values.**

5.2 Fauna

On the edge of an urbanised environment indigenous fauna can face great challenges. Many species, particularly the larger mammals are often forced out to larger refuges of indigenous vegetation. The study site is one of the largest habitat nodes along the Mullum Mullum Corridor and as such is vital habitat for a range of species of local fauna.

5.2.1 Recorded Species

The Department of Sustainability and Environment (DSE) manages a database with records of fauna across the state – ‘The Victorian Wildlife Atlas’. This database, other studies and reliable personal observations have been compiled to produce a fauna list of species recorded in or within 1km of the study site. Refer to Appendix One for the list of species and their conservation status.

5.2.2 Habitat Management

The aim of managing fauna is usually best achieved by conserving and managing their habitat – i.e. the indigenous vegetation. Thus the vegetation management actions proposed above to conserve indigenous vegetation will have the effect of enhancing and increasing habitat for fauna. Additionally the following habitat management issues arise.

Loss of Hollows

The loss of hollows is a major factor in the decline of a large range of fauna species across the state. The importance of this factor is recognised by the ‘loss of hollow bearing trees’ being listed as a “potentially threatening process” under the Victorian Flora and Fauna Guarantee Act 1988.

The loss of hollows at the site results from the loss of Manna Gums *Eucalyptus viminalis* in the Riparian Zone by ongoing bank erosion and slumping causing Manna Gums to fall into the creek. Three actions to address the problem are;

- Trialling methods to naturally regenerate Manna Gums in the riparian zone
- Planting canopy species in open gaps in the proposed 60m wide Riparian Zone
- Supporting Melbourne Water’s creek side stabilisation program.

Further hollow loss can result from:

- dieback of eucalypts associated with bell miner-psyllid populations, pathogens and hydrological changes
- displacement of native fauna and occupancy of hollows by feral pests such as introduced bees or birds.

Opportunities should be sought with tertiary institutes to research these aspects of hollow loss. Where introduced species are found to be occupying accessible hollows they could be exterminated or evicted using dry ice. Erection and monitoring of artificial hollows (nest boxes) could be a worthwhile activity for a ‘Friends of Group’ but would require regular, ongoing monitoring to ensure the artificial hollows do not offer habitat to introduced pests.

Habitat “Disturbance”

Introduced animals (dogs/cats, horses, rabbits and foxes) together with human activities are the main agents of disturbance at the site that can disrupt or deter the breeding and security of habitat for local fauna. The track closures, dog controls identified previously and the animal management section below address this issue. The old horse jumps, car bodies and other rubbish should be removed from the bushland areas.

Along with Currawong Bush Park the site is the largest council owned area of remnant habitat in the municipality, as a major habitat refuge along the Mullum Mullum corridor. Management of the site needs to reflect this by adopting consistent and compatible management aims both north and south of Reynolds Road.

5.2.3 Animal Management

Dogs & Cats

It is recognised that uncontrolled dogs and cats can pose a threat to indigenous flora and fauna by directly preying upon species or by disturbing their habitat as described above. 'Predation of native wildlife by the cat' is listed as a threatening process under the Flora and Fauna Guarantee Act 1988.

Section 7 discusses the issue of dogs in relation to the study area. Areas are designated as either on, off-leash or prohibited areas for dogs. Whilst the popularity of the area with dog walkers is acknowledged, the public needs to be aware of the state biological significance of the site and consequently the need to restrain dogs from certain areas. Suitable signs denoting the importance of the habitat should be erected with those designating no dog and dog on-lead areas.

Local Laws Officers should continue to work with the community to educate the public as to what is responsible cat and dog ownership.

Rabbits

Rabbits are an ongoing problem in the area. Baiting programs have occurred over time and should continue with the aim of reducing their numbers to a manageable level where with ongoing management the laying of baits is minimised and they are laid only where and when rabbit densities begin to increase. This requires regular monitoring of rabbit numbers along repeatable transects. Such transects should be established and recorded by GPS/GIS. Systematic annual searches and GPS recording of warren and burrow locations should also be undertaken. Destruction and elimination of weeds and removal of rubbish that offer refuge should continue. Fumigation of warrens and burrows has been found to be expensive, time consuming and less effective due to continual re-creation and re-occupying of the warrens. Complete destruction of the warren is more effective. For large warrens away from indigenous vegetation this may require small machinery such as an excavator to rip and collapse the burrows. Gas implosion of warrens should be investigated for locations within indigenous vegetation.

Foxes

Foxes are a well know predator of native wildlife and are common throughout the area. Trapping with small snare traps is possible but not recommended due to the presence of dogs in the area and the fact that it is expensive and time consuming. Furthermore others moving into their territory, very quickly replace the foxes removed. If fox dens are found they should be fumigated and/or pups captured and disposed off.

RECOMMENDATIONS: FAUNA

- 17. Provide "Conservation Habitat – Please Keep Out" signs at appropriate location**
- 18. Provide fencing to protect significant bushland and riparian areas and enhance safety aspects of the new cross-country course including styles/barriers as required, at appropriate track entrances.**
- 19. Establish and map, using GPS regular transects for monitoring rabbit numbers and warren locations.**
- 20. Investigate appropriateness of 'gas implosion' as a technique for warren destruction within remnant vegetation.**
- 21. Dismantle and remove all old horse jumps and rubbish from the bushland areas, including the transmission line easement.**

6. WATERWAY MANAGEMENT

6.1 Mullum Mullum Waterway Management Activity Plan

Melbourne Water is the Authority responsible for the restoration, maintenance and management for the bed and banks of the Mullum Mullum Creek. In 2001 Melbourne Water prepared the Waterway Management Activity Plan for Mullum Mullum Creek. The plan covers all publicly owned land within the stream corridor and some privately owned land adjacent to the waterway. It focuses mostly on the waterway, the riparian zone, factors impacting upon the stream environment and identifies opportunities for improvement of stream condition, waterway health and vegetation cover along the corridor.

The Mullum Mullum Creek system has been historically subjected to a series of systematic disturbances which have shifted the stream ecology away from that of a high valued natural ecosystem. Land uses which have impacted on the stream health include land clearance and use for orchards followed by increasing urbanization of the catchment. This has led to dramatic changes in hydrology and water quality of the Mullum Mullum Creek. Urban runoff is a major issue throughout the entire length of the creek which has resulted in the decline on the stream health and subsequently impacted on the receiving waters of the Yarra River.

MMCLP Stage 2 has an important role in the community as an urban setting and wildlife or biodiversity corridor. There is a need to protect and enhance significant stands of riparian vegetation, extend platypus distribution and permit fish passage and survival. Vegetated banks provide better habitat for platypus and a natural source of woody debris to the stream. Retaining the stream's appearance as a natural waterway is a major consideration and will benefit the community amenity of the Mullum Mullum Creek Linear Park.

Melbourne Water in the Mullum Mullum Waterway Activity Plan recommends actions to achieve improved stream health where the management focus is on remedial and rehabilitation works that mitigate degrading impacts on the creek environment. Actions specified include:

- Drainage and flood management, such as stabilization works and techniques.
- Improving water quality through improved sewerage techniques in the catchment area, addressing pollution problems impacting on the creek and educating property owners;
- Improving stream system values such as implementing rabbit and vermin controls, removal of willows, improving vegetation cover along creeks which enhance habitat value of creek corridor;
- Vegetation measures, including weed control and protection of remnant Manna Gums and enhancement of the indigenous over storey, and strengthening floristic diversity and
- Community interface ensures that environmental values of the waterway corridor are protected in the provision of recreational access along the Mullum Mullum Creek.

Since the MMCLP Stage 2 Management Plan was completed in 1996, Melbourne Water has completed the Hunt Street Outfall project and undertaken bank protection works along the Mullum Mullum Creek.

Melbourne Water is currently undertaking a geomorphological survey of the Mullum Mullum Creek in an effort to fully understand the impacts of the waterway and identify priority areas for additional remedial and/or rehabilitation works along the creek. It is envisaged that this work will be completed in 2005.

The MMCLP Stage 3 Management Plan recognises the responsibility of Melbourne Water for Mullum Mullum Creek and does not seek to override or replace this responsibility. The recommendations in the Mullum Mullum Creek Waterway Management Activity Plan are consistent with the objectives of the MMCLP Stage 2 Management Plan. However there will be a need for a co-ordinated management approach and ongoing consultation between Council and Melbourne

Water, particularly for sites within the Study Area identified as requiring remedial and/or rehabilitation works.

This Management Plan supports Melbourne Water's continued waterway management role and the implementation of the Mullum Mullum Creek Waterway Activity Plan.

6.2 Wastewater Management

Manningham City Council adopted a Domestic Wastewater Management Plan (DWMP) in 2002, which outlines a strategy to minimise the impact of wastewater on human health and the environment. The DWMP is closely linked to Council's Stormwater management plan which identified unsewered residential properties as the greatest negative impact on water quality in the City of Manningham including the Mullum Mullum Creek.

Council recognises, as a long term solution, the need to provide reticulated sewerage to unsewered residential areas where septic tanks are impacting on the environment and has advocated to the State Government to implement a sewerage backlog program within Manningham. Yarra Valley Water has also agreed to a draft partnership agreement to provide for reticulated sewer throughout the municipality and establish similar projects to Wembley Gardens where opportunities exist. Any proposal to extend the sewer to cater for development upstream of the MMCLP Stage 2 Study Area will need to consider the impact on the Linear Park.

6.3 Hunt Street Drain Litter Trap

The Hunt Street Drain litter trap facility on the Hunt Street drain was constructed by Melbourne Water and is maintained by Council as part of an agreement with Melbourne Water. However there is a need to improve the current maintenance practices to ensure effective use of the litter trap facility. It is recommended that Council liaise with Melbourne Water to improve maintenance procedures of the Hunt Street litter trap.

6.4 Sewer Connection for the On Luck Chinese Nursing Home

The On Luck Chinese Nursing Home located at 177-179 Tindals Road requires a sewer connection through the MMCLP Stage 2 study Area to the main sewer located on the western side of the Mullum Mullum Creek. The proposed new three-metre wide sewer easement will traverse through Council's Whites Orchard property approximately 20 metres in from the northern boundary. This route will not impact on native vegetation or on the development of Whites Orchard equestrian facilities. The creek crossing point for the sewer connection was selected in consultation with Melbourne Water to lessen environmental damage. As a condition of the planning permit, creek bank re-instatement works will need to be to the satisfaction of Council and Melbourne Water.

RECOMMENDATIONS: WATERWAY MANAGEMENT

- 22. Liaise with Melbourne Water on a regular basis to ensure that there is a co-ordinated approach to the management of environmental, recreational and other values of the Mullum Mullum Creek.**
- 23. Support Melbourne Water's continued waterway management role for the bed and banks of the Mullum Mullum Creek, including weed control, revegetation and stream stabilisation programs.**
- 24. Liaise with Melbourne Water to improve the maintenance procedures of the Hunt Street Drain Litter trap.**
- 25. Encourage the provision of reticulated sewerage to the catchment area upstream of the MMCLP Stage 2 study Area and encourage the State Government to implement a sewerage backlog program in Manningham.**
- 26. Support the continued rollout of Council's Domestic Wastewater Management Plan.**
- 26. Liaise with Project Management and Yarra Valley Water in considering the impact within MMCLP Stage 2 with the proposed extension of the sewer to cater for upstream development.**

7. RECREATION USE & FACILITIES

7.1 Walking and Cycling

Shared Trail

A 2.5 metre wide asphalt pedestrian /cycle path was constructed along the Mullum Mullum Creek between Reynolds Road and Tindals Road as part of Council's vision is provide a continuous path system for the entire length of the Mullum Mullum Creek Linear Park from Croydon to the Yarra River.

Horse riders also use the shared path to connect to the existing horse trail network and/or to ride the flat area on the southern boundary of the Mullum Mullum Reserve. Horse riding is discussed in more detail under horse riding section

The Stage 2 shared path commences at Reynolds Road however pedestrian access should be improved from Buck Reserve. The path then proceeds along the western side of the creek and connects to the eastern side of the creek via a bridge located near Barradine Terrace, (Refer landscape plan). In 1984, a horse/footbridge was constructed over the Mullum Mullum Creek to connect Buck Reserve and Mullum Mullum Reserve. It is recommended that the condition of the bridge be monitored and be replaced when necessary. Shared trail signs are provided at the entrance points to this section of the Linear Park. The path provides all weather access to the Linear Park and has been constructed to a standard which allows vehicle access for maintenance and fire management purposes.

There is a need to provide a sealed path to the proposed pedestrian refuge on Tindals Road which will be part of the roadworks as recommended in the MMCLP Stage 4 Management Plan.

The issue of access for people of all abilities has been considered as part of this management plan. Access is suitable to the existing shared path at Mullum Mullum Reserve, the steepness of the path at Tindals Road entrance limits access for some people.

Loop walking track along the Mullum Mullum Creek

An opportunity exists to provide a new 1.5 metre wide, crushed rock loop walk on the eastern side of the creek, which connects to the existing shared path via the two existing footbridges. The location of the proposed trail is outlined on the plan for MMCLP Stage 2. The track surface will be in keeping with the significant conservation values of the area and will follow the creek along the flats to connect to Whites Orchard with the construction of a new bridge over a gully located on the southern boundary of Buck Reserve. The trail will continue to follow the creek and traverse low lying land immediately south of Whites Orchard. This section will require the construction of a boardwalk and will link to an existing relatively steep rough track, which leads to the shared upstream footbridge. The existing rough track will need to be upgraded.

Cycling and horse riding use will be prohibited on the new eastern track and access for people with all abilities will be limited due to the track surface and the topography (particularly steepness) of the proposed route.

A planning permit under the Manningham Planning Scheme will be required for the construction of the path as it is within 30 metres of the Mullum Mullum Creek and is within the Environmental Significance Overlay, Schedule 2. Detailed layout of the path in relation to access points required and the distance from the creek will be determined as part of the planning permit process.

A track will be constructed to link Reynolds Road with the pedestrian/horse bridge.

Bushland Tracks

It is proposed that there will be designated informal track network within the bushland areas of Buck Reserve and Red Box Hill as outlined in the landscape plan. A number of tracks that are no longer required and are suffering severe soil, erosion will be closed and progressively re-vegetated. .

Path Link along Drainage Reserve

There is also an opportunity to formalise a link to the Linear Park from Springvale Road with the provision of a new asphalt path along the drainage reserve, which cuts through the Dellview Court Reserve to the Mullum Mullum Creek. Access across Barradine Terrace will be improved as part of the path link.

Path along Reynolds Road

The horse riding Strategy (2001) identifies Reynolds Road between Buck Reserve and Tindals Road as a informal roadside horse trail. Whilst it is outside the actual boundary of the MMCLP Stage 2 Study Area it anticipated that Reynolds Road will be widened in the future. There will be a need to liaise with VicRoads in determining the need to construct a footpath and provide horse riding access along Reynolds Road to the Pony Club site in the planning and design of any proposed road widening of Reynolds Road.

Road Crossings

MMCLP Stage 2 section is not dissected by any roads. However it is important to provide a safe link for people and wildlife to cross major roads to the adjoining sections of the Linear Park. Reynolds Road part of the VicRoads northern route has been reconstructed up to the intersection of Springvale Road with two lanes each way and a median strip. A pedestrian/cycle refuge was constructed on Reynolds Road directly east of the entrance to the Mullum Mullum Reserve as part of the Reynolds Road roadworks.

The reconstruction of the Springvale Road to Tindals Road section is not expected to take place in the near future.

Road duplication should consider:

- Inclusion of pedestrian underpass when the road bridge is replaced;
- Impact of the proposed roadworks on the Donvale equestrian facility.

Pedestrian/cycle refuge on Tindals Road is recommended as part of the MMCLP Stage 4 Management Plan. Given the significant function of the Mullum Mullum Creek Linear Park as wildlife corridor it is recommended that the provision of a wildlife crossing under Reynolds Road and Tindals Road be investigated as part of future roadworks. It is also recommended that VicRoads be requested to provide an underpass to cater for pedestrians and horse riders and linking to Currawong Bush Park as part of any upgrading of Reynolds Road to the east of Springvale Road.

RECOMMENDATIONS: WALKING AND CYCLING

- 28. Monitor the condition of the pedestrian/horse bridge over the Mullum Mullum Creek at Buck Reserve and replace, when necessary.**
- 29. Construct a 1.5 m wide crushed rock walking track along the eastern side of the Mullum Mullum Creek to connect to the existing track as outlined in the plan for the MMCLP Stage 2.**
- 30. Construct a boardwalk, as part of the proposed track along the eastern side of the creek, over low lying land immediately south of Whites Orchard as shown on the plan for MMCLP Stage 2.**
- 31. Provide a designated informal track network within the bushland areas of Buck Reserve and Red Box Hill (to link with the Donvale Christian College) as outlined in the plan for the MMCLP Stage 2.**

32. **Construct a 2.4 m wide asphalt path along the drainage reserve to link Springvale Road with the Mullum Mullum Creek Linear trail as outlined on the plan for MMCLP Stage 2 and improve access across Barradine Terrace as part of the path link.**
33. **Provide a path to link to Reynolds Road from Buck Reserve so as to improve pedestrian access.**
34. **Provide a path link to Tindals Road to connect with the proposed pedestrian refuge which will be part of the road works as outlined in the MMCLP Stage 4 Management Plan.**
35. **Prohibit cycling and horse riding and only allow walking and walking dogs on lead on the new track along the eastern side of Mullum Mullum Creek as indicated on the plan MMCLP Stage 2.**
36. **Investigate the provision of wildlife crossings under Reynolds Road and Tindals Road and that VicRoads be requested to consult with Council and the horse groups to retain horse access along Reynolds road and to provide an underpass to cater for pedestrians and horse riders and linking the Mullum Mullum Stage 2 to Currawong Bush Park to the east of Springvale Road.**

7.2 Equestrian

7.2.1 Horse Trails

The Horse riding Strategy (2001) for the City of Manningham identifies the existing shared trail along the Mullum Mullum Creek within the MMCLP Stage 2 study area as a formal horse riding trail in the horse riding trail network. Located along the flats of the creek between Reynolds Road and Tindals Road, the horse trail links to the adjoining section of the Linear Park north of Reynolds Road (MMCLP Stage 1) and follows along the Mullum Mullum Creek to the Heidelberg - Warrandyte Road and onto Tikalara Park in Templestowe.

The horse riding trail will not be extended along the section of the Mullum Mullum Creek south of Tindals Road (MMCLP Stage 4) due to the impact on the significant environmental values of the park, particularly in low lying and narrow areas where land disturbances need to be kept to a minimum.

Buck Reserve will continue to have a strong focus on equestrian activities and horse riding access to the Reserve should be retained and improved where possible. It is important that horse riding use continue along the existing shared trail within MMCLP Stage 2. Horse riders cross the Mullum Mullum Reserve/Buck Reserve Bridge to the shared path which links to the existing roadside trail network on the southern side of Tindals Road. However, there is need to ensure that Reserve users are not threatened by the presence of horses and to ensure that compaction of the soil and the resultant damage to vegetation is avoided. Horse riders will also be encouraged to use the grassed verges, where possible, when approaching other users of the shared trail. It is recommended that a Code of Conduct for horse riders be prepared in consultation with the horse riding groups and that appropriate signage be included as part of Council shared trail safety signs for MMCLP Stage 2. The use of the shared trail will continue to be monitored by Council.

The shared trail on the western side of the creek is also used as an access route by horse riders to the flat area located on the southern boundary of the Mullum Mullum Reserve. In accordance with the Mullum Mullum Reserve Management Plan (2001), this area is reserved for recreation, sport and informal games. The Management Plan allows for the casual use of the flat area by riders as an informal practice area and formally by the Donvale Pony Club four times a year as an overflow area, when holding gymkhanas at Buck Reserve. The current arrangement is supported by this Plan.

Due to the environmental significance of the vegetation on the eastern side of the Mullum Mullum Creek and the need to provide horse riding access to the equestrian facility at Buck Reserve, it is recommended that horse riding will be allowed only on the designated trails as outlined in the plan for the MMCLP Stage 2. It is important to retain horse riding use of the existing track as access from the north-eastern corner of Buck reserve hillside to the equestrian facility as well as allow

continued horse riding use along the existing Mullum Mullum Creek Linear trail. It is recommended that Horse riding use will not be permitted on the proposed new walking track on the eastern side of the creek and in the Red Box Hill area south of Whites Orchard.

7.2.2 Buck Reserve Equestrian Facilities

Background

Buck Reserve is located on Reynolds Road, opposite Currawong Park and extends southwards along the Mullum Mullum Creek. Covering an area of approximately 14.8 hectares of open space, it is highly valued by the local community as a conservation area and has a strong focus on horse riding activities. It is also used casually by residents for walking dogs and nature appreciation.

Donvale Adult Riding Club and Donvale Pony Clubs share Buck Reserve equestrian facility. The Pony Club has officially used the reserve since 1975 and the Donvale Adult Riding Club since its formalisation in 1987.

The Donvale Adult Riding Club is an affiliated member of the Horse riding Clubs Association of Victoria. With a membership of 30 people it is open to horse riders of all abilities from the age of 18 years and onward. Rallies are held on the second and fourth Saturdays of every month from February to November. The Donvale Pony Club is affiliated with the Pony Club Association of Victoria with a membership of 50 people and is open to riders 21 years and under. Rallies are held every second and fourth Sunday of the month. An annual one-day event is held in May and over the years, due to the popularity of the event, numbers have been restricted due to the carrying capacity of the site.

In 1987, Council improved the equestrian facilities on the reserve, which included the provision of a clubhouse (relocation of a house), construction of a brick public toilet and upgrading the arena.

Further improvement works were undertaken at Buck Reserve as part of the implementation of the Buck Reserve Management Plan prepared in 1995. Major works included:

- Constructing a gravel car park adjacent to the enclosed arena;
- Fencing part of Reynolds Road car park for club use for the parking of floats;
- Replacing existing horse troughs with new galvanized steel horse troughs;
- Providing signage and replacing of several gates;
- Improving drainage of the site, with the upgrading of existing spoon drains or the provision of new spoon drains, particularly along the internal road and around the arena and
- Providing bird proofing of the existing clubhouse and toilet block.

The Clubhouse

Future duplication of Reynolds Road may impact on the clubrooms. It is recommended that re-location of the club rooms within Buck Reserve should be investigated as part of any future proposal to widen Reynolds Road.

The Storage Shed

A 10m x 5m corrugated iron shed together with an adjoining lock up outside area is used to store valuable equipment used by the horse clubs for equestrian activities. The shed is located on the upside of the internal access road and should continue to be maintained by the Donvale Pony Club and the Donvale Adult Riding Club.

Ancillary Facilities

Ancillary facilities, such as BBQ's, etc., initially provided, but no longer used, by members of the horse clubs are located near the entrance of Buck Reserve and have fallen into disrepair. These facilities are derelict and should be removed from the site.

Equestrian Cross-country Course

The Buck Reserve Concept Plan (1996) recognised the need to protect the important conservation value of Buck Reserve hillside as part of the Mullum Mullum Creek wildlife corridor and recommended relocation of the cross-country circuit from the Buck Reserve hillside to a more appropriate site within seven years, as horse riding use was impacting on the significant vegetation.

In 2003 Council purchased the former Whites Orchard land immediately south of Buck Reserve as a suitable site to relocate the cross-country course. Consisting of an area of approximately 10 hectares, the old orchard site has been substantially cultivated over the past half century or longer and is currently heavily overgrown with rank grass. Approximately a quarter of the orchard is covered with apple trees and there is considerable ridge and furrows throughout the site.

It is recommended that the new regional cross-country course will cater for all horse clubs within Manningham and will need to be fully operational and accredited before closing the existing course.

Site Assessment

Developed over many years by members of the Donvale Pony Club and the Donvale Adult Riding Club, the existing cross-country provides courses for five levels of competition. The existing circuit utilises Buck Reserve hillside and the easement under the electricity transmission lines which are areas with significant environmental value.

The existing site is generally very steep with grades ranging from approximately 1 in 10 as a general rule up to extremes of approximately 1 in 3. In many cases bedrock is exposed. Riding on more extreme grades at a fast canter or gallop can potentially place unreasonable physical demands on both the horse's cardiovascular system and its soundness.

On tracks which follow steep grades there is significant evidence of rapid erosion, which may become an unsafe and undesirable surface for horses, increasing the potential risk of breakdown of horses. With unacceptable grades subject to potential erosion, the rough vehicle access track along the transmission line is considered an unsuitable footing for galloping a horse and therefore should not be included in the new cross-country course.

Cross-country Proposal

Due to the environmental significance of Buck Reserve hillside, including the area along the extreme eastern side of the reserve, safety considerations and the need to minimise potential erosion problems, because of the fragile soil structure, it is recommended that the equestrian cross-country circuit be totally removed from the Buck Reserve hillside and the bulk of the transmission line easement. However, horse riding access will be retained along the designated trail through Buck Reserve hillside, which links the north-east corner of the reserve from Reynolds Road with the equestrian facility on the creek flats.

It is recommended that degraded areas, including access tracks and obsolete cross-country tracks will be re-habilitated and revegetated. Suitable horse fencing will be required for sections of bushland within Buck Reserve and along both sides of the designated horse access track, which cuts through the hillside area.

Design development of the new cross-country circuit has been undertaken in consultation with representatives of the Donvale Pony Club, the Donvale Adult Riding Club and relevant Council Officers.

The proposed site and cross-country course has considered the following:

- Significant vegetation and the need to minimise environmental damage and tree removal;
- Vehicular, horse and pedestrian access and associated requirements of the cross-country facility;

- The need to meet accredited safety regulations and conform to the current Pony Club Association of Victoria specifications being Grades 1-5 Pony Club and the Horse riding Clubs Association of Victoria. (Grade 1 is the highest level of competition);
- The quality of the ground surface(footing);
- The physical demands of the terrain, particularly steep grades;
- The obstacles to be jumped.
- The need to provide a 30 metre conservation buffer along the Mullum Mullum Creek to protect significant riparian vegetation; and
- The need to integrate the cross-country course development as part of the landscape character of the Mullum Mullum Creek Linear Park.

It is recommended that the new equestrian cross-country course be substantially developed on Whites Orchard by utilising existing tracks along the southern end of Buck Reserve to connect with Whites Orchard. The draft plans for cross-country courses for all of the specified grades are shown in Appendix 4, Table 3 provides a summary of requirements for the new cross-country course indicating the distance, number of obstacles and the total number of elements for Grades 1-5. It should be noted that some obstacles might consist of two or more elements. Jumping efforts refer to the total amount of elements jumped over the circuit of the course.

Table 3. Proposed Cross-Country Requirements

Grade	Distance	Number of obstacles	Number of jumping efforts
Grade 1	2230m	20	30
Grade 2	2100m	18	25
Grade 3	1690m	16	19
Grade 4	1460m	13	16
Grade 5	1280m	13	16
TOTAL		80	106

Courses for all grades will start at the current starting point on the open creek flat at Buck Reserve and use a defined track, currently overgrown, at the southern end of Buck Reserve to connect to the southern end of the transmission line easement and cross to Whites Orchard over a seasonal watercourse via an existing culvert.

The defined track is benched around the contours at a fairly consistent elevation of approximately 50m and appears to have been used for vehicle access. Minimal works are required on the existing track. However, integral to the success of the cross-country course project is a need to clear the overgrown area along the eastern section of the track and upgrade where necessary. All works will be undertaken in a way which minimises the impact on the environment.

At Whites Orchard there is a marked difference in circuit layout for grades 3-5 compared to the higher grades 1 and 2. Shorter courses covering a distance between 1280m- 1690m have been designed with simpler lines to accommodate design speeds which require a fast canter and the need to minimise the amount of climbing that ponies undertake during an event.

For design grades 2 and 1 the average speed requires a steady gallop covering a distance between 2100- 2230 m. In an effort to assist riders at this level the proposed layout winds up the hill on the northern side of the orchard site and utilises the long east –west axis down the southern boundary to enable contestants to travel more easily at their optimum speed.

A new equestrian track, including a culvert within the drainage line will be provided to connect Whites Orchard with Buck Reserve. The crossing point is approximately 50 metres west of the existing culvert over a wide low-lying flat, which carries substantial volumes of water during high rainfall periods. As part of the course layout it is recommended that a new track be developed from Whites Orchard to the proposed crossing to link to an existing narrow track on the southern end of Buck Reserve. It is envisaged that all grades will use this track leading back onto the flats

at Buck Reserve. Construction of the new track will require some vegetation removal and all works will be undertaken in a manner which minimises the impact on the area.

Obstacles

The new cross-country course will contain a total of 80 obstacles comprising 106 elements, as some obstacles have more than one element to be jumped. Some obstacles will be located at the beginning and end of the outward bound tracks on southern end of Buck Reserve with the majority of the elements to be constructed on Whites Orchard, which need to be integrated, as far as practicable, into the landscape.

The site's orcharding history will be reflected in retaining pockets of apple trees and for some obstacles apple trees will be retained as a feature. For the remaining part of the site, it is recommended that planting should be undertaken in the open spaces of Whites Orchard, which will enhance the wildlife corridor function of the Linear Park, and visually connect to the adjoining bushland areas. Planting of the orchard should consider the cross-country use and allow for easy mowing and maintenance of the site.

It is proposed that the Buck Reserve cross-country course retain a water jump. It is recommended that a new water jump replace the existing water jump on the Buck Reserve creek flats. The new water jump will have a 10 metre radius with a finished depth of approximately 400mm. The circular nature of the jump will provide for different options appropriate to the four grades.

Preliminary clean-up works have been undertaken on Whites Orchard and construction of the obstacles will commence following completion of site preparation works.

Little of the existing cross-country stock can be reclaimed or reused and material to construct obstacles will be based on the availability, durability, ease of handling, ease of maintenance, cost and acceptable aesthetic qualities. It is anticipated that most of obstacles will be constructed on site. It is recommended that an accredited course builder undertake major construction of the cross-country course in consultation with the cross-country course designer, horse riding groups and Council Officers.

Fencing Requirements

Fencing is a major safety consideration in the development of the cross-country course. It is recommended that the existing fence along southern boundary of Whites Orchard be replaced. The fence between Buck Reserve and Whites Orchard will be removed and replaced where necessary to separate horses from the bushland areas and a fence will be constructed along the creek buffer area on the western boundary of Whites Orchard to separate the walking track from the cross-country course and to protect riparian vegetation. It is recommended that the entire Buck Reserve hillside area will be fenced, including the area along the transmission easement, and along both sides of the designated horse access track through the hillside area.

Vehicle Access

Cross-country competitions will be sourced from Buck Reserve. It is important for incident response or horse assistance response that vehicle access is provided to Whites Orchard to allow medical assistance and/or evacuation in case of an emergency. Vehicle access to Whites orchard is shown on the plan for the MMCLP Stage 2 and will utilise the existing cross-country tracks from Buck Reserve and enter Whites Orchard at the new crossing over the watercourse. This route will also serve as maintenance vehicle access and limited cross-country competition management

Donvale Christian College has agreed to allow for emergency access through its property via the eastern gate of the orchard.

Ongoing Maintenance

Cross-country obstacles both depreciate and require regular upkeep. Members of the clubs could make a valuable contribution in preparing obstacles for competition including refreshing paints, stains and minor repairs. However, for substantial course maintenance requirements, it is

recommended that the cross-country course be assessed on an annual basis allowing for approximately 10% refurbishment and/or replacement, if required, in order to maintain the course over time. All weather takeoff and landing surfaces for obstacles used on a regular basis will require ongoing maintenance and should be included in the annual assessment of the course.

There will be a need to maintain a strong turf cover and avoid excessive dead rank grass that would be both dangerous and substantially reduce the equestrian use of the site. As it will not be possible to mow right up to the 69 obstacles it is recommended that a strategy be developed to maintain the grass around the obstacles.

It is recommended that a weed and revegetation program be prepared for Whites Orchard as part of an overall program for MMCLP Stage 2.

Council's Bushland crew have undertaken rabbit eradication control measures along the Mullum Mullum Creek and Buck Reserve, including the hillside and the transmission line easement, Whites Orchard and the Red Box Hill area. It is recommended that the rabbit eradication program continue and that the area be monitored on an annual basis.

Ménage

Twice a month the ménage is used by the clubs for dressage and show jumping activities concurrently with the creek flats, which are used for games practice and cross-country. However, on cross-country event days, which occur 4 times a year, dressage activities utilize the flat area on the southern boundary of the Mullum Mullum Reserve, due to the constraints of the ménage within Buck Reserve. The flat area provides a 20m x 60m arena for Grades 1 and 2 and a 20 x 40m arena for grades 3-5, which meet the requirements of the Pony Club Association of Victoria. However, the existing ménage does not meet the accredited standards required for show jumping, which is a 60m x 60m arena.

The long term viability to hold dressage and show jumping events at Buck Reserve is subject to any proposed future sporting use (other than equestrian use) of the flat area of Mullum Mullum Reserve. Currently the equestrian use of this area is by arrangement with Council, in accordance with the Mullum Mullum Reserve Management Plan which is scheduled for review in 2006.

It is recommended that extra designated times for equestrian use and overflow parking on the southern end of the Mullum Mullum Reserve be investigated with the Horse Clubs to ensure the ongoing viability of the cross-country facility and show jumping events held at Buck Reserve and Whites Orchard. This will be subject to compliance with safety and maintenance requirements and there being no conflict with other users of the reserve. It is recommended that support for the continued equestrian use of the southern end of the Mullum Mullum Reserve at designated times be considered in the Review of the Mullum Mullum Reserve Management Plan.

The location of existing ménage is also impacting on the creek riparian values as identified in the Mullum Mullum Creek Waterway Activity Plan prepared by Melbourne Water. The plan recommends that appropriate buffers to the creek from horse use in Buck Reserve needs to be determined as part of the review of MMCLP Stage 2 Management Plan.

Due to two major floodings of the creek over the last couple of years substantial damage has occurred to the ménage. Council reinstated the ménage at considerable cost after the first flood in 2002 and will undertake minor drainage and clean-up works following the most recent flood. However, there is a need to investigate options in consultation with horse groups for the re-location of the ménage to avoid flood damage in the future.

The long-term impact of the future duplication of Reynolds Road on the future of the equestrian facilities at Buck Reserve particularly the existing location of the ménage and clubrooms needs to be addressed.

It is recommended that the northern section of the existing ménage be removed, and landscaped to provide additional float parking space with the remaining ménage to be retained as one space to allow for flexibility when organising events. A new 60m x60m all weather surface jumping arena will be provided as shown on the plan for MMCLP Stage 2 which will not compromise the cross country course which ends at Buck Reserve. The proposed works meet the standards of the Pony Club Association of Victoria and the Horse Riding Clubs Association of Victoria and will be undertaken in consultation with the Donvale pony Club and the Donvale Adult Riding Club

The area of Council land known as Whites Orchard will be integrated into the Linear Park therefore it is recommended that the land be rezoned from Rural Conservation Zone to Public Park and Recreation Zone (PPRZ) consistent with the adjoining public land.

RECOMMENDATIONS: EQUESTRIAN

- 37. Support continued horse riding use of the existing shared trail and monitor the use of the shared trail along the Mullum Mullum Creek within MMCLP Stage 2 Study Area;**
- 38. Prepare a code of conduct for horse riders in consultation with the horse riding groups and encourage horse riders to use grass verges, where possible, when approaching other users of the shared trail;**
- 39. Investigate with Horse Clubs the possible provision of extra designated times for equestrian use and overflow parking on the southern end of the Mullum mullum reserve to ensure the ongoing viability of the cross country course facility and show jumping events at Buck Reserve and Whites Orchard. This will be subject to compliance with safety and maintenance requirements and there being no conflict with other users of the reserve.**
- 40. Support for the continued equestrian use of the southern end of the Mullum Mullum Reserve at designated times be considered in the Review of the Mullum Mullum Reserve Management Plan.**
- 41. Prohibit Horse riding use in the Red Box Hill Area immediately south of Whites Orchard and the Buck Hillside with the exception of the track which links the north-east corner of the Buck Reserve (from Reynolds Road) to the equestrian facility on the creek flats and allow horse riding on other designated tracks as shown on the plan for MMCLP Stage 2.**
- 42. Develop a new regional cross-country course on Whites Orchard (includes tree maintenance).**
- 43. Provide a new access track from Buck Reserve to Whites Orchard.**
- 44. Remove and landscape the northern section of the existing ménage to provide additional float parking and retain the remaining section of the ménage as one space.**
- 45. Provide a new 60m x60m all -weather jumping arena as shown on the plan for the MMCLP Stage 2.**
- 46. Integrate and maintain the new cross-country course as part of the landscape character of the Mullum Mullum Creek Linear Park through careful site development.**
- 47. Investigate the re-location of the clubrooms within Buck Reserve, and the provision of horse riding access along Reynolds Road and consult with VicRoads as part of any future proposal to widen Reynolds Road.**
- 48. The storage shed will continue to be maintained by the Donvale Pony Club and the Donvale Adult Riding Club.**
- 49. Remove disused derelict facilities from the Buck Reserve.**
- 50. Remove the old pump house in Whites Orchard.**
- 51. Provide a culvert across the gully on the north side of Whites Orchard.**
- 52. The new regional cross-country course will cater for all horse clubs within Manningham and will need to be fully operational and accredited before closing the existing course.**
- 53. Prepare an amendment to the Manningham Planning Scheme to rezone the land being part 159 Tindals Road, formerly known as Whites Orchard, from Rural Conservation Zone to include it into Public Conservation and Recreation Zone.**

7.3 Dog Access and Controls

The Domestic Animals Strategy dog controls for the MMCLP Stage 2 include:

- the Mullum Mullum Linear Park is declared a designated dog on leash area for environmental reasons and dogs are excluded from the fenced areas containing significant remnant vegetation in the Mullum Mullum Creek Linear Park;
- Mullum Mullum Reserve is a designated off leash area; and
- Buck Reserve is a designated off leash area except on days the reserve is being used for organised horse riding events.

The MMCLP Stage 2 section provides a range of dog walking opportunities however there is a need to balance other users of the area, particular the equestrian use of Buck Reserve, and the need to protect significant vegetation of Buck hillside, the Red Box Hill area south of Whites Orchard and significant riparian vegetation.

RECOMMENDATIONS: DOG ACCESS AND CONTROLS

54. **The area west of the Mullum Mullum Creek within MMCLP Stage 2 continue to be a designated dogs on lead area, with the exception of Mullum Mullum Reserve which is a designated dogs off lead area.**
55. **The area east of of the Mullum Mullum Creek within MMCLP Stage2 be designated a dog prohibited area with the exception of:**
 - **Buck Reserve creek flats to continue to be declared an on lead area on days when the reserve is being used for organised horse riding and sporting events and is declared an off lead area on all other times;and**
 - **New walking track along the eastern side of the Mullum Mullum Creek be designated a dog on lead area.**
56. **Council amend the Council Order under the Domestic Aniamls Strategy Section (2) of the Domestic Feral and Nuisance Animals Act 1994 in relation to the above-mentioned recommendations for MMCLP Stage 2.**
57. **The frequency of equestrian use of Whites Orchard should be monitored so that dog controls of this area can be considered as part of the review of the Domestic Animals Strategy.**

7.4 Playspace Areas

Springwood Close Reserve links Dellview Court with Springwood Close and is dissected by a drainage reserve. A new playground and paths were provided at Springwood Close Reserve as part of the implementation of the MMCLP Stage 2 Management Plan (1996). it is recommended that extra seating and landscaping be provided to enhance the playspace area.

Steps were constructed in the Dellview Court section of the Reserve. There is an opportunity to provide a path link from Dellview Court along the drainage reserve to Springvale Road which is described in the section under walking/cycling.

7.5 Picnic Facilities

As part of the implementation of MMCLP Stage 2, a picnic area, including a shelter and picnic table was provided on the east side of the creek on the creek flats near the Tindals Road entrance to the park.

7.6 Seating

The provision of seating throughout MMCLP Stage 2 is seen as an important way of increasing recreation opportunities for users. Seating allows people to rest and enjoy the surroundings of the Linear Park and creek environment.

It is proposed to provide seating along the pedestrian/cycle path system and at strategic points within the Linear Park. Proximity to residential properties and potential overlooking will be considered when deciding on the location of seating.

7.7 Toilets

The Mullum Mullum Linear Park shared path is heavily used for cycling, walking and dog walking. However there are no public toilets provided along the entire length of the Mullum Mullum Creek Linear Park between Tindals Road and Tikalara Park.

The need for a public toilet on Mullum Mullum Reserve has been identified as a high priority to cater for visitors to the Linear Park and was identified in initial submissions on the review of this Management Plan. The Bowls/ Hockey club toilets are located in a secured areas within the existing pavilion in the Mullum Mullum Reserve and are sometimes used by visitors to the Linear Park. However the toilets are not open to the public if the club members are not in attendance. The clubs also maintain the toilets.

It is recommended that a public toilet be provided in Mullum Mullum Reserve to cater for visitors to the Mullum Mullum Creek Reserve Linear Park.

7.8. Car Parking

The Tindals Road gravel car park was developed as part of the implementation of the MMCLP Stage 2 Management Plan. However there is a need to address drainage and erosion problems and minimise run-off from the car park.

7.9. Signage

There is a need to provide signs explaining the designated dog controls and horse riding areas for MMCLP Stage 2 as outlined in this management plan and provision of signs along the Mullum Mullum Creek shared trail will be included as part of Council's shared trail safety signs for MMCLP Stage 2.

RECOMMENDATIONS: OTHER RECREATION FACILITIES AND USES

- 58. Provide seating along the path system and at strategic points within the Linear Park.**
- 59. Provide seating and additional landscaping to enhance the playspace at Dellview Court Reserve.**
- 60. Replace the damaged picnic table located on the eastern side of the creek on the creek flats as shown on the plan for MMCLP Stage 2.**
- 61. Address drainage and erosion problems and minimise the effect of run-off from the Tindals Road car park as shown on the plan for the MMCLP Stage 2.**
- 62. Provide public toilets in Mullum Mullum Reserve to cater for visitors to the Mullum Mullum Creek Reserve Linear Park.**
- 63. Provide and maintain signage explaining the designated dog controls and horse riding areas for MMCLP Stage 2 and provide appropriate signs along the shared path as part of Council's shared trail safety signs for MMCLP Stage 2.**

8. FIRE MANAGEMENT

8.1 Municipal Fire Prevention Plan

The *Manningham Municipal Fire Prevention Plan 2001-2005* (MFPP) identifies a number of "Priority Risk Environments" within the Municipality. The MMCLP Stage 2 is a 'Natural' priority risk environment with an assessed risk of 'High' for a 'Wildfire' hazard event. Of most relevance to this management plan is strategy 5.2 in the MFPP, "*Undertake planning and works to assist wildfire suppression.*" Specifically, tasks under that strategy to;

- *"Develop fire management plans for bushland areas where required;*
- *Report to Council on the implementation of fire management plan;*
- *Provide and maintain adequate water supplies;*
- *Provide and maintain adequate fire access roads;*
- *Identify potential control lines and undertake appropriate fuel management where required;*
- *Undertake a pre-summer tour of significant bushland areas."*

It is recommended that a detailed fire management plan be developed for MMCL P Stage 2 which includes:

- a specific list of bushland areas nominating the range of treatments to be implemented;
- control lines clearly nominated and relevant information be forwarded to CFA regional office and Warrandyte CFA..

8.2 Background

The dry sclerophyll bushland vegetation of most of the study site, the predominantly steep terrain with limited vehicle access and the housing development on the western and to lesser extent eastern boundaries, provide some risk from wildfire. The last fire was in December 2003 when on a day of total fire ban a wildfire started in the middle of the study area. As access was a hindrance to quicker suppression a new vehicle track was cut from Donvale Christian College down towards the creek through Red Box Hill .

This section of the management plan provides a Fire Management Plan for the site with the aims of:

1. Identifying suitable access tracks and entry points for emergency vehicle access;
2. Providing adequate access to the Horse Cross Country Course for emergency medical aid/evacuation in case of injury to horse and/or rider.
3. Designating fire breaks and fuel reduced zones
4. Prescribing the nature and extent of fire prevention and maintenance works that should be regularly undertaken in Mullum Mullum Stage 2;
5. Recognising the need for regular controlled burns to assist in fuel reduction and/or vegetation-biodiversity management.

It is recommended that suitable access tracks and entry points nominated in the management plan be forwarded to CFA for inclusion within response plans. In addition fire breaks and fuel reduced zones identified in the management plan be forwarded to CFA. Prescribed fire prevention and maintenance works to be specified to be included in the Municipal Fire Prevention Plan.

8.3 Emergency Access

From the north, off Reynolds Road, it is recommended that two emergency vehicles access points be maintained:

- 1 At the top of the SPI PowerNET access track, down the eastern boundary of Buck Hillside, through Whites Orchard and out via Donvale Christian College.

- 2 At the entry to the Donvale Adult Riding Club and Donvale Pony Club, around the arena and through to Whites Orchard.

From the East only one vehicle access point is possible via Donvale Christian College. It is recommended that a Memorandum of Understanding (MOU) or similar written agreement be negotiated with the College to formalise this arrangement.

On the western boundary of the park emergency vehicle access is provided along the Mullum Mullum shared trail via Barradine Terrace and the Mullum Mullum Reserve off Reynolds or Springvale Roads.

It is recommended that signage at all of these entry points stating “*KEEP CLEAR - 24hr Emergency Access Required*” or similar needs be erected.

Discussions with City Parks and the CFA should occur to determine if the emergency vehicle access track down through Red Box Hill that was cut in the 2003 fire, is still required.

8.4 Designated Fire Breaks - Fuel Reduced Zone

The new Equestrian Cross-country course on Whites Orchard should be maintained as a strategic fire break between Buck Hillside and Red Box Hill. It should be slashed at least annually prior to fire season and 4wd tanker access maintained along the north, south, west and east boundaries i.e. a CFA tanker should be able to drive a circuit around the boundaries of the course.

SPI PowerNET’S requirements for the transmission line easement include;

- Vegetation Management. In general a 3 metre height limit for vegetation growing along the transmission easement. Slashing of vegetation on the easement, under this limit is the responsibility of individual property owners;
- Access tracks to towers and along the easement are to be maintained; and
- Infrastructure planning in the vicinity of the transmission easement should be referred to SPI PowerNet .

A formal management agreement needs to be entered into between Council and SPI PowerNET to determine the extent and frequency of slashing along the transmission line easement and access track on the east boundary of Buck Hillside. The aim should be to balance the conservation values of this easement with its maintenance as a designated fire break and emergency access track.

The Donvale Pony Club and Donvale Adult Riding Club grounds and facilities should be maintained as a fuel-reduced zone. During fire season all grass areas should be regularly slashed, mown or whipper-snipped to prevent accumulation of high grasses or fine fuels. As far as practical, all fallen limbs and branches should be picked up and removed from the area. No dense shrubs or plantings should occur immediately adjacent to any buildings.

Areas outside of the Riparian Management Zone on the western side of the Mullum Mullum Creek should be similarly maintained. A slashed or whipper-snipped break of appropriate width should be investigated for properties on the western side of the Mullum Mullum abutting the reserve e.g. those properties backing onto the reserve in Barradine Terrace, Jolen Court and Parklands Close.

It is recommended that all works on designated fire breaks and adequate vegetation maintenance and track inspection occur on all fire access tracks prior to the declared Fire Danger period.

8.5 Ecological-Fuel Reduction Burning

8.5.1 General Policy

A fuel load of 8-12t/ha is necessary for effective wildfire control (Raison et. al. 1983). As illustrated in Figure 1, in the Box-Stringy bark woodland of the Dry Grassy Forest and Valley Grassy Forest EVCs dominating the site, this would require a burning frequency of 2.4 - 4.4 years. Such a fire frequency would adversely affect the flora and fauna conservation values of this type of vegetation (Adams et. al. 1994).

Table 4: Fine Fuel Loads and Accumulation Times

Management Objective	Time to Reach Fuel Load
<p><i>Fuel Loads to Achieve Effective Fire Control</i></p> <p>Table 64 t/ha</p> <p>Table 65 t/ha 12 t/ha</p>	<p>2.4 years</p> <p>3.3 years 4.4 years</p>
<p><i>Fuel Loads to Achieve Vegetation Conservation</i></p> <p>Table 66 t/ha</p> <p>18 t/ha</p>	<p>Table 67 years</p> <p>20 years</p>

(Source: Adams et. Al. 1994)

It is therefore acknowledged that frequent prescribed burning of sections of the park to reduce fuel loads is undesirable. Any burning of the same area within MMCLP Stage 2 should not be undertaken on a frequency of more than once every 10 years.

Rather, the emphasis for fire prevention should be on a well maintained system of fire breaks and maintained fire vehicle access tracks and gates.

It is considered that given the relatively isolated location of the MMCLP Stage 2 from other bushland areas and the suburban development surrounding it on two sides, any other wildfire threat from outside the study areas boundaries, is likely to be a large wildfire, possibly a canopy fire. In this instance, any previous prescribed burning of small sections of the Mullum Mullum would be of negligible assistance in achieving fire control.

8.5.2 Guidelines for Burning

Where it is considered that prescribed burning may be appropriate, the following guidelines should apply

- Prescribed burns will only be undertaken by and with the agreement of CFA Regional Office and support of the Warrandyte C.F.A.;
- All property owners within 500m of the study areas boundaries should be notified by letter drop, prior to the event;
- Fire intensity should aim to be in the low to moderate range, with minimum crown scorch and combustion of approximately 80% of the understory vegetation;
- To achieve appropriate fire intensity for vegetation rejuvenation, any burns should be undertaken in Autumn rather than Spring, following seed set of indigenous species;
- To avoid vegetation disturbance and minimise weed invasions, the creation of rake hoe trails should not be considered for firelines – rather, existing tracks, boundaries and breaks should be used as fire control lines; and
- Given the more fire sensitive nature of riparian and wetland vegetation and their lesser fire risk, no broad prescribed burning of these vegetation units should be undertaken.

RECOMMENDATIONS: FIRE MANAGEMENT

- 64. A detailed fire management plan be developed for MMCLP Stage 2 which includes;**
 - **A specific list of bushland areas nominating a range of treatments to be implemented; and**
 - **Control lines clearly nominated and relevant information be forwarded to CFA regional office and Warrandyte CFA.**
- 65. Suitable access tracks and entry points nominated in this management plan be forwarded to CFA for inclusion within response plans. In addition, fire breaks and fuel reduced zones identified in this management plan be forwarded to CFA. Prescribed fire prevention and maintenance works specified be included in the Municipal Fire Prevention Plan.**
- 66. Maintain access tracks for emergency vehicles as shown on the plan for MMCLP Stage 2.**
- 67. Provide signage indicating “KEEP CLEAR-24hr Emergency Access Required at all entry points as shown on the plan for MMCLP Stage2.**
- 68. All works on designated fire breaks and adequate vegetation management and track inspection to occur on all fire access tracks prior to the declared Fire Danger period.**
- 69. Liaise with the CFA to determine if the emergency vehicle access (track through Red Box Hill cut in the 2003 fire, is still required.**
- 70. Maintain the new equestrian cross-country course at Whites Orchard be maintained as a strategic fire break between Buck Reserve Hillside and Red Box Hill.**
- 71. Maintain the equestrian grounds and facilities located on Buck Reserve creek flats be maintained as a fuel-reduced zone.**
- 72. Where deemed appropriate, prescribed burning within the MMCLP Stage 2 will comply with guidelines for burning as outlined in this management plan.**
- 73. Provide funds for annual fire management prevention works.**

9 CULTURAL HERITAGE

Aboriginal and Archaeological Heritage

The Wurundjeri-Balluk & Wurundjeri-William Clan occupied the Yarra Valley Yarra River catchment area to Heidelberg. The divide between the Yarra River to Dandeneong Creek is thought to be a traversing route for the indigenous inhabitants within the Yarra Valley which has implications for the MMCLP Stage 2 Study area.

Oral history together with the presence of scar trees and artifact scatters suggests that the Wurundjeri tribes camped and prepared meals at meeting places at Tikalara Park and Currawong Bush Park, the latter site being adjacent to MMCLP Stage 2 Study Area.

Many surveys of the Yarra River tributaries have demonstrated Aboriginal sites associated with water bodies. Limited archaeological site findings indicate that Mullum Mullum Creek is archeologically sensitive area and requires further assessment in the event of major land disturbances.

The Mullum Mullum Waterway Activity Plan has identified a significant aboriginal site within MMCLP Stage 2. Aboriginal stone artifacts (silcrete, quartz) and shell fragments have been found in the vertical section of the east bank. It is recommended that stone artifacts need to be protected in any future works and there will be a need to monitor changes in the creek's channel, which may impact on the artifacts and investigate recovery options, where necessary.

A detailed archaeological survey of MMCLP Stage 2 has not been undertaken; therefore it is recommended that prior to any capital works, which involve soil disturbance, an archaeological survey will be conducted.

RECOMMENDATIONS: CULTURAL HERITAGE

- 74. Prior to any capital works which involve soil disturbance an archaeological survey will be conducted.**

10 ONGOING MANAGEMENT

10.1 Equestrian Use at Buck Reserve/Whites Orchard

In 2004, Council negotiated a 3 year lease agreement with the Donvale Pony Club and Donvale Adult Riding Club for the equestrian use of Buck Reserve situated at 284 Reynolds Road.

Council's Horse riding Strategy mentions the possibility of the Templestowe and Donvale clubs amalgamating to use the facilities at Buck Reserve.

If the clubs using Petty's Reserve are required to relocate this management plan supports either the joint use of Buck Reserve facilities or an amalgamation with the clubs using Buck Reserve.

It is recommended that Council establish arrangements with the Donvale Pony Club and Donvale Adult Riding Club and other horse clubs within Manningham to use the new equestrian facilities at Buck Reserve/Whites Orchard.

10.2 Adjacent Uses

10.2.1 Carey Baptist Grammar School

The boundary between the Council owned land and the Carey Baptist Grammar School is not fenced. If this boundary were fenced it would dissect a flat open area, which is used by the school and residents for informal games. Carey does have an existing fence between the edge of the flat area and the rest of the school land.

It is recommended that the boundary between the Carey Baptist Grammar School and the Council owned land continue not be fenced.

10.2.2 Donvale Christian College

The Donvale Christian College is located on Tindals Road and is adjacent to the Whites Orchard and Red Box Hill in the Mullum Mullum Creek Linear Park Stage 2 Study Area.

The School utilises the Linear Park for environmental education and orienteering activities. It has prepared a Property Management Plan which is consistent with this Management Plan.

Following discussions with representatives from the school, verbal agreement has been given to allow for emergency access via the eastern point of Whites Orchard through the school property. It is recommended that a Memorandum of Understanding or similar written agreement be formalised with the College.

10.3 Maintenance

With the need to protect and enhance the significant bushland areas and riparian vegetation along the Mullum Mullum Creek, maintain the equestrian grounds within Buck Reserve and the new cross-country course including the remaining apples trees in Whites Orchard the City of Manningham will allocate resources for ongoing maintenance.

10.4 Community Involvement and Education

The Mullum Mullum Creek Linear Park provides an important opportunity for environmental education, particularly for students attending Carey Baptist School and the Donvale Christian College and is supported in this management plan.

An opportunity exists to encourage members of the horse clubs and residents to become involved with the implementation of this Management Plan.

To facilitate the success of the MMCLP Stage 2 the implementation of the plan needs to be monitored and reviewed by Council officers in consultation with stakeholders, particularly the horse clubs and the local community. In this way problems can be addressed and, where appropriate, adjustments can be made to the program.

RECOMMENDATIONS: ONGOING MANAGEMENT

- 75. Establish arrangements with the Donvale Pony Club and the Donvale Adult Riding Club and other horse clubs within Manningham to use the new equestrian facilities provided at Buck Reserve/Whites Orchard. And negotiate a Memorandum of Understanding (MOU) or similar written agreement with the Donvale Christian College to allow emergency vehicle access at times when the reserve is being used for organised cross country events.**
- 76. Following completion of capital works development; allocate additional Council resources each year from Council's operational budget for additional maintenance requirements of MMCLP Stage 2.**
- 77. Encourage and support ongoing community involvement and school based environmental educational programs associated with the Mullum Mullum Creek Linear Park.**
- 78. Apply Ecological Sustainable Development (ESD) Principles to any capital works.**
- 79. Council officers review the implementation of capital works recommended in the MMCLP Stage 2 Management Plan on a regular basis in consultation with the local community and stakeholders, including the Donvale Pony Club and the Donvale Adult Riding Club.**
- 80. Review the MMCLP Stage 2 Management Plan five years from the completion of the capital works recommended in the plan.**
- 81. Investigate external sources of funding for capital works development such as Government and Community grants.**

11. IMPLEMENTATION AND CAPITAL WORKS

Table 5 provides a summary of recommendations contained in the Mullum Mullum Draft Creek Stage 2 Management Plan. The agency responsible for implementing each recommendation is identified. For those recommendations which have a capital cost this cost is included. The proposed major development works are to be undertaken in 3 stages with provision for ongoing management and maintenance of MMCLP Stage 2. The cost of these stages is beyond the funding in the Draft Capital Works Program for the next 5 years and therefore the works could take a considerable time to implement unless external funds become available. The funding of capital works is part of Council's annual open space development.

TABLE 5 SUMMARY OF RECOMMENDATIONS AND CAPITAL WORKS IMPLICATIONS FOR MULLUM MULLUM CREEK LINEAR PARK STAGE 2 DRAFT MANGAGMENT PLAN (Reynolds Road to Tindals Road).

Note: Ongoing costs -To be provided

REC. NO.	PAGE NO.	TYPE REC.	RECOMMENDATION	STAGING OF WORKS			
				1	2	3	ONGOING
ENVIRONMENTAL MANAGEMENT: VEGETATION							
1.	23	O	Provide additional funds for ongoing bushland management and weed works.	\$8,000	\$14,500	\$14,500	\$14,500
2.	23	O	Manage the site in a manner consistent with the management of Currawong Bush Park.				
3.	23	O	Identify and progressively regenerate or revegetate with canopy & middle-storey species as many "open areas" or "gaps" in the 30m riparian buffer zone as possible.	<i>Included in Bushland management</i>			
4.	23	O	Review the current mowing regime to identify "mow" and "no-mow areas" with a view to minimising any mowing activity within the Riparian zone.				
5.	23	C	Investigate the appropriateness of bollards or similar delineation to identify, define and protect the "no mow" areas		\$3,000		\$250

REC. NO.	PAGE NO.	TYPE REC.	RECOMMENDATION	STAGING OF WORKS			
				1	2	3	ONGOING
6.	23	P	Wherever possible, site new tracks and other passive recreation facilities outside of the Riparian Management zone.				
7.	23	P	Research a range of management techniques to stimulate and promote natural recruitment of Manna Gums, including patch burning.				
8.	23	P	Continue to work with Melbourne Water to undertake creek stabilisation and rehabilitation works.				
9.	23	C	Close and rehabilitate disused and or inappropriate tracks within MMCLP Stage 2.		\$12,000		
10.	23	P	Negotiate a land management agreement with SPI PowerNet over the transmission line easement including through Currawong Bush Park.				
11.	23	P	Review status of Kunzea 'infestations' and if appropriate trial 'cutting and painting' of Kunzea in trial plots.				
12.	23	P	Investigate function and feasibility of sediment/nutrient treatment ponds along gully lines and at Donvale Christian College.				
13.	23	C	Revegetate open areas along swamp gum gully.				\$2,200
14.	23	P	Continue to support Carey Baptist Grammar School in managing its bushland and school environs.				
15.	23	P	Experiment with GPS/GIS technologies to map, manage, monitor and report on indigenous vegetation				
16.	23	P	Investigate methodologies to establish environmental indicators and monitor biodiversity values.				
ENVIRONMENTAL MANAGEMENT: FAUNA							
17	25	O	Provide "Conservation Habitat – Please Keep Out" signs at appropriate locations.	<i>Included in bushland management costs</i>			

REC. NO.	PAGE NO.	TYPE REC.	RECOMMENDATION	STAGING OF WORKS			
				1	2	3	ONGOING
18.	25	C	Provide fencing to protect significant bushland and riparian areas and enhance safety aspects of the new cross-country course including styles/barriers as required, at appropriate track entrances to prevent horse access.	\$2,000	\$21,000		\$690
19.	25	P	Establish and map using GPS regular transects for monitoring rabbit numbers and warren locations.				
20.	25	P	Investigate appropriateness of 'gas implosion' as a technique for warren destruction within remnant vegetation.				
21.	25	C	Dismantle and remove all old horse jumps and rubbish from the bushland areas, including the transmission line easement.		\$5,000		
WATERWAY MANAGEMENT							
22.	27	P	Liaise with Melbourne Water on a regular basis to ensure that there is a co-ordinated approach to the management of environmental, recreational and other values of the Mullum Mullum Creek				
23.	27	P	Support Melbourne Water's continued waterway management role for the bed and banks of the Mullum Mullum Creek, including weed control, revegetation and stream stabilisation programs.				
24.	27	P	Liaise with Melbourne Water to improve the maintenance procedures of the Hunt Street Drain Litter trap.			\$10,000	
25.	27	P	Encourage the provision of reticulated sewerage to the catchment area upstream of the MMCLP Stage 2 study Area and encourage the State Government to implement a sewerage backlog program in Manningham.				
26.	27	P	Support the continued rollout of Council's Domestic Wastewater Management Plan.				

REC. NO.	PAGE NO.	TYPE REC.	RECOMMENDATION	STAGING OF WORKS			
				1	2	3	ONGOING
27.	27	P	Liaise with Project Management and Yarra Valley Water in considering the impact within MMCLP Stage 2 with the proposed extension of the sewer to cater for upstream development.				
RECREATION: WALKING/CYCLING							
28.	29	P	Monitor the condition of the pedestrian/horse bridge over the Mullum Mullum Creek at Buck Reserve and replace, when necessary.				
29.	29	C	Construct a 1.5 m wide crushed rock walking track along the eastern side of the Mullum Mullum Creek to connect to the existing track as outlined in the plan for the MMCLP Stage 2.	\$33,000			\$1,200
30.	29	C	Construct three boardwalks, as part of the proposed track along the eastern side of the creek, over low lying land immediately south of Whites Orchard as shown on the plan for MMCLP Stage 2.	\$30,000			\$900
31.	29	C	Provide a designated informal track network within the bushland areas of Buck Reserve and Red Box Hill (to link with the Donvale Christian College) as outlined in the plan for the MMCLP Stage 2.		\$5,000		\$500
32.	30	C	Construct a 2.4 m wide asphalt path along the drainage reserve to link Springvale Road with the Mullum Mullum Creek Linear trail as outlined on the plan for MMCLP Stage 2 and improve access across Barradine Terrace as part of the path link.			\$30,000	\$900
33.	30	C	Provide a path to link to Reynolds Road from Buck Reserve so as to improve pedestrian access.		\$1,000		\$150

REC. NO.	PAGE NO.	TYPE REC.	RECOMMENDATION	STAGING OF WORKS			
				1	2	3	ONGOING
34.	30	C	Provide a path link to Tindals Road to connect with the proposed pedestrian refuge which will be part of the road works as outlined in the MMCLP Stage 4 Management Plan.		\$8,000		\$500
35.	30	P	Prohibit cycling and horse riding on the new track along the eastern side of Mullum Mullum Creek as indicated on the plan MMCLP Stage 2.				
36.	30	P	Investigate the provision of wildlife crossings under Reynolds Road and Tindals Road. And that VicRoads be requested to consult with Council and horse groups to retain horse access along Reynolds road and provide an underpass to cater for pedestrians and horse riders and linking to Mullum Mullum Creek linear Park Stage 2 to Currawong Bush park to the east of Springvale Road.				
RECREATION: EQUESTRIAN							
37.	36	P	Support continued horse riding use of the existing shared trail and monitor the use of the shared trail along the Mullum Mullum Creek within MMCLP Stage 2.				
38.	36	P	Prepare a code of conduct for horse riders in consultation with the horse riding groups and encourage horse riders to use grass verges, where possible, when approaching other users of the shared trail.				
39.	36	P	Investigate with horse clubs the possible provision of extra designated times for equestrian use and overflow parking on the southern end of Mullum Mullum Reserve, to ensure ongoing viability of the cross country course facility and show jumping events at Buck reserve and Whites Orchard. This will be subject to compliance with safety and maintenance requirements and there being no conflict with other users of the reserve.				

REC. NO.	PAGE NO.	TYPE REC.	RECOMMENDATION	STAGING OF WORKS			
				1	2	3	ONGOING
40.	36	P	Support for the continued equestrian use of the southern end of the Mullum Mullum reserve at designated times be considered in the review of the Mullum Mullum Reserve Management Plan.				
41.	36	P	Prohibit Horse riding use in the Red Box hill Area immediately south of Whites Orchard and the Buck Reserve hillside, with the exception of the track which links the north-east corner of the Buck Reserve (from Reynolds Road) to the equestrian facility on the creek flats and allow horse riding on other designated tracks as shown on the plan for MMCLP Stage 2.				
42.	36	C	Develop a new cross-country course on Whites Orchard (includes tree maintenance).		\$69,000		\$6,200
43.	36	C	Provide a new access track from Buck Reserve to Whites Orchard		\$12,000		\$500
44.	36	C	Remove and landscape the northern section of the existing ménage and retain the remaining section of the ménage as one space.		\$9,000		\$350
45.	36	C	Provide a new 60mx60m all weather surface jumping arena as shown on the plan for MMCLP Stage 2.		\$90,000		\$2,700
46.	36	P	Integrate and maintain the new cross-country course as part of the landscape character of the Mullum Mullum Creek Linear Park through careful site development.				
47.	36	P	Investigate the re-location of the club rooms within Buck Reserve, and the provision of horse riding access along Reynolds Road as part of any future proposal to widen Reynolds Road.				
48.	36	P	The storage shed will continue to be maintained by the Donvale Pony Club and the Donvale Adult Riding Club.				
49.	36	C	Remove disused derelict facilities from the Buck Reserve				

REC. NO.	PAGE NO.	TYPE REC.	RECOMMENDATION	STAGING OF WORKS			
				1	2	3	ONGOING
50.	36	C	Remove the old pump house in Whites Orchard and the pipe fencing along the creek.	\$2,000			
51.	36	C	Provide a culvert across the gully on the north side of Whites Orchard.		\$20,000		
52.	36	P	The new cross-country course will cater for all horse clubs in Manningham and will need to be fully operational and accredited before closing the existing course.				
53.	36	P	Prepare an amendment to the Manningham Planning Scheme to rezone the land being part 159 Tindals Road, formerly known as Whites Orchard, from Rural Conservation Zone to include it into Public Conservation and Recreation Zone.				
RECREATION: DOG ACCESS AND CONTROLS							
54.	37	P	The area west of the creek within MMCLP Stage 2 continue to be a designated dogs on lead area, with the exception of Mullum Mullum Reserve which is a designated dogs off lead area				
55	37	P	<p>The area east of the creek be a designated dogs prohibited area with the exception of;</p> <ul style="list-style-type: none"> • Buck Reserve creek flats to continue to be a dog on lead area on days when the reserve is being used for organised horse riding and sporting events and is declared an off lead area on all other times;and • New walking track along the eastern side of the Mullum Mullum Creek be designated dog on lead. 				

REC. NO.	PAGE NO.	TYPE REC.	RECOMMENDATION	STAGING OF WORKS			
				1	2	3	ONGOING
56.	37	P	Council amend the Council Order under the Domestic Animals Strategy Section (2) of the Domestic Feral and Nuisance Animals Act 1994 in relation to the above-mentioned recommendations for MMCLP Stage 2.				
57.	37	P	The frequency of equestrian use of Whites orchard should be monitored so that dog controls of this area can be considered as part of the review of the Domestic Animals Strategy.				
RECREATION :OTHER RECREATION FACILITIES AND USES							
58.	38	C	Provide seating along the path system and at strategic points within the Linear Park.		\$5,000		\$560
59.	38	C	Provide seating and additional landscaping to enhance the playspace at Dellview Court Reserve.		\$5,000		\$560
60.	38	C	Replace the damaged picnic table located on the eastern side of the creek on the creek flats as shown on the plan for MMCLP Stage 2.		\$2,000		
61.	38	C	Address drainage and erosion problems and minimise the effect of run-off from the Tindals Road car park as shown on the plan for the MMCLP Stage 2.		\$5,000		
62.	38	P	Provide public toilets in Mullum Mullum Reserve to cater for visitors to the Mullum Mullum Creek Reserve Linear Park.			\$100,000	
63.	38	C	Provide appropriate signage explaining the designated dog controls and horse riding areas for MMCLP Stage 2 and provide appropriate signs along the shared path as part of Council's shared trail safety signs for MMCLP Stage 2.		\$2,000		\$120
FIRE MANGEMENT							

REC. NO.	PAGE NO.	TYPE REC.	RECOMMENDATION	STAGING OF WORKS			
				1	2	3	ONGOING
64	42	P	A detailed fire management plan be developed for MMCLP Stage 2, which includes; <ul style="list-style-type: none"> • A specified list of bushland areas nominating a range of treatments to be implemented; and • Control lines clearly nominated and relevant information be forwarded to CFA regional Office and Warrandyte CFA. 				
65	42	P	Suitable access tracks and entry points nominated in this management plan be forwarded to CFA for inclusion within response plans. In addition, fire breaks and fuel reduced zones identified in this management plan be forwarded to CFA Prescribed fire prevention and maintenance works specified be included in the Municipal Fire Prevention Plan.				
66	42	O	Maintain access tracks for emergency vehicles as shown on the plan for MMCLP Stage 2.			\$11,000	\$1,200
67	42	C	Provide signage indicating “ <i>KEEP CLEAR-24hrEmergency Access Required</i> ” at all entry points as shown on the plan for MMCLP Stage2			<i>Included in maintenance of tracks)</i>	
68	42	P	All works on designated fire breaks and adequate vegetation management and track inspection to occur on all fire access tracks prior to the declared Fire Danger period.				
69	42	P	Liaise with the CFA to determine if the emergency vehicle access (track through Red Box Hill cut in the 2003 fire, is still required.				

REC. NO.	PAGE NO.	TYPE REC.	RECOMMENDATION	STAGING OF WORKS			
				1	2	3	ONGOING
70	42	O	Maintain the new equestrian cross-country course at Whites Orchard as a strategic fire break between Buck Reserve Hillside and Red Box Hill.				
71	42	O	Maintain the equestrian grounds and facilities located on Buck Reserve creek flats as a fuel-reduced zone.				\$1,500
72	42	O	Where deemed appropriate, prescribed burning within the MMCLP Stage 2 will comply with guidelines for burning as outlined in this management plan.				
73	42	O	Provide funds for annual fire management prevention works.				\$1,500
CULTURAL HERITAGE							
74	43	P	Prior to any capital works which involve soil disturbance an archaeological survey will be conducted.				
ONGOING MANAGEMENT							
75	45	P	Establish arrangements with the Donvale Pony Club and the Donvale Adult Riding Club and other horse clubs within Manningham to use the new equestrian facilities provided at Buck Reserve/Whites Orchard. And negotiate a Memorandum of Understanding (MOU) with the Donvale Christian College to allow emergency vehicle access at times when the reserve is being used for an organized cross country event.				
76	45	O	Following completion of capital works development allocate additional Council resources each year from Council's operational budget for additional maintenance requirements of MMCLP Stage 2.				Refer total costs – page 56.
77	45	P	Encourage and support ongoing community involvement and school based environmental educational programs associated with the Mullum Mullum Creek Linear Park.				

REC. NO.	PAGE NO.	TYPE REC.	RECOMMENDATION	STAGING OF WORKS			
				1	2	3	ONGOING
78	45	P	Apply Ecological Sustainable Development (ESD) Principles to any capital works.				
79	45	P	Council officers review the implementation of capital works recommended in the MMCLP Stage 2 Management Plan on a regular basis in consultation with the local community and stakeholders, including the Donvale Pony Club and the Donvale Adult Riding Club.				
80	45	P	Review the MMCLP Stage 2 Management Plan five years from the completion of the capital works recommended in the plan.				
81	45	P	Investigate external sources of funding for capital works development such as Government and Community grants.				
TOTAL				\$75,000	\$288,500	\$165,500	
ONGOING MAINTENANCE COSTS							\$36,980
TOTAL PROJECT COST				\$565,980			

APPENDIX ONE: Fauna Species Recorded at or within 1km of the Study Site

Mammals

Common Name	Scientific Name	AROT	VROT	FFG
Eastern Grey Kangaroo	Macropus giganteus			
Black Wallaby	Wallabia bicolor			
White-striped Freetail Bat	Tadarida australis			
Gould's Wattled Bat	Chalinolobus gouldii			
Lesser Long-eared Bat	Nyctophilus geoffroyi			
Large Forest Bat	Vespadelus darlingtoni			
Little Forest Bat	Vespadelus vulturnus			
Platypus	Ornithorhynchus anatinus			
Sugar Glider	Petaurus breviceps			
Common Brushtail Possum	Trichosurus vulpecula			
Koala	Phascolarctos cinereus			
Common Ringtail Possum	Pseudocheirus peregrinus			
Short-beaked Echidna	Tachyglossus aculeatus			
Rakali (water rat)	Hydromys chrysogaster			
Red Fox	Canis vulpes	*		
House Mouse	Mus musculus	*		
Black Rat	Rattus rattus	*		

Amphibians, Reptiles & Fish

	Common Name	Scientific	AROT	VROT	FFG
Fish	Redfin	Perca fluviatilis	*		
	Oriental Weatherloach	Misgurnus anguillicaudatus	*		
	Roach	Rutilus rutilus	*		
	Broadfin Galaxias	Galaxias brevipinnis			
	Common Galaxias	Galaxias maculatus			
Snakes	White Lipped Snake	Drysdalia coronoides			
	Tiger Snake	Notechis scutatus			
	Eastern Brown Snake	Pseudonaja textilis			
	Eastern Small-eyed Snake	Rhinoplocephalus nigrescens			
Lizards	Southern Water Skink	Eulamprus tympanum tympanum			
	Delicate Skink	Lampropholis delicata			
	Garden Skink	Lampropholis guichenoti			
	Weasel Skink	Saproscincus mustelinus			
	Blotched Blue-tongued Lizard	Tiliqua nigrolutea			
	Common Blue-tongued Lizard	Tiliqua scincoides			
	Tree Dragon	Amphibolurus muricatus			
Frogs	Southern Brown Tree Frog SOUTHERN	Litoria ewingii SOUTHERN			
	Growling Grass Frog	Litoria raniformis	V	e	L
	Whistling Tree Frog	Litoria verreauxii verreauxii			
	Common Froglet	Crinia signifera			
	Victorian Smooth Froglet	Geocrinia victoriana			
	Southern Bullfrog	Limnodynastes dumerilii			
	Spotted Marsh Frog	Limnodynastes tasmaniensis			
	Spotted Marsh Frog SCR	SCR			
		Pseudophryne		v	
	Southern Toadlet	semimarmorata			
Other	Common Long-necked Tortoise	Chelodina longicollis			
	Shortfin Eel	Anguilla australis			
	Common Yabby	Cherax destructor			
	Southern Victorian Spiny Cray	Euastacus yarraensis			
	Common Freshwater Shrimp	Paratya australiensis			

Birds

Common Name	Scientific Name	AROT	VROT	FFG
Australian Hobby	Falco longipennis			
Australian Magpie	Gymnorhina tibicen			
Australian Owllet-nightjar	Aegotheles cristatus			
Australian Raven	Corvus coronoides			
Australian Shelduck	Tadorna tadornoides			
Australian White Ibis	Threskiornis molucca			
Australian Wood Duck	Chenonetta jubata			
Bassian Thrush	Zoothera lunulata			
Bell Miner	Manorina melanophrys			
Black-faced Cuckoo-shrike	Coracina novaehollandiae			
Black-shouldered Kite	Elanus axillaris			
Brown Goshawk	Accipiter fasciatus			
Brown Hare	Lepus capensis	*		
Brown Quail	Coturnix ypsilophora		n	
Brown Thornbill	Acanthiza pusilla			
Buff-rumped Thornbill	Acanthiza reguloides			
Common Blackbird	Turdus merula	*		
Common Bronzewing	Phaps chalcoptera			
Common Myna	Acridotheres tristis	*		
Common Starling	Sturnus vulgaris	*		
Crested Shrike-tit	Falcunculus frontatus			
Crimson Rosella	Platycercus elegans			
Dusky Moorhen	Gallinula tenebrosa			
Dusky Woodswallow	Artamus cyanopterus			
Eastern Rosella	Platycercus eximius			
Eastern Spinebill	Acanthorhynchus tenuirostris			
Eastern Whipbird	Psophodes olivaceus			
Eastern Yellow Robin	Eopsaltria australis			
European Goldfinch	Carduelis carduelis	*		
European Greenfinch	Carduelis chloris	*		
European Rabbit	Oryctolagus cuniculus	*		
Fan-tailed Cuckoo	Cacomantis flabelliformis			
Flame Robin	Petroica phoenicea			
Galah	Cacatua roseicapilla			
Gang-gang Cockatoo	Callocephalon fimbriatum			
Golden Whistler	Pachycephala pectoralis			
Great Cormorant	Phalacrocorax carbo			
Great Egret	Ardea alba		v	
Grey Butcherbird	Cracticus torquatus			
Grey Currawong	Strepera versicolor			
Grey Fantail	Rhipidura fuliginosa			
Grey Shrike-thrush	Colluricincla harmonica			
Horsfield's Bronze-Cuckoo	Chrysococcyx basalis			
House Sparrow	Passer domesticus	*		
Laughing Kookaburra	Dacelo novaeguineae			
Little Grassbird	Megalurus gramineus			
Little Pied Cormorant	Phalacrocorax melanoleucos			
Little Raven	Corvus mellori			
Little Wattlebird	Anthochaera chrysoptera			
Long-billed Corella	Cacatua tenuirostris			
Magpie-lark	Grallina cyanoleuca			
Mallard	Anas platyrhynchos	*		
Masked Lapwing	Vanellus miles			
Mistletoebird	Dicaeum hirundinaceum			
Musk Lorikeet	Glossopsitta concinna			
Nankeen Kestrel	Falco cenchroides			
Nankeen Night Heron	Nycticorax caledonicus		n	L
New Holland Honeyeater	Phylidonyris novaehollandiae			
Noisy Miner	Manorina melanocephala			
Olive-backed Oriole	Oriolus sagittatus			
Pacific Black Duck	Anas superciliosa			
Pallid Cuckoo	Cuculus pallidus			

Common Name	Scientific Name	AROT	VROT	FFG
Pied Currawong	<i>Strepera graculina</i>			
Rainbow Lorikeet	<i>Trichoglossus haematodus</i>			
Red Wattlebird	<i>Anthochaera carunculata</i>			
Red-browed Finch	<i>Neochmia temporalis</i>			
Red-rumped Parrot	<i>Psephotus haematonotus</i>			
Regent Honeyeater	<i>Xanthomyza phrygia</i>	E	c	L
Restless Flycatcher	<i>Myiagra inquieta</i>			
Rock Dove	<i>Columba livia</i>	*		
Rose Robin	<i>Petroica rosea</i>			
Rufous Whistler	<i>Pachycephala rufiventris</i>			
Sacred Kingfisher	<i>Todiramphus sanctus</i>			
Satin Flycatcher	<i>Myiagra cyanoleuca</i>			
Scarlet Robin	<i>Petroica multicolor</i>			
Shining Bronze-Cuckoo	<i>Chrysococcyx lucidus</i>			
Silver Gull	<i>Larus novaehollandiae</i>			
Silvereye	<i>Zosterops lateralis</i>			
Song Thrush	<i>Turdus philomelos</i>	*		
Southern Boobook	<i>Ninox novaeseelandiae</i>			
Spotted Pardalote	<i>Pardalotus punctatus</i>			
Spotted Turtle-Dove	<i>Streptopelia chinensis</i>	*		
Striated Pardalote	<i>Pardalotus striatus</i>			
Striated Thornbill	<i>Acanthiza lineata</i>			
Stubble Quail	<i>Coturnix pectoralis</i>			
Sulphur-crested Cockatoo	<i>Cacatua galerita</i>			
Superb Fairy-wren	<i>Malurus cyaneus</i>			
Tawny Frogmouth	<i>Podargus strigoides</i>			
Varied Sittella	<i>Daphoenositta chrysoptera</i>			
Wedge-tailed Eagle	<i>Aquila audax</i>			
Weebill	<i>Smicromnis brevirostris</i>			
Welcome Swallow	<i>Hirundo neoxena</i>			
White-browed Scrubwren	<i>Sericornis frontalis</i>			
White-eared Honeyeater	<i>Lichenostomus leucotis</i>			
White-faced Heron	<i>Egretta novaehollandiae</i>			
White-naped Honeyeater	<i>Melithreptus lunatus</i>			
White-plumed Honeyeater	<i>Lichenostomus penicillatus</i>			
White-throated Needletail	<i>Hirundapus caudacutus</i>			
White-throated Treecreeper	<i>Cormobates leucophaeus</i>			
White-winged Chough	<i>Corcorax melanorhamphos</i>			
Willie Wagtail	<i>Rhipidura leucophrys</i>			
Yellow Thornbill	<i>Acanthiza nana</i>			
Yellow-faced Honeyeater	<i>Lichenostomus chrysops</i>			
Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>			
Yellow-tailed Black-Cockatoo	<i>Calyptorhynchus funereus</i>			

AROT Conservation Status on the Australian Rare Or Threatened species list.

E = Endangered

V = Vulnerable

VROT Status on the Victorian Rare Or Threatened species list.

C = critically endangered

e = endangered

v = vulnerable

n = near threatened

FFG Flora and Fauna Guarantee Act 1988 (VIC.)

L = Listed

* = introduced species