

COOPER STREET EMPLOYMENT AREA

DEVELOPMENT PLAN

ADOPTED VERSION OCTOBER 2007

Cooper Street Employment Area Development Plan

Development Plan approved by the City of Whittlesea on 16 October 2007, in accordance with Clause 43-04 Schedule 14 of the Whittlesea Planning Scheme.

16/10/07


Signature of the Responsible Authority



City of Whittlesea

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1.0 EXECUTIVE SUMMARY

This Cooper Street Employment Area Development Plan refers to land within the Cooper Street Employment Area that is to the north of Cooper Street between defined points.

The Cooper Street Employment Area Development Plan aims to facilitate the establishment of the Cooper Street area for employment generating uses including industrial and business activities which will be of benefit to the City of Whittlesea and the Northern Region. Provision of local employment opportunities is a key objective of the Whittlesea growth areas framework as described in the Whittlesea Municipal Strategic Statement. In conjunction with the Epping North residential area immediately to the north of the study area, the Cooper Street Employment Area Development Plan will facilitate establishment of a range of employment generating land uses and significantly contribute to the City's objective to achieve a jobs-housing balance.

The Cooper Street Employment Area Development Plan and the land uses nominated therein take advantage of proximity to major infrastructure projects including the Craigieburn Bypass, the duplication of Cooper Street, the Melbourne Wholesale Fruit and Vegetable Markets, the Northern Hospital, the Epping Plaza Shopping Centre and the public transport corridor from Lalor station to Epping North. The plan has been designed with careful regard to access considerations, lot sizes and design objectives to promote a range of land uses, transport options including pedestrian networks and quality design outcomes to achieve progressive employment based built form outcomes. Approaches to the design of individual buildings will be a key consideration where distinctive contemporary architecture is favoured in conjunction with measures such as reduced front setbacks to promote a sense of place and pedestrian scale.

The plan also endeavours to retain areas of environmental significance that will significantly contribute to the character and identity of the area as an employment destination of metropolitan significance.

EXISTING CONDITIONS

Cooper Street is a major east-west arterial link from High Street, Epping, in the City of Whittlesea to the Hume Highway at Somerton, in the City of Hume. With a total area of approximately 244 hectares, the Cooper Street Employment Area Development Plan area is bounded by the Craigieburn Bypass to the west, O'Herns Road to the north, the boundary of the land currently zoned industrial to the east and Cooper Street to the south. The site comprises 7 land parcels under different ownership therefore a co-ordinated approach to the development of the area is critical.

The site is located towards the eastern extremity of the basalt plains and is generally flat with small stony outcrops or knolls, as well as low-lying areas. The land to the north of Cooper Street currently contains a variety of land uses associated with industrial and rural activity and rural pursuits. Existing industrial activity is located to the west of the Merri Creek within the Hume Highway corridor and to the east at Epping. The Northpoint Industrial Estate is currently under development on the north side of Cooper Street.

A projected population of 50,000 people will live in the area between O'Herns Road and Craigieburn Road East directly north of the site. Vic Urban is the major land holder and developer directly north of the site. Vic Urban's residential development, known as Aurora will be a model of sustainability.

VISION

The land adjoining Cooper Street, Epping, is the main focus for future greenfield employment development in the City of Whittlesea. Council is committed to the establishment of a high quality industrial and business development area with the objective of providing business and industrial services and employment to the growing population of the northern suburbs of Melbourne.

The role of the future Cooper Street employment area in providing this function is recognised at a metropolitan level due to its scale, accessibility, proximity to existing and proposed infrastructure and capacity for job creation and economic development.

The Cooper Street Precinct Strategy prepared by TRACT Consultants in 1996 is the precursor for this Cooper Street Employment Area Development Plan. The Cooper Street Precinct Strategy envisaged that the development of the site, including land west of the Craigieburn Bypass, for employment uses would generate approximately 23,000 jobs at the time of full development in about 15 -20 years. This amount will vary depending on the types of development that locate in the area.

PROPOSED LAND USES

The general land use configuration of the plan is to facilitate an appropriate hierarchy of employment based land uses according to proximity to existing uses, infrastructure and exposure to existing and future transport routes. The focus of the Cooper Street Employment Area Development Plan is on land located to the east of the Craigieburn Bypass. The reason for this is two fold. Firstly land to the east of the freeway is better suited to short to medium term development due to proximity to existing uses and infrastructure. Secondly land to the west of the Craigieburn Bypass has a history of extraction, has existing sensitive land uses and is subject to investigations relating to the future Merri Creek Regional Park.

Business type uses are proposed to be located on the primary transport network including Cooper Street, Edgars Road and O'Herns Road frontages and around a potential public transport interchange south of Cooper Street, between the Epping Plaza and Northern Hospital and two or three interchanges within the Aurora residential development north of O'Herns Road. These uses could include business headquarters, offices, high technology, information technology, research and development, medical use (in proximity to The Northern Hospital), conference centre, restaurant, car showroom, service uses and light industrial developments constructed of high quality materials, well designed and landscaped. The O'Herns Road frontage is a key consideration as it is at this point that there will be a progressive transition from employment based activities to predominantly residential and service based activities. The need to treat this interface sensitively from the outset is also heightened by the status of O'Herns Road/Findon Road as the preferred east-west arterial route which will have an interchange with the Craigieburn Bypass. This interchange will create a new gateway to the City.

Uses fronting the secondary transport network are proposed for general industrial activities including manufacturing, offices, research and development, warehouse, self-storage and transport and distribution uses. Building design and construction of all industrial and employment generating land uses are to reflect the general character of the precinct and contribute to an improved level of quality with particular emphasis on contemporary architecture and pedestrian friendly spaces.

The 'hub' within the vicinity of the Epping Plaza shopping centre and the Northern Hospital offers a tremendous opportunity to attract a range of associated high order uses including medical suites, retail and entertainment activity and offices. A strategic challenge in this area will be to facilitate the establishment of uses which address the Cooper Street frontage and which promote a more dense form of development which can maximise beneficial land use and

transportation integration. The strategic significance of this area has been acknowledged in the Government's strategy for the future of Melbourne, Melbourne 2030, which has designated Epping as a "Transit City". The Cooper Street Development Plan area actively supports Transit City objectives and will be a key determinant in the preparation of detailed plans for the Epping Transit City.

In May 2005 the Victorian State Government announced that the Melbourne Wholesale Fruit and Vegetable Markets are to be relocated to the south of Cooper Street, comprising the majority of the Cooper Street Employment Area, to the south of Cooper Street.

A residential, recreation and open space area is proposed adjoining the suburb of Lalor. This area is outside the Cooper Street Employment Area and is therefore not affected by the Cooper Street Employment Area Development Plan.

The extent of the residential area has been deliberately limited to indicate a preference for long-term employment based land uses. Where indicated however the extent of the residential area has been designed to respond to land form conditions and to create an appropriate interface between the residential and employment based land uses. Accommodation that fulfils a particular community need such as aged care, retirement villages, low cost housing and housing for people with disabilities would be suitable for this area.

Land to the west of the Craigieburn Bypass is to be withheld from rezoning until further work is done to define the extent of the Merri Creek Regional Park and to focus activity to the east of the Bypass.

TRANSPORT

A modified grid-based road network has been established that has a high degree of connectivity and accessibility within and beyond the Cooper Street Employment Area. The transport system has been designed to allow ease of movement through and within Cooper Street Employment Area, particularly for large vehicles on suitable routes without potential for heavy vehicles to be driven through residential areas.

The road hierarchy is designed to ensure that local and secondary roads support the primary roads and provide a range of access alternatives. The road network is designed to be multi-modal so that public transport, pedestrians and cyclists are catered for. The road network is also designed to facilitate efficient bus services which link to other public transport interchanges such as at Epping Plaza. A network of cycle paths are provided along Edgars Creek. Particular emphasis has been placed on streetscape improvements

including avenue or boulevard street tree planting to ensure that roads are attractive to a range of transport alternatives and to ensure that leadership is established in the public realm to link individual developments and to promote high quality design outcomes in the private realm.

A strategic vision for the area is to establish a ‘public transport corridor’ to extend from Lalor Station through the Cooper Street Employment Area and on to the residential development area to the north. A reservation has been defined to establish this transport corridor in accordance with the Government’s preferred option as depicted in Melbourne 2030. Interchanges are proposed adjacent to the Northern Hospital and Epping Plaza and north of O’Herns Road. It is noted that the Department of Infrastructure has recently completed a planning study that more accurately defines the alignment and configuration and transport options for this route. Reservation of this land is to be pursued by the Department of Infrastructure in association with the feasibility analysis.

OPEN SPACE

A key driver in preparing the Cooper Street Employment Area Development Plan has been the incorporation of environmental sites of significance. The results of a vegetation assessment indicate that there a number of areas of environmental significance and vegetation linkages which provide for fauna movement. Where possible areas of environmental significance are incorporated into open space as are identified habitat links along the stony rises.

Areas of open space are located along Edgars Creek and pedestrian and bicycle routes are located along this watercourse. The open space areas will provide a focus and context for development offering ‘breathing spaces’ and amenity for businesses and workers and a significant delineation between employment uses and the residential area to the south. Areas of wetlands and detention basins are to be provided in accordance with the Edgars Creek Drainage Scheme and also offer significant opportunity for integrated development outcomes which have an orientation toward wetlands or water bodies.

URBAN DESIGN

In many older industrial areas throughout Melbourne there has been little attention given to measures to enhance the quality of streetscapes. This has proved to be a disincentive for investment where opportunities for redevelopment are severely limited. The Cooper Street Employment Area Development Plan and the Design and Use Guidelines seek to redress this problem by placing emphasis on a combination of factors. These include quality streetscapes to establish design standards and provide leadership in the public realm, subdivision design to promote accessibility, connectivity and internal interest and contemporary architecture and initiatives to ensure that the built form positively addresses and contributes to the streetscape.

IMPLEMENTATION - STATUS AND ROLE OF THE COOPER ST DEVELOPMENT PLAN

The Cooper Street Employment Area Development Plan will facilitate establishment of a range of employment generating land uses. To ensure that the objectives of the Development Plan are achieved over a number of years, an implementation strategy has been identified which will include a range of components. Each of these components will provide guidance, consistency and equity over the life of development.

These include application of the Comprehensive Development Zone, Development Plan Overlay, Development Contributions Plan Overlay and the Design and Development Overlay. The Cooper Street Employment Area Design and Use Guidelines establish requirements and objectives relating to the siting of uses, subdivision, landscaping and planning and is given statutory effect via its incorporation into the Planning Scheme.

PLANNING SCHEME AMENDMENT

To pursue the implementation framework it will be necessary to prepare a Planning Scheme Amendment. The purpose of the Amendment will be to amend the Whittlesea Planning Scheme to rezone the land to the Comprehensive Development Zone and introduce the necessary Planning Scheme Overlays. This will change the planning framework to give effect to the Cooper Street Employment Area Development Plan.

ACKNOWLEDGMENTS

The Cooper Street Employment Area Development Plan was prepared by the City of Whittlesea with assistance from the following sub-consultants:

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- Charter Keck Cramer
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- J. Jacotine Graphic Art Design
- Pixel City Digital Design
- Pelham Design

3.0 STRATEGIC CONTEXT

3.1 STRATEGIC LAND USE CONTEXT

The City of Whittlesea is located on the metropolitan fringe approximately 20 kilometres north of Melbourne. With a population in the order of 125,000 people and a land area of approximately 487 square kilometres, the municipality is one of the largest in metropolitan Melbourne (refer to Figures 2 and 3).

In planning terms, the City is recognised as a growth municipality as it contains two dedicated growth areas, the Plenty Valley Growth Corridor and the Epping North growth area that will accommodate a significant proportion of Melbourne's future population growth over the next twenty years. Despite its important growth area role, over 70% of the land area in the municipality can be classed as non-urban.

The municipality contains a diverse range of land use types and areas including established residential and industrial development in the south (e.g. Thomastown, Lalor, Bundoora) and newly developing residential areas on the rural/urban fringe (e.g. South Morang, Epping North, and Mernda). The northern parts of the municipality contain large tracts of rural and conservation land extending to the foothills of the Great Dividing Range, which includes rural townships such as Wollert, Mernda and Whittlesea.

Cooper Street is the major east-west arterial link from High Street, Epping in the City of Whittlesea to the Hume Highway at Somerton in the City of Hume connecting the developing Merri, Epping and Plenty Valley Growth areas. Cooper Street crosses the Merri Creek, which forms the municipal border with the adjoining City of Hume. The initial duplication of Cooper Street commenced in 2002 and is due to be completed in February 2004. A reservation to ultimately accommodate up to six lanes has also been established.

The Cooper Street Employment Area is strategically located within the City of Whittlesea in relation to existing residential development and projected future residential growth, particularly in Epping North, and key existing and planned infrastructure projects and land uses. Analysis of the position of the study area on a regional scale highlights the strategic suitability of the site for employment based land uses where significant access benefits will be available via other transport activity nodes and markets such as the ports and the Melbourne Airport via the Ring Road, the Craigieburn Bypass and Cooper Street. The employment area is about 7.5km to the north west of the LaTrobe University and the Bundoora RMIT campus.

These locational advantages and proximity to a skilled workforce within the City of Whittlesea will ensure that the Development Plan area is a sought after employment destination. The scale of the Development Plan has the potential to significantly contribute to regional employment generation and increase the level of containment of employment which is a key strategic issue within the City.

The Department of State Development has indicated the potential of the Cooper Street area to form an extension to the Hume Industrial precinct and as an area of significant investment and employment generating potential. The State government, through its development facilitation role (Business Victoria) has recognised the locational advantages of the area for future investment.

The land to the north of Cooper Street currently contains a variety of land uses associated with grazing and industrial activity. Existing industrial activity is located to the west of Merri Creek within the Hume Highway corridor and to the east at Epping.

FIGURE 2 REGIONAL CONTEXT

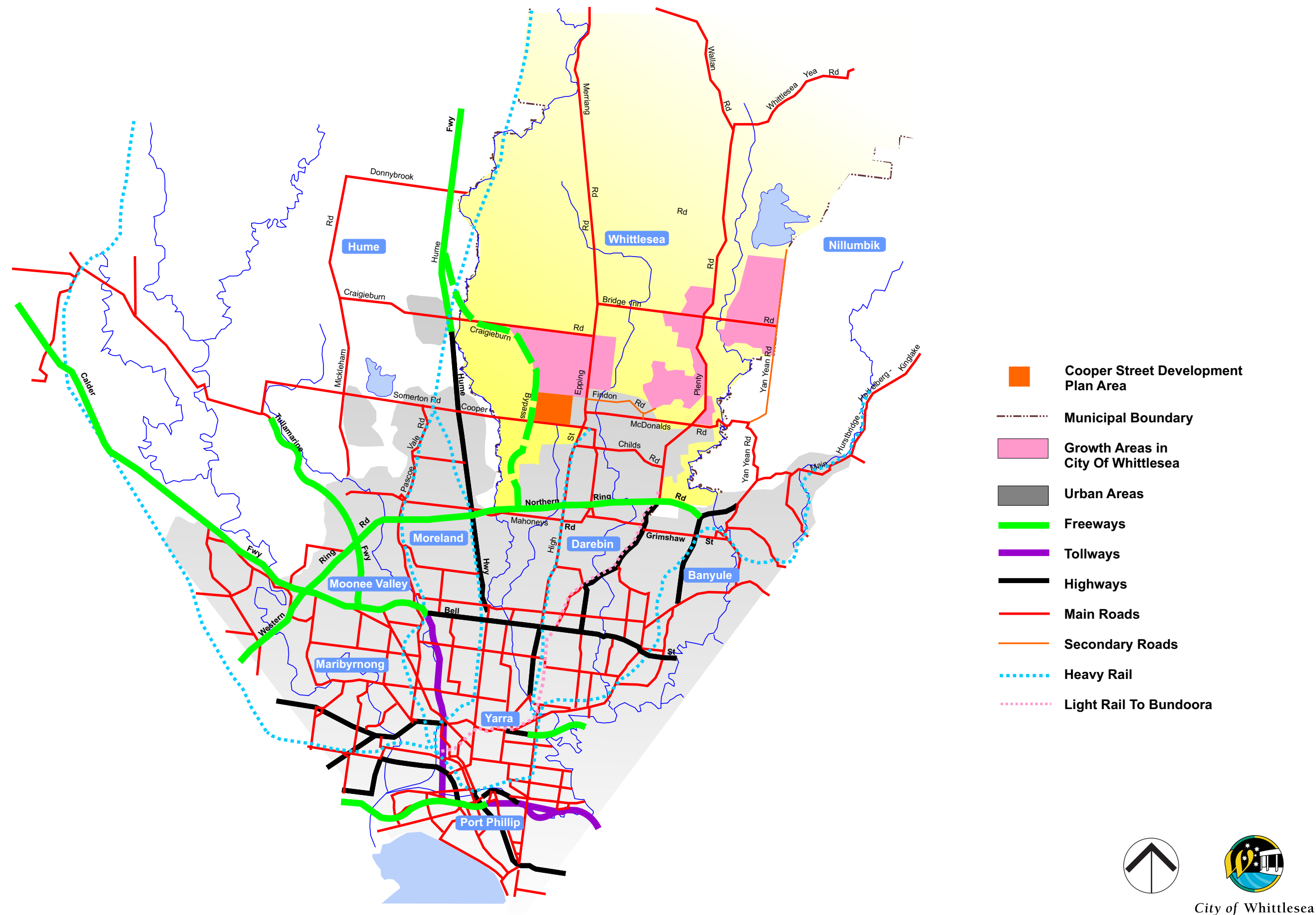


Cooper Street Development Plan Area



City of Whittlesea

FIGURE 3 EXISTING REGIONAL TRANSPORT



3.2 POLICY CONTEXT

3.2.1 STATE PLANNING POLICY FRAMEWORK

The Whittlesea Planning Scheme has a variety of policy objectives relating to employment, growth and urban design which have an influence on the Development Plan.

The objective of the state policy on Industry (clause 17.03 of the Victorian Planning Provisions) is

“to ensure availability of land for industry and to facilitate the sustainable development and operation of industry and research and development activity.”

Issues of relevance in the general implementation of this policy include:

- That planning authorities should zone land for industrial development in urban growth areas where good access for employees and freight transport is available and where appropriate buffer areas can be provided between the proposed industrial land and nearby sensitive land uses.
- Industrial activity in industrial zones should be protected from the encroachment of unplanned commercial, residential and other sensitive uses which would adversely affect industrial viability.
- Industrial activities requiring threshold distances are to be located in the core of suitably zoned industrial areas and encourage activities with minimal threshold requirements to locate towards the perimeter of the zone.

The objective of the state policy on design and built form (clause 19.03 of the Victorian Planning Provisions) is “to achieve high quality urban design and architecture that:

- *Reflects the particular characteristics, aspirations and cultural identity of the community.*
- *Enhances livability, diversity, amenity and safety of the public realm*
- *Promotes attractiveness of towns and cities within broader strategic contexts.*

MELBOURNE 2030

Melbourne 2030 Planning for Sustainable Growth (October 2002, p.87) identifies the Cooper Street Employment Area, as a “proposed major industrial area.”

3.2.2 LOCAL PLANNING POLICY FRAMEWORK

WHITTLESEA MUNICIPAL STRATEGIC STATEMENT (MSS)

The Development Plan supports the general intent of the MSS in relation to Employment and Economic Development, the objectives of which are to:

- *Protect future industrial activity within the Cooper Street precinct by ensuring that non-industrial land uses that would adversely affect industry viability are discouraged from encroaching on the area;*
- *Oppose potential rezoning of land reserved for employment purposes;*
- *Ensure that all new employment areas have regard to high quality urban and landscape design and appearance;*
- *Establish high quality urban and landscape design treatments at major gateways and along main roads;*
- *Continue to work with all servicing agencies to resolve issues relating to the provision of infrastructure within the Cooper Street growth areas; and*
- *Focus on the planning for the concept of integrated business parks in Cooper Street.*

The specific actions implemented by this Development Plan as recommended in the MSS are:

- *Implement the Cooper Street Precinct Strategy pending the finalisation of the alignment of the Hume Freeway.*
- *Following definition of the Hume Freeway alignment review the Cooper Street Precinct Strategy as required and pursue rezoning of land in accordance with the Strategy.*
- *Facilitate the development process ahead of demand by co-ordinating the preparation of Development Plans in consultation with landowners and specialist consultants on selected sites.*
- *Pursue urban rezonings in Cooper Street and Epping North to raise the status of the area and to provide impetus for servicing agencies to resolve outstanding servicing agreements.*

The Cooper Street Employment Area Design and Use Guidelines have been prepared and provide detailed guidance regarding the method to achieve the objectives of the Development Plan. The guidelines focus on image and appearance and encourage high quality design. A mix of uses are encouraged which will have a high quality appearance, particularly fronting primary transport routes such as Cooper Street, O’Herns Road and Edgars Road. The Guidelines incorporate landscape guidelines to ensure that

individual developments incorporate high quality landscaping and other initiatives to promote the amenity of the locality.

The MSS also acknowledges other related concepts such as a high level of escape retail expenditure, low to moderate rates of containment of employment and pressure on transport routes. The MSS also has an objective to reduce dependence on car based transport and provide improved public transport and pedestrian/cycle options within existing urban growth areas of the municipality.

CITY OF WHITTLESEA GENERAL PLAN (1995)

The General Plan recommends that Cooper Street be developed as an improved gateway to the municipality, providing the opportunity for alternative employment in well designed “garden estates”. Such development could serve to enhance the “image” of industrial areas in the City of Whittlesea and of the municipality overall. Significant environmental issues will include maintenance of view corridors to the city skyline and protection and enhancement of the Merri Creek corridor.

The General Plan also notes that opportunity to provide significant areas of public open space (maybe adjacent to areas of low density residential development) in the western parts of the area or other uses, provided they are compatible with the plan for major open space areas along the Merri Creek.

COOPER STREET PRECINCT STRATEGY (1996)

The Cooper Street Precinct Strategy was prepared in accordance with a recommendation of the City of Whittlesea General Plan. The vision for the Cooper Street Precinct Strategy is “to create a vibrant living and working community, which integrates good urban design, effective use of physical services and the significant natural environment of the Merri Creek and nearby Grasslands, to promote the precinct as a gateway to the Northern Metropolitan growth areas.”

The key principles which underpin this vision include:

- Acknowledgement of the precinct’s linkages and proximity to major transport infrastructure including the Ring Road, Hume Highway, Airport, Rail and Port facilities;
- Existing land uses and activities in Cooper Street which need to be revitalised to create a high quality environment;
- Co-ordination of infrastructure;
- Rationalisation of existing zoning pattern;
- High quality design and provision of local employment opportunities;
- Screening and landscaping;

- Landscape protection and enhancement of the Merri Creek;
- Recognition of Cooper Street’s importance as a freight and passenger route; and
- Appropriate signage and streetscape works.

The Cooper Street Precinct Strategy divides the study area into a number of individual precincts which were examined to identify opportunities and constraints to develop strategies. The Development Plan (Part 1) incorporates and implements the objectives of the Cooper Street Precinct Strategy.

WHITTLESEA STRATEGIC TRANSPORT INFRASTRUCTURE STUDY

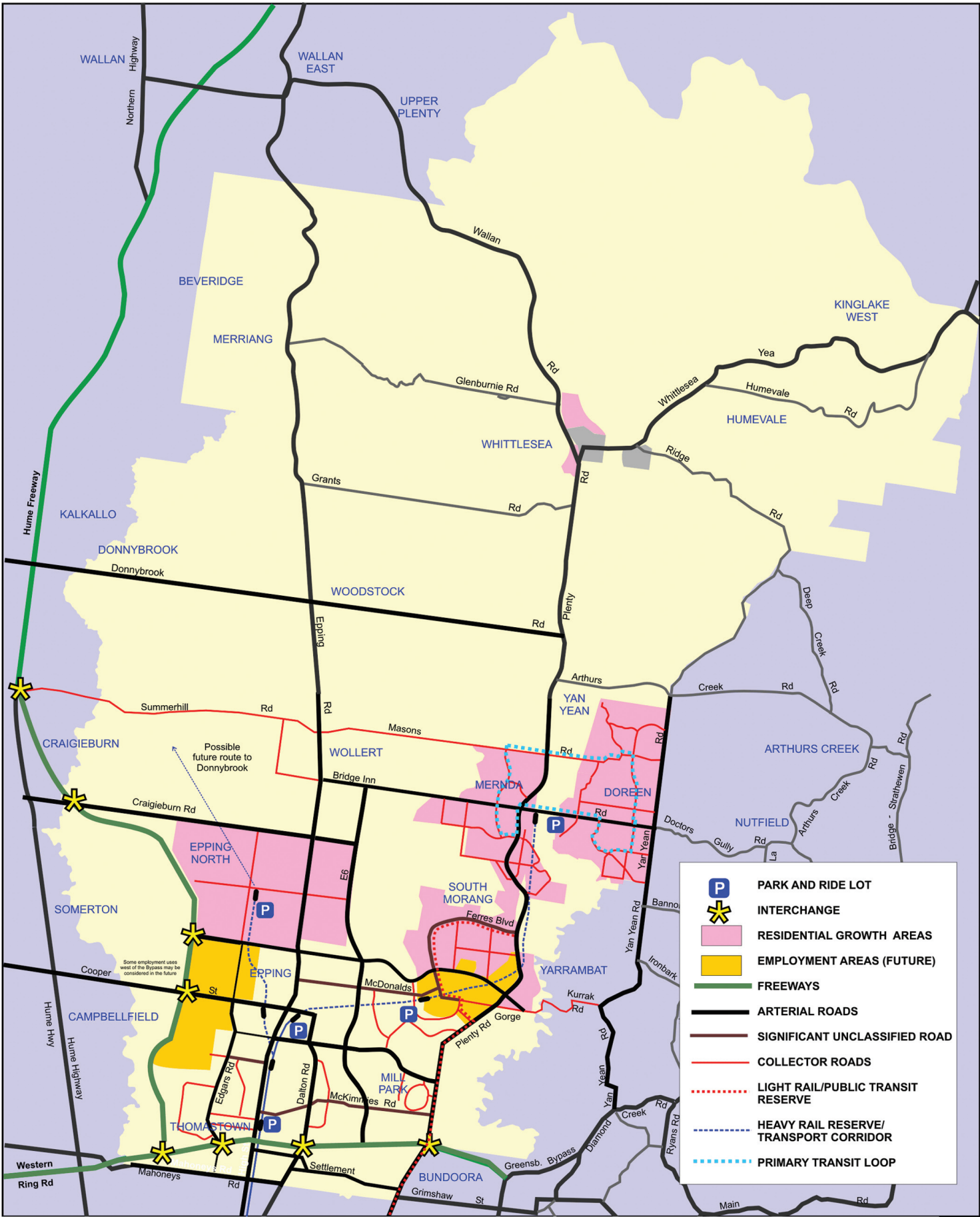
The Whittlesea Strategic Transport Infrastructure Study was a joint project of the Department of Infrastructure, Vic Roads and the City of Whittlesea.

The strategic objectives behind the strategies and recommendations of the study include:

1. To provide improved public transport access for new urban areas and improved cross-town movement to increase public transport patronage from its current level of 3% so that the region contributes to the metropolitan target of 20% by 2020.
2. To identify and protect existing and new reservations for the future transport network.
3. To provide improved north south road capacity through the City to improve network capacity, reduce pressure on existing routes and to facilitate access to the Ring Road.
4. To provide improved east west road capacity through the city to improve network capacity and to establish a preferred ease west arterial route which provides access to the Craigieburn Bypass.
5. To provide good access to activity centres to optimise local retail and commercial activities and to reduce escape expenditure from 35% to 25%.
6. To make provision for intermodal sites and park and ride facilities where different transport forms intersect.
7. To ensure that the transport network is complementary to land use objectives.

The role of the Transport Study is to provide strategic guidance on how to achieve better land use and transportation integration through a range of strategies and specific infrastructure projects up to the year 2020 and to identify specific transport projects. In particular the Study will be used to prepare Strategic Plans, Development Plans and planning permits. The ultimate transport network in accordance with the WSTIS is shown in Figure 4.

FIGURE 4 FUTURE UPGRADED TRANSPORT PLAN OF MUNICIPALITY



Principles and objectives that are relevant to the Development Plan include:

- **Public transport efficiency** by ensuring directness and connectivity within the road network to facilitate the efficient operation of buses.
- **Preservation of transport options** by reserving routes for public transport.
- **Land use and transport integration** if done effectively improves the efficiency of transport networks and the viability of commercial centres.
- **Local employment generation** by ensuring land parcels of appropriate sizes, serviced and with good accessibility to major arterial roads are made available within the municipality. Provision of employment opportunities can significantly contribute to reduction in external trips.
- **Access management strategies** to address the important interface between the road frontage and land uses to promote an active frontage to major transport routes.
- **Walking and cycling routes** as an integral part of the transport network to establish both recreational and commuter based activities. Provision of these routes can assist in reducing car dependence as walking and cycling become genuine alternatives and significantly contribute to the health and well being of communities.
- **Urban and landscape design** as a key component of the transport planning process by retention of local environmental features and careful attention to quality landscape. By contributing to creation of a positive sense of place this design contributes to pedestrian and cyclist safety and the viability of commercial centres. The relative importance of transport routes can be reflected in design through boulevard planting, these initiatives in the public realm contribute to the overall attractiveness and character of the City.
- **Infrastructure funding** to be shared between all levels of government and by private developers.

The transport strategy specifically discusses the Development Plan with regard to the following:

- Its role in supplying sites for relocated manufacturing and distribution as well as mixed uses, taking advantage of excellent access to the Craigieburn Bypass and Hume Highway and intermodal sites nearby.
- Provision of a transport corridor through the employment area via Lalor station. This would service the Northern Hospital and Epping Plaza, the employment area in Cooper Street and the Epping North residential area's north of O'Herns Road.
- That land required to establish the corridor be included in development contributions plans for the Development Plan and the Epping North residential area.



City of Whittlesea

The Development Plan is consistent with and implements the recommendations of the Whittlesea Strategic Transport Infrastructure Study.

RURAL REVIEW

The Rural Review was publicly exhibited in 2000 and was prepared to provide a review of the planning scheme and policy provisions that apply to rural and non-urban areas of the City. It is based on a desire to link the understanding of physical capabilities and sensitivities of the land to broader strategic policy directions. This document contains a number of “Municipal Frameworks” which provide specific guidance and relevant policy directions. The Municipal framework that is of relevance to the Development Area is “Boundaries and Buffers”.

An ongoing land use issue on the rural/urban fringe is the definition of limits to growth and where the “edge” of urban development lies. The Review recommends that well-defined boundaries to growth areas are needed and given the land capability, environmental value and visual character of the rural areas that further urban expansion into these areas is not desirable. A key finding of the Review is to restrict the long-term growth of the City to the area capable of being supported within the growth area of South Morang, Mernda, Whittlesea Township and Epping North. A series of boundary treatments to the ‘edges’ of urban development, including larger lots, road buffers and open space, are proposed to ensure that these edges are treated appropriately.

With regard to extractive industry the Rural Review recommends that no further extractive industries be permitted south of Craigieburn Road East and west of Epping Road.

THE CITY OF WHITTLESEA OPEN SPACE STRATEGY

The City of Whittlesea Open Space Strategy (August 1997) provides guidance for the development, planning and provision of open space throughout the municipality. The Strategy proposes an integrated open space network and includes benchmarks for open space provision, development guidelines, an open space hierarchy, and strategic issues and actions for each precinct within the municipality.

The goal of the Strategy is “To provide a high quality, resource efficient network of accessible open space in the City of Whittlesea that will satisfy community and ecological needs.” It is a Strategy/Guideline Reference in the MSS.

General aims of the strategy include:

- To provide off-road pedestrian, bicycle and habitat links between area of open space or other destinations

- To link the municipality’s trail and green corridor links to the wider metropolitan trail and open space network.

In relation to Cooper Street, the Open Space Strategy lists the following significant features and issues for open space provision.

- *Future development of the area between the residential parts of the precinct and Cooper Street has been identified in Council’s Cooper Street Precinct Strategy (1996) for employment. This provides the best opportunity to obtain some significant parcels of land to act as neighbourhood parks to fill the large gap in open space provision west of Edgars Road.*
- *Open space developments along Cooper Street should also provide for links north to Cooper Street along the Merri Creeks, and should link Cooper Street where possible with proposed neighbourhood parks.*
- *Work with Hume City Council and the Merri Creek Management Committee to continue development of Merri Creek shared pathway north to Cooper Street.*
- *Ensure that development includes a linked network of informal open space which is connected to the Edgars Creek and Merri Creek Trails and provides a linkage to Whittlesea Gardens and the Epping Plaza. Given existing development at Epping Plaza and proposed additional public facilities nearby like the hospital (this is now constructed), the north east of the precinct is likely to become a significant activity hub. Another aim of open space development along Cooper Street therefore should be to consolidate open space around and provide linkages to this hub. (66-67)*
- *Continue development of Edgars Creek shared pathways, north to Childs Road, and eventually to Cooper St. (p67)*
- *Investigate the potential to acquire open space adjacent to Kingsway Drive neighbourhood Park, or at the western extension of Elizabeth Street, should the Epping Bulge development proceed.*

The Whittlesea Open Space Strategy proposes shared paths for Edgars Creek, Darebin Creek, the Merri Creek, and along O’Herns Road to link these proposed trails. Additional links are proposed via the E6 reservation and transmission easements which would allow for a connection to the Civic Centre, Quarry Hills Park and the South Morang Activity Centre. When fully developed this network would provide for both recreational and commuter usage. The Development Plan is consistent with and implements the objectives and recommendations of the Whittlesea Open Space Strategy.

MERRI CREEK AND ENVIRONS STRATEGY

The Merri Creek and Environs Strategy (1999) provides an overview of important issues and objectives within the Merri Creek catchment and documents actions to achieve their resolution. The strategy’s further purpose is to facilitate co-ordinated action by responsible authorities. It also captures some important, often site-specific actions, which underpin its strategic direction. The document is a Strategy/Guideline Reference within the Whittlesea Planning Scheme.

The Merri Creek and Environs Strategy identifies a number of objectives and actions which are of relevance to this Development Plan.

- Development of a continuous, off road shared pathway of consistent and safe design standard on either, but not both sides of Merri Creek from Craigieburn (the headwaters of the Merri Creek) to the Yarra River.
- Development of trail links between Merri Creek and new and existing trails, public transport routes, roads and other open space areas as development proceeds in the northern suburbs and opportunities arise.
- Provision of access points, paths and facilities for disabled and special need users, consistent with open space management zone objectives. (Trails and Access p84)

3.3 EXISTING PLANNING SCHEME CONTROLS

The subject site and its surrounds are currently affected by the following zones and overlays.

ZONES

The *Special Use Zone Schedule 4 - Extractive Industry* applies to approximately 85 hectares south of Cooper Street and 430 hectares of land to the west of the Bypass.

The *Rural Zone* applies to approximately 156 hectares of the subject site.

The *Urban Floodway* zone applies to the Merri Creek, Curley Sedge Creek and Central Creek.

The *Industrial 1* zone applies to part of the land on the north side of Cooper Street – this site is currently being developed for industrial use as the Northpoint Enterprise Park.

The *Road Zone Category 1* applies to land the length of Cooper Street and the Craigieburn Bypass which is expected to be completed in November 2004.

Refer to Figure 5, Existing Zones.

OVERLAYS

Schedule 2 - To The Design and Development Overlay Hume Freeway - Metropolitan Ring Road To North of Craigieburn

A Design and Development Overlay has been applied to the land within 150 metres of the Craigieburn bypass. The design objective is to ensure that development of land in proximity to the By-pass is undertaken with appropriate noise attenuation measures to minimise the impact of traffic noise on noise sensitive activities.

The Design and Development Overlay states that any development associated with a use related to most types of urban development is to include noise attenuation measures to the satisfaction of the Roads Corporation. The Roads Corporation will consider any appropriate Australian Standards in relation to road and traffic noise intrusion.

As part of the construction of the Craigieburn Bypass a noise barrier will be built from the Metropolitan Ring Road to the Cooper Street interchange. North of Cooper Street developers will need to construct noise barriers in accordance with VicRoads publication *Craigieburn Bypass: Noise Attenuation Design Guidelines*.

The *Land Subject to Inundation Overlay* (LSIO) is applied to land south of O’Herns Road for the tributaries of Edgars Creek. Two of the tributaries join between Yale Drive and Miller Street before continuing south and joining the western tributary of Edgars Creek on the Epping Waste Disposal land. This also applies to the Merri Creek and Curley Sedge Creek and Central Creek. Central Creek flows south towards the Lalor area. Construction of the Craigieburn Bypass provides for the flow of Central Creek to be accommodated into a system of wetlands and detention basins. Issues associated with drainage and overland flows will need to be carefully dealt with at subdivision stage to prevent inundation of this low lying area.

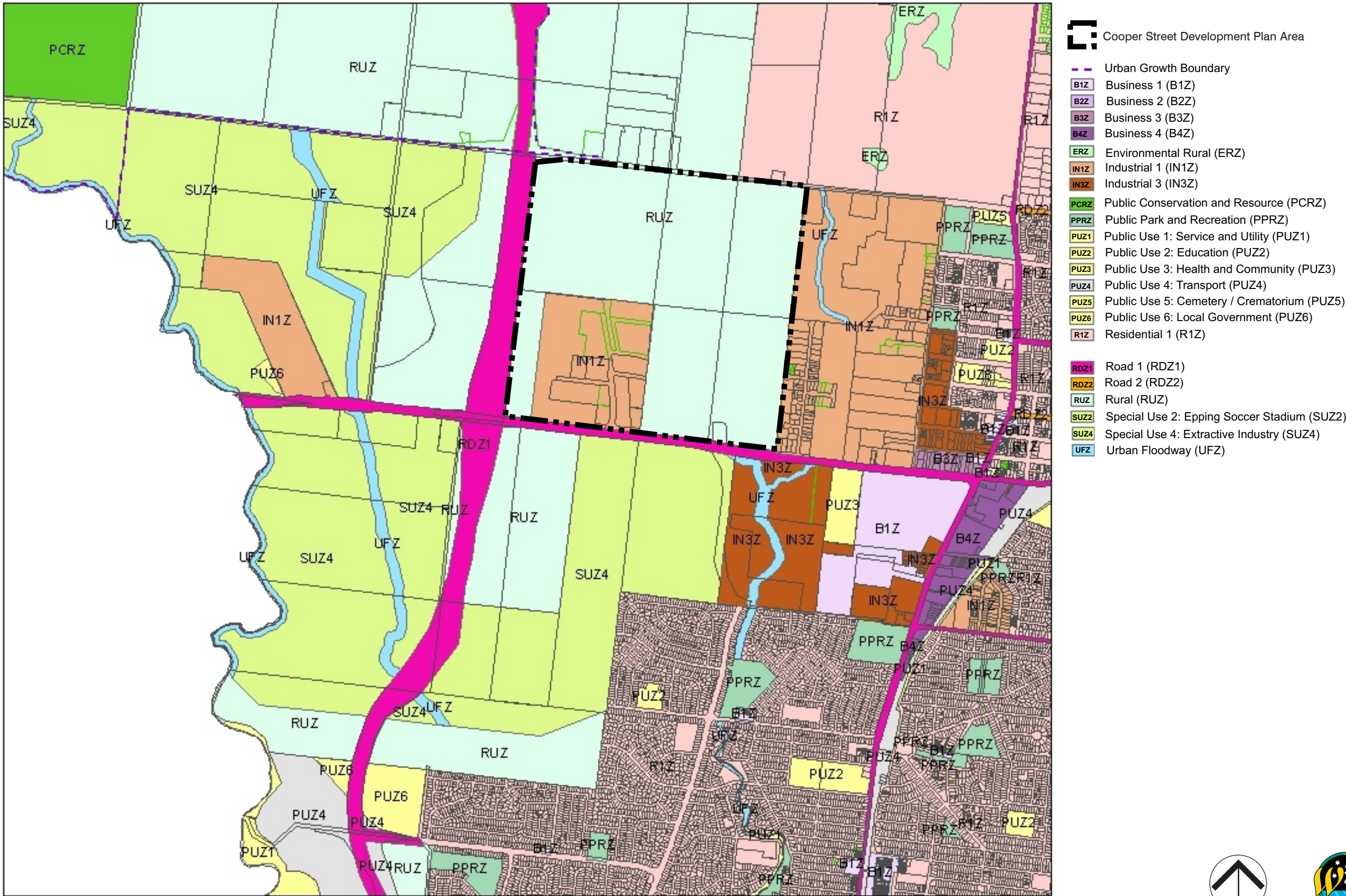
The *Rural Floodway Overlay* (RFO) applies to the western tributary of Edgars Creek which runs south from O’Herns Road before joining the eastern tributary on the Epping Waste Disposal land. This overlay also applies to the Merri Creek.

The *Environmental Significance Overlay* (ESO3) applies to the land east of Merri Creek for a distance of between 300 metres and 500 metres, which are outside the study area.

The *Environmental Significance Overlay* (ESO2) applies to the Craigieburn Grasslands, which are outside the study area.

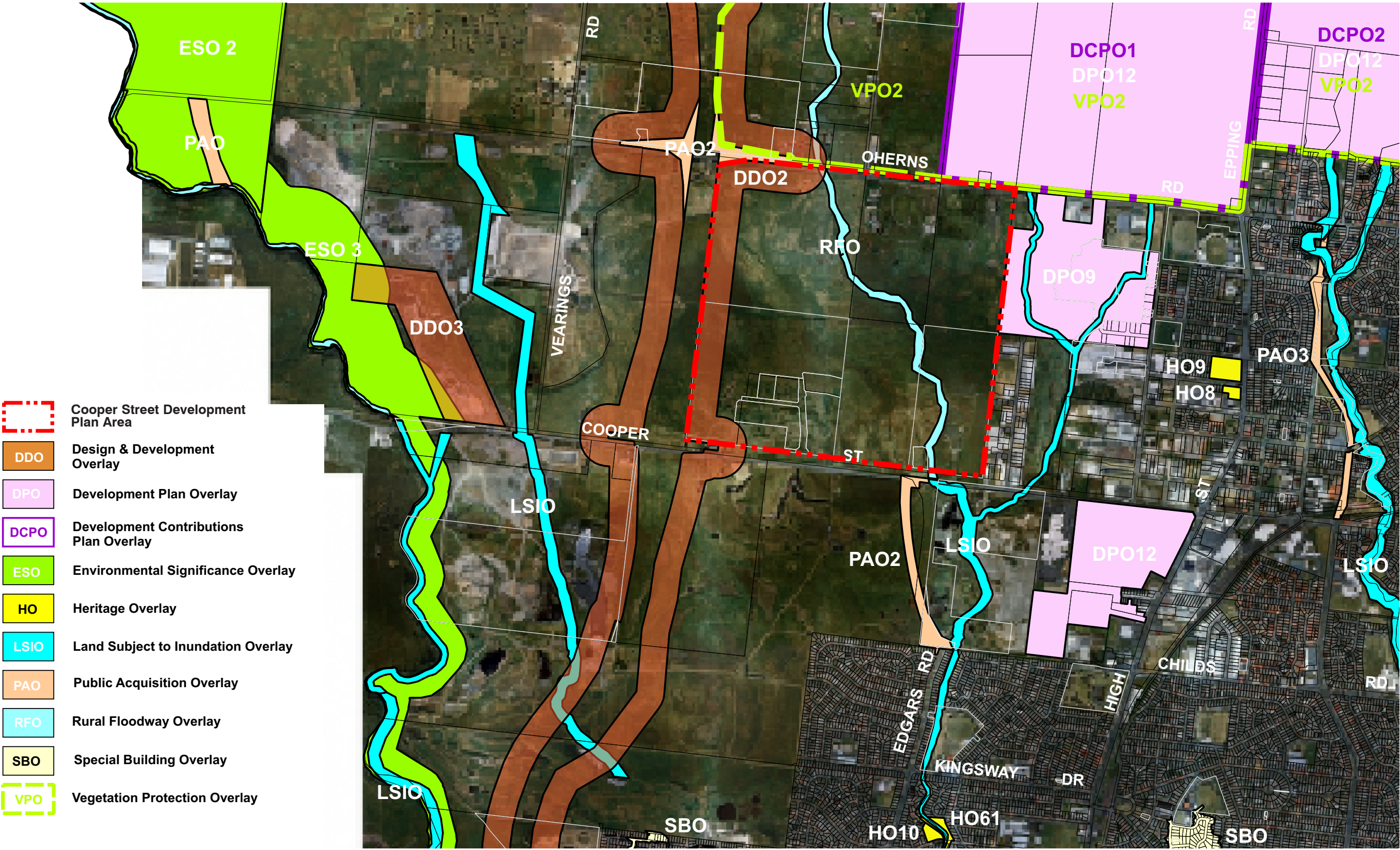
Refer to Figure 6, Existing Planning Scheme Overlays.

FIGURE 5 EXISTING ZONES



City of Whittlesea

FIGURE 6 EXISTING PLANNING SCHEME OVERLAYS



City of Whittlesea

4.0 SITE CONTEXT AND ANALYSIS

The Development Plan area is characterised by a number of different land uses and areas of landscape character. These areas create a variety of landscape opportunities and constraints that guide future planning and development. The following section outlines each of the major site issues (within and adjacent to the Development Plan Area) and identifies significant strategic issues which the Development Plan seeks to address.

4.1 SITE DESCRIPTION

PROPERTIES WITHIN THE DEVELOPMENT PLAN AREA

The properties listed below are within the Development Plan area. Refer to Figure 7 for their location.

TABLE A PROPERTIES WITHIN THE DEVELOPMENT PLAN AREA

Property Address	Approximate Area in hectares
300 Cooper St Epping	30.18 ha
310 Cooper St Epping	31.13 ha
340 Cooper St Epping	18 ha
360 Cooper St Epping	39.41 ha
* 275 O'Herns Road Epping	62.26 ha
135 O'Herns Road Epping	30.84 ha
195 O'Herns Road Epping	31.47 ha
TOTAL Area of Land in Development Plan	244 ha

* Denotes property ownership extends outside of the Development Plan Area

4.2 LAND USES AND SERVICES

4.2.1 EXISTING LAND USES

Land uses in the Development Plan area consist of a range of agricultural, rural, and industrial uses, including the Northpoint Industrial Park.

GRAZING

The majority of the Development Plan is still largely used for cattle grazing purposes. Whilst it is unlikely that this type of farming will remain in the area in the medium to long term, there is an opportunity to retain some of the historical character elements in any future developments through the use of sympathetic materials such as basalt stone walls.

GAS PIPELINE

The land is bisected by the 600mm diameter underground high pressure Keon Park - Wodonga West gas transmission pipeline owned by Transmission Pipelines Australia.

EXTRACTIVE INDUSTRY LICENCES

Quarrying activity has taken place on land to the east, west and south of the Development Plan area since the 1950s. Currently no extractive industry licenses apply to the Development Plan Area, however, there are licences issued to areas south of Cooper Street and west of the Craigieburn Bypass. Analysis of these licences and respective buffers illustrate that the effect of these operations on the Development Plan Area is negligible.

4.2.2 SURROUNDING USES

NORTH

The Rural and Residential Zone applies to land North of O'Herns Road, between the Craigieburn Grasslands and Epping Road. This land is currently used for grazing purposes and is under construction for residential development east of High Street.

PROPOSED EPPING NORTH RESIDENTIAL AREA

Part of this area is identified in the Municipal Strategic Statement and the Melbourne 2030 documentation produced by the Department of Infrastructure as a future residential growth area with a predicted population of 50,000 persons. This land is the subject of the Epping North Strategic Plan which covers issues such as road and open space networks, protection of environmental features, pub-

lic transport, town and neighbourhood centres and designation of main active sporting areas. Two Local Structure Plans have been prepared for a portion of the Strategic Plan adjoining Epping Road. This land was rezoned to the Residential 1 zone on 13 September 2002 and represents the first stage of development in Epping North.

Vic Urban have purchased a large portion of the western section of the Epping North Strategic Plan area and are in the process of planning and designing for a residential development with an environmentally sustainable focus.

STRATEGIC ISSUES

The interface between the Epping North residential area and the employment area to the south of O'Herns Road will need careful treatment to ensure that adjoining uses are compatible. Particular regard will also need to be given to urban design and speed of traffic in the vicinity of the Aurora town centre.

EAST

The land to the east of the site, between O'Herns Road and Cooper Street is zoned Industrial 1 and is in the process of being developed for industrial purposes. An Outline Development Plan has been prepared for the land fronting O'Herns Road and Miller Street. Between the land zoned for industrial purposes and Epping Road is a range of uses including residential, industrial, business, and special uses including Council Depot, church, police station and school. Developments along the Cooper Street frontage have the opportunity to capitalise on this prominent location.

STRATEGIC ISSUES

Transport connections will need to be provided to integrate the Cooper Street Employment Area with existing industrial developments. The Development Plan will provide a positive and consistent design treatment which will distinguish it from the existing industrial area.

WEST

The Craigieburn Bypass acts as a western boundary to the Development Plan. To the west of the Bypass the land is mainly zoned Special Uses Extractive Industry (SUZ4) and a range of quarry and filling activity has taken place over much of this land. Land is used for cattle grazing purposes at 410 Cooper Street which has a Rural and a Special Uses Extractive Industry Zone.

Planning for the new Merri Creek Regional Park is being co-ordinated by Parks Vic. The Park will follow the Merri Creek Valley from the Metropolitan Ring Road to Craigieburn. The Park boundaries are still to be defined.

STRATEGIC ISSUES

A high proportion of the land to the west of the Bypass has been compromised by quarrying and filling activities or has environmental significance in proximity to the Merri Creek or grasslands. This increases the importance of land within the Development Plan area being utilised for high employment generating uses. Pedestrian linkages to this area from surrounding residential areas is important.

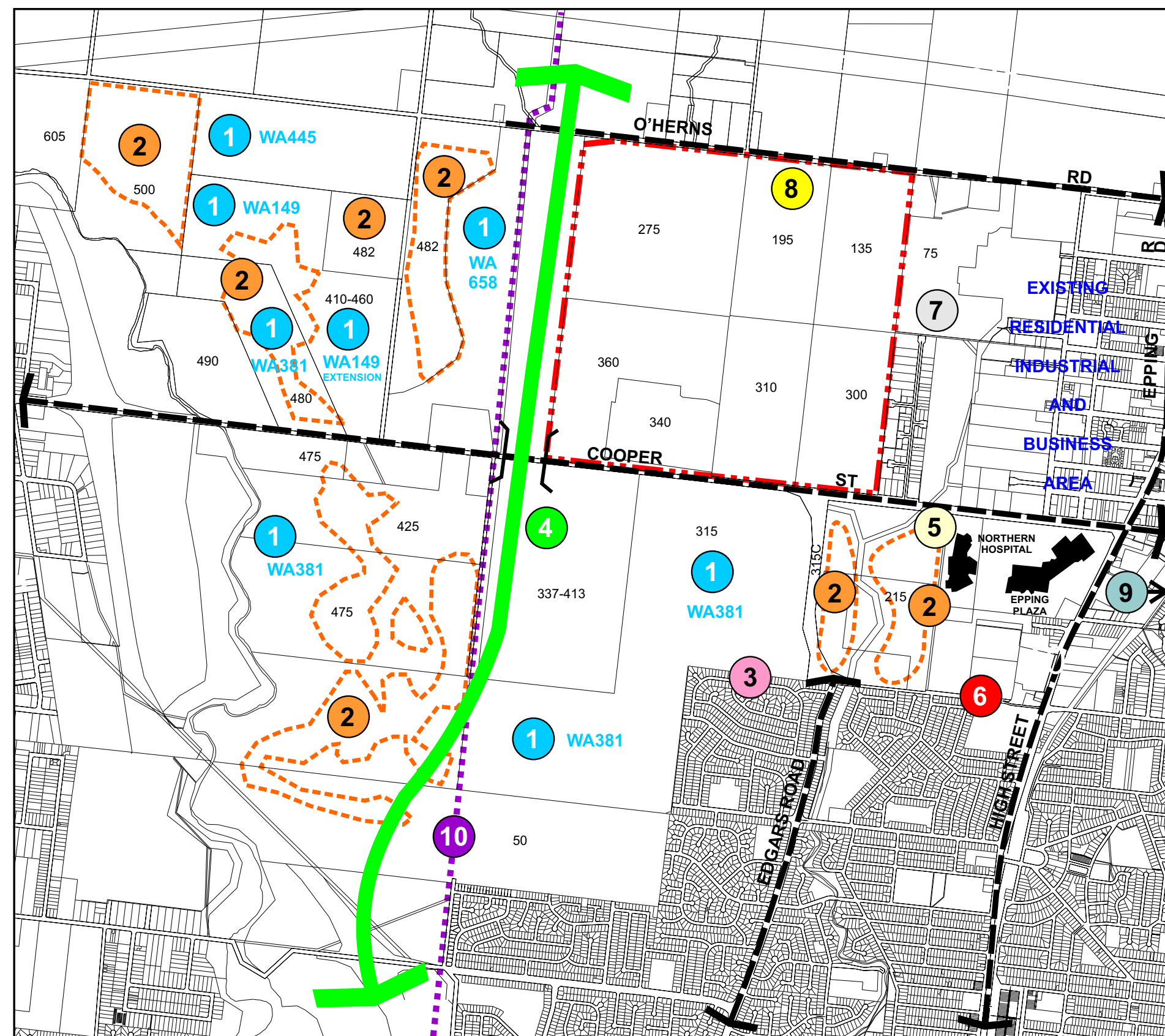
CITY OF HUME - INDUSTRIAL AREA

In the City of Hume, on the western side of the Merri Creek, the localities of Campellfield and Somerton are focused on the Hume Highway and contain substantial tracts of industrially zoned land and have (collectively) been recognised for decades as a major industrial location within the metropolitan area. Development has occurred randomly through out the area and over a lengthy period, resulting in discontinuity of design. The focus on the Hume Highway currently gives this location a comparative advantage in competing for and attracting ongoing major development and investment. The construction of the Craigieburn Bypass may change this as passing transport utilises the Craigieburn Bypass.

STRATEGIC ISSUES

The construction of the Craigieburn Bypass may result in business relocating from industrial areas fronting the Hume Highway to the Cooper Street Employment Area. A consistent design approach is required to ensure high quality design outcomes are achieved.

FIGURE 7 STRATEGIC ISSUES ARISING FROM EXISTING LAND USES



Cooper Street Development Plan Area



Status of Work Authorities (WA) for Basalt Extraction

- WA381 - current - exploration works inactive, WA on 315 Cooper Street expected to be lifted by Pioneer Quarries
- WA445 - current - operated by Northern Quarries 38 ha available with quarry life 10 years
- WA149 - current - operated by Northern Quarries 8 Ha available with Quarry life 7 years. WA extended to cover additional 20 ha frontage to Cooper Street, works estimated to begin 2006
- WA658 - application - planning permit refused by the Minister for Planning



Areas of Landfill / Quarry Holes



Boundary / Interface with Lalor Residential Area



Craigieburn Bypass Interface



Northern Hospital Interface



Childs Road Interface



Epping Township Existing / Proposed Industrial Interface



Epping North Residential / Employment Interface and Gateway



Existing Public Transport Interchange



**Underground Gas Pipeline
600mm diameter**



City of Whittlesea

SOUTH

In May 2005 the Victorian State Government provided certainty that the Melbourne Wholesale Markets will be relocated to Epping. The Wholesale Markets Site Acquisition Project interest area is approximately 133.53 ha in area and includes most of the Cooper Street Employment Area south of Cooper Street. In particular: -

- the Secretary to the Department of Infrastructure has acquired interest in part of the land once known as the McKee Estate (315 Cooper Street, Epping); and
- the Secretary to the Department of Infrastructure has reserved interest via the issue of a Notice of Intention to Acquire (made to 5 May 2005) on part of the adjacent Murdesk site (335-413 Cooper Street). A site due diligence is currently being carried out on this land as part of the process for acquisition.

It should be noted that the Markets Project Interest area does not include a triangular shaped site of approximately 19 hectares within the south eastern corner of the Cooper Street Employment Area. This area is bounded by the Melbourne Wholesale Markets Project site to the north, Amendment C71 to the south and east and the Hume Bypass to the west. The construction of the Wholesale Markets is anticipated to be completed and operational by 2009/2010.

South of the Cooper Street Employment Area, the proposed residential, recreation and open space area, the subject of Amendment C71, adjoins the residential suburb of Lalor. Lalor contains the following community infrastructure: Two primary schools within 500 metres of the site located along Kingsway Drive, being the Lalor West Primary School, and St Catherine's Roman Catholic Primary School. Within 1km of the site are two high schools, the Peter Lalor Secondary College and Thomastown Secondary College. Neighbourhood shopping centres are located on Barry Road and Kingsway Drive. The Special Building Overlay (SBO) applies to several properties on Benaroon Drive in Lalor adjoining the proposed residential area. This low lying area is subject to the 1 in 100 year flooding from Central Creek.

STRATEGIC ISSUES:

- There is a need to create appropriate linkages to existing services and transport networks.
- There is a lack of usable and safe active open space in the Lalor area. This has been exacerbated by the closure of the Lalor golf course.
- Pedestrian, bicycle and public open space linkages and general traffic linkages through the Melbourne Wholesale Fruit and Vegetable Markets is not likely to be achievable, given the nature of the use.

- To develop an active edge that lifts the profile of the employment area having regard to the internalised market development to the south.
- The Market will take priority for available sewerage capacity over and above the Development Plan Area and any future residential development.
- Understanding the volume and nature of traffic movements through the area particularly on Cooper Street.
- The interface between the Markets area and Amendment C71 will need to be resolved.

4.3 VISUAL FEATURES AND TOPOGRAPHY

TOPOGRAPHY

Other than the small scale geological variations such as stony rises, the Cooper Street area is relatively topographically level. The highest points on the site are along the 140m contour adjacent to the O'Herns Road boundary in the north of the site.

Between O'Herns Road and Cooper Street, the land falls from 140m to 125m. South of Cooper Street, to the west of Edgars Creek, there is a natural amphitheatre which rises to a height of 130m. The land gently undulates to the 120m contour where Edgars Road intersects with Childs Road.

Distinguishing visual features of the Cooper Street area are the dry stonewalls which provide a visual reminder of the rural past. The main viewing corridors are north-east towards the Quarry Hills and south towards the City skyline. Refer to Figure 8.

STRATEGIC ISSUES

The Development Plan area is surrounded by a variety of existing and proposed land uses and landscape units. These include:

- Areas of environmental significance
- Developing industrial areas
- Future residential areas
- Landscape units along the Merri Creek

These provide background context to the design of the Development Plan.

LANDSCAPE CHARACTER UNIT - THE VOLCANIC PLAIN

The study area lies on an immense basalt plain - extending from Mt Gambier in South Australia - created by lava flows in the late Quaternary Period, 2 to 5 million years ago. Mt Kororoit, Mt Ryan and the Stony Hills are evidence of past volcanic eruptions in the region (Rosengren 1986:12). From the eruption points, the lava flowed down river-valleys where it hardened into basalt, covering the Ordovician and Silurian sediments. This layer can be up to 60m thick and has been extensively quarried by Europeans for more than a century (Rosengren 1986:4). The soils on the basalt plain are typically newer volcanic, with a heavy textured clay. This clay, 10-60 centimetres thick, lies on the impervious layer of basalt and has led to the formation of the swampy areas common to the volcanic grasslands (Rosengren 1986).

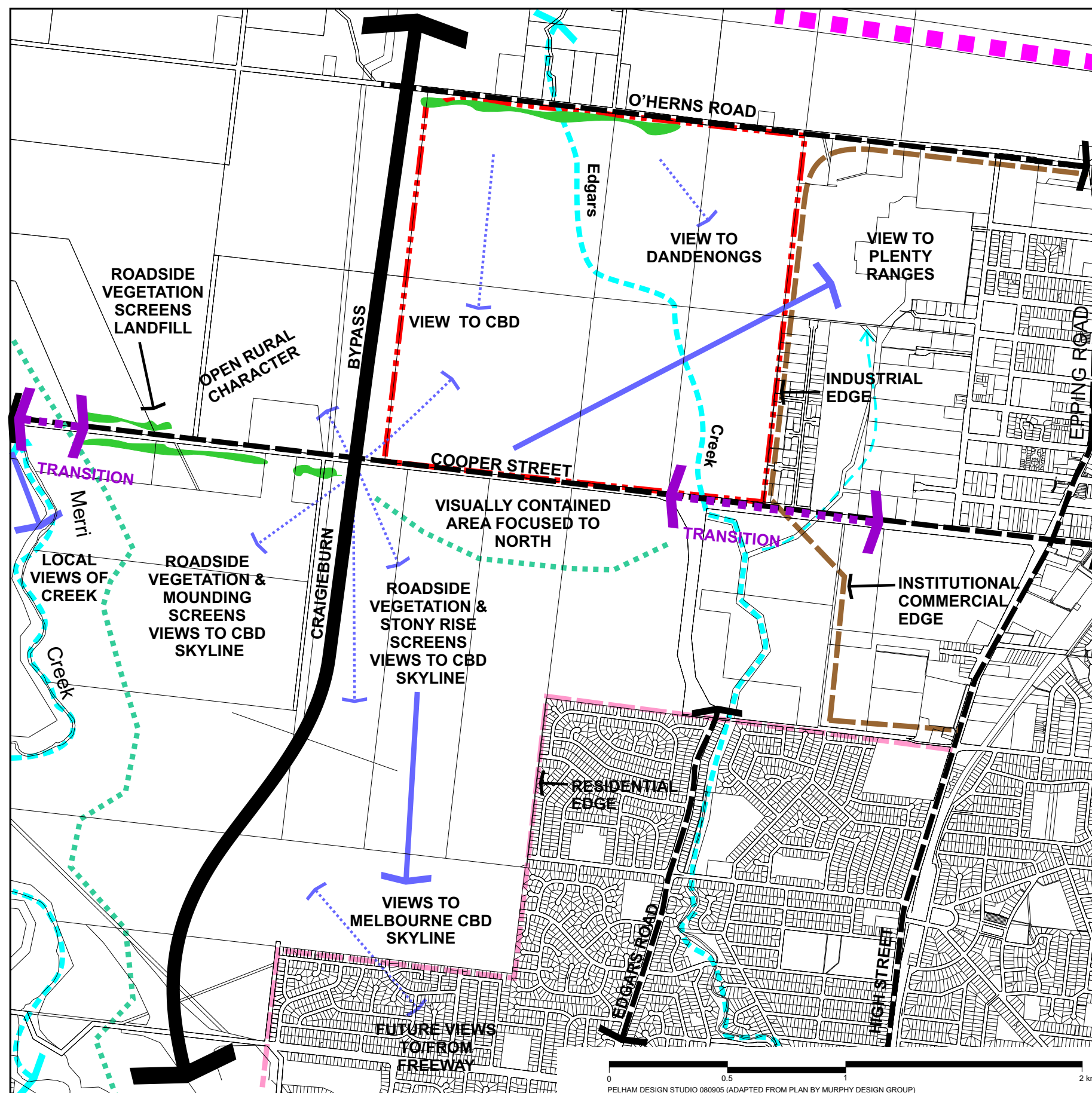
REFERENCE

Strata Archaeology Archaeological and Cultural Heritage Investigation of Cooper St, Yale Drive to the Hume Highway Stewart Muir October 1999 pp3-4

STRATEGIC ISSUES:

- The Development Plan area is relatively level and low lying. This has implications for drainage and the treatment of stormwater which require careful design to prevent flooding.
- Views of the Quarry Hills and the City Skyline are offered throughout the site.
- The study area lies on a basalt plain which has been used for quarrying since about the 1950s. Quarrying activity is still taking place to the West of the Development Plan area.
- A natural amphitheatre is located south of Cooper Street.

FIGURE 8 VISUAL FACTORS



- Cooper Street Development Plan Area
- ■ ■ High Voltage Transmission Lines
- |— Major Regional Views
- - -| - - - Future Viewing Opportunities
- - - Visually Contained Area
- Significant Roadside Vegetation



City of Whittlesea

4.4 FLORA, FAUNA AND HABITAT SIGNIFICANCE

Practical Ecology were appointed by the City of Whittlesea to undertake a review of existing botanical and zoological data and a preliminary flora and fauna assessment. This study was conducted in late February/early March 2001.

The study area covers a larger area than the area of Development Plan. The study area was bounded by O'Herns Road in the north, Lalor Golf Course in the south, Merri Creek in the west and the Epping Waste Disposal and residential and industrial developments in the east. Of the 975 hectares, field surveys were not carried out on approximately 485 hectares. Access to 410 Cooper Street and 275 O'Herns Road was not possible (210 hectares) and the remaining parcels of land (275 hectares) consisted of land that is already zoned Industrial or where current land use activities have significantly changed the landscape such as quarrying or tipping.

OVERVIEW OF THE STUDY AREA

The Practical Ecology report outlines that the study area comprises a totally modified environment whereby only scattered (and largely discontinuous) remnants of the pre-European vegetation remain. The vegetation within the study area was first transformed by agricultural practices with quarrying and landfill activities occurring later. Today, approximately half the area remains under agricultural use (grazing) while the remaining areas are associated with quarrying and landfill activities. Remnants of the original flora are dotted through the landscape although all better quality examples are confined to areas that have not been subject to intensive disturbances from either agricultural or quarrying uses. Other than mature Red Gums all better quality remnants are confined to rocky ground that basically could not be cultivated or had no quarrying values.

FLORA

Of the nearly 1000 hectares in the study area remnants of the original pre-European vegetation today occupy less than 30 hectares. By far the largest remaining contiguous area of remnant vegetation is along the Merri Creek Valley. Other than along the Merri Creek all reasonably intact remnants are less than 2 hectares in size, with most considerably smaller.

A total of 70 indigenous plant species have been identified for the area (refer to Appendix 1 Indigenous Plants recorded for the Cooper Street Precinct). Of the 70 species, 24 are considered to be of Regional Significance, 1 of National Significance and the possible occurrence of another of National Significance. Of the species of National Significance, the matted flaxlily is located within the

Craigieburn Bypass alignment and has been relocated to a nursery during construction. The presence of the Slender Tick-Trefoil at 310 Cooper Street needs to be confirmed.

Given the time of year the survey was conducted, a recent fire on the Merri Creek escarpment and that some properties could not be accessed, further indigenous species may be located within the study area. Further studies will be required to be undertaken prior to the design of plans of subdivision for these areas.

Non-indigenous (exotic) species are now the dominant vegetation type. The study did not specifically identify all the non-indigenous flora of the area. However, based on general field observations and reference to other studies, it is estimated that there are between 70-100 non-indigenous species in the study area.

VEGETATION COMMUNITIES

Three pre-European vegetation communities have been identified for the study area:

- Volcanic Plains Riparian Complex (along the Merri Creek);
- Escarpment Shrubland (along the Merri Creek); and
- Plains Grassland.(refer to Figure 10)

Non-indigenous (exotic) vegetation now forms the dominant vegetation community across more than 90% of the study area. For further information on the vegetation communities refer to Appendix 2, Vegetation Communities.

FAUNA

A total of 31 native fauna species were observed in the study area during field surveys. These comprised 25 bird species, 3 reptile species, 2 frog species and 1 mammal species (Refer to Appendix 3, Native Fauna Observed in the Study Area).

Studies and observations in the general district over the last decade indicate that 155 native bird species, 18 native mammal species, 20 native reptile species and 10 native frog species occur in and near the study area (Refer to Appendix 4, Locally occurring Significant Fauna Species).

The various studies of recent years indicate that several Regional, State or National Significant species either occur in or potentially occur in or adjoining the study area. For example the Growling Grass Frog (*Litoria raniform*) which is listed as vulnerable in Australia has been found at 215 Cooper Street and the Merri Creek which are outside of the Development Plan Area. A more detailed fauna assessment will be required to be undertaken as part of planning permit applications for subdivision so as to potentially locate these species.

FIGURE 9 MODIFIED GRASSLAND ON THE VOLCANIC PLAIN



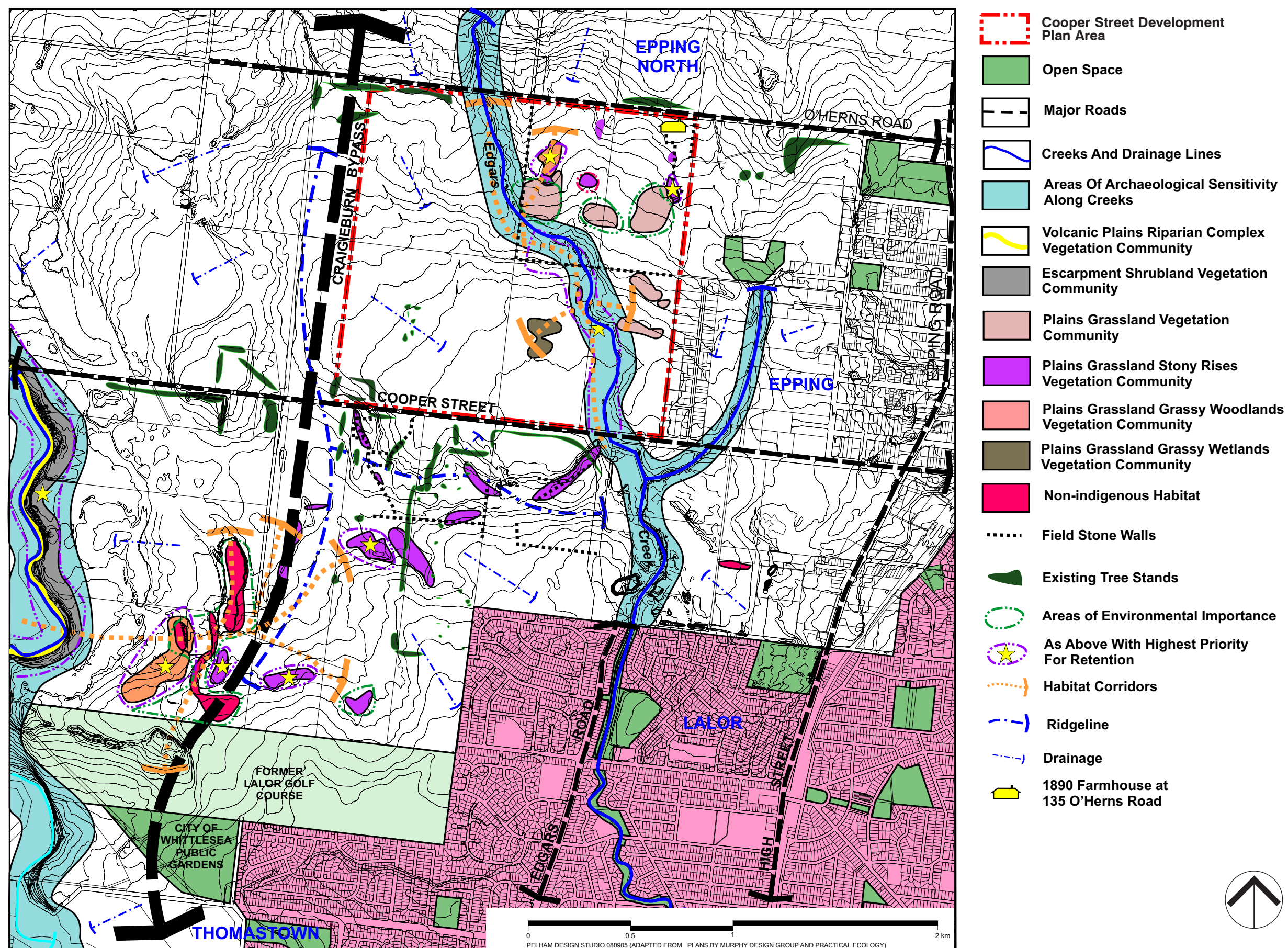
STRATEGIC ISSUES

The results of the flora and fauna survey indicate that the Development Plan area has generally degraded flora and fauna values due to past land use activities and weed invasion. Of what remains however there is an opportunity to retain sites of value and to potentially improve habitat values and biological diversity. Further discussion of the management of these sites is provided in section 6.1 Conservation Areas and Open Space.

The Environmental and Cultural Heritage Factors Plan at Figure 10 depicts the location of:

- remnant vegetation sites (defined by vegetation communities and sub-communities) including a ranking of vegetation quality;
- sites of known or probable fauna significance;
- areas recommended for retention within future developments; and
- future habitat corridors through the site as links to habitats outside the study area.

FIGURE 10 ENVIRONMENTAL AND CULTURAL HERITAGE FACTORS



City of Whittlesea

4.5 HERITAGE AND CULTURAL SIGNIFICANCE

At the time of European contact, the study area was occupied by the Wurundjeri willam clan of the Woiwurrung speaking people (Ellender 1997). Woiwurrung territory took in the basins of the Yarra and Maribyrnong Rivers. The Woiwurrung speaking people were part of a larger grouping known as the Kulin or 'Kulin Nation'. This cultural bloc, were united by similarities in language, initiation, burial practices, kinship, marriage ties, and religious beliefs (Clark 1990, Barwick 1984).

There is little specific information about the lives of the clan members who inhabited the current study area although there is general information on Woiwurrung clans, and on some other Kulin groups that is known. There is no documentary evidence of post-contact sites in the study area, despite records of Aboriginal historical sites on the lower Merri, and the contemporary significance of Galada Tamboore (the Barry Road Gorge) to the Wurundjeri people.

ABORIGINAL ARCHAEOLOGICAL LOCATIONS

A number of archaeological studies have been carried out within and around the Development Plan area. A summary of their findings and recommendations is provided below.

Vic Roads commissioned Strata Archaeology to study the proposed alignments of the Craigieburn Bypass. The "Hume Freeway Craigieburn to Metropolitan Ring Road - Review of Route Options and Environmental Measures Strata Archaeology July 2000" identified two Archaeological sites near the Merri Creek.

In addition to recorded sites Strata Archaeology identified areas of cultural heritage sensitivity, particularly in terms of impact on areas of cultural and potential archaeological importance to the Aboriginal community. Areas of identified sensitivity are within 100-200 metres of Merri Creek.

The study recommends that more intensive investigations should occur both prior to and during construction in critical areas (Merri Creek and grasslands) to clearly delineate areas to be avoided during construction. Impacts on waterway areas will need to be minimised through suitable design as well as construction methods. Consent from the Wurundjeri community and Aboriginal Affairs Victoria will be needed prior to any disturbance of known sites as well as consultation with the Wurundjeri community prior to any future investigations or disturbance of sensitive areas.

While this report is written with regards to the proposed alignment of the Craigieburn By-pass, the recommendations are considered relevant to other types of urban development.

Strata Archaeology were also commissioned to investigate 100 metres on either side of the width of Cooper Street.

The "Archaeological and Cultural Heritage Investigation of Cooper Street, Yale Drive to the Hume Highway" by Stewart Muir Strata Archaeology October 1999", did not record any Aboriginal archaeological sites during the field survey of this study area.

There are no documented comments on the significance of sites in the study area from the Wurundjeri Tribe Land Compensation and Cultural Heritage Council Incorporated. Aboriginal Affairs Victoria (AAV) has advised they hold no records for any Aboriginal archaeological sites, places or objects within the Edgars Creek Study Area (Cathie Webb, Planning and Development Archaeologist, AAV 28/10/98). Further survey work on potential archaeological sites will need to be carried out prior to subdivision plans being prepared.

STRATEGIC ISSUES:

While this area is not generally one with high archaeological sensitivity archaeological surveys are required to be undertaken. Each subdivision application is to be accompanied by an archaeological assessment which aims to locate, record and assess any sites which might be affected by proposed developments. This report is to provide recommendations for management of any significant examples.

Areas of potential archaeological sensitivity are:

- 100 metres to either side of the Merri Creek - High Sensitivity (outside of the Development Plan area)
- 50 metres to either side of Edgars Creek - Low to Moderate Sensitivity

EUROPEAN HISTORY

Several surveys of sites of European heritage significance have been undertaken within the development plan area. These studies and their recommendations are discussed in the following section.

The Whittlesea Heritage Study 1991, prepared by Meredith Gould Architects, Conservation Consultants investigates sites of European heritage significance throughout the municipality. Within the Development Plan area Lot 7 O'Herns Road Epping, (known as 135 O'Herns Road), is identified as being a weather board house built in 1890. The integrity is listed as good. This property has been allocated a "C" grade for its local significance and is recommended for Planning Scheme Protection. This is the only property in the study area that was identified in the Whittlesea Heritage Study as having heritage value. A number of properties are identified in the adjoining urban area in the vicinity of High Street Epping as having heritage value.

A study commissioned by Vic Roads was undertaken by Strata Archaeology titled "Archaeological and Cultural Heritage Investigation of Cooper Street, Yale Drive to the Hume Highway Stewart Muir October 1999". The study

FIGURE 11 STONEWALLS



area included land 100 metres from the centre line of Cooper Street.

Three historical sites were registered on the Heritage Inventory following field survey - Cooper Street Dry Stone Wall Complex 1 (H7822-0272), Cooper Street Wall 1 (h7822-0269), and Cooper Street Wall 2 (h7822-0271). The Site Management Recommendations are that these areas should be avoided in the duplication of Cooper Street. If impact is unavoidable then Vic Roads must obtain official consent to disturb from Heritage Victoria.

STRATEGIC ISSUES:

The drystone walls are a significant reminder of past activities and offer an opportunity to distinguish the plan area via their retention and ability to contribute to a theme for public and private spaces focussing on natural materials.

- Each subdivision application is to be accompanied by a heritage assessment which aims to locate, record and assess any sites which might be affected by proposed developments. This report is to provide recommendations for management of significant sites.
- The Drystone walls require protection during the development of the Cooper Street area.

FIGURE 12 **EDGARS CREEK WHEN VIEWED SOUTH FROM O'HERNS ROAD**



4.6 WATERWAYS, DRAINAGE AND CATCHMENTS

The Cooper Street Employment Area is located in the sub-catchments of Edgars Creek. These in turn form part of the Yarra catchment which drains into the Port Phillip and the Westernport Region. Edgars Creek is the largest tributary of the Merri Creek and joins the Merri Creek just below Coburg Lake about 17 km from its headwaters. The headwaters of Edgars Creek occur near Boundary Road in Wollert. The watercourse is undefined until it crosses Craigieburn Road East, north of the study area. Within the Cooper Street area the stream channel is weakly incised into the basalt surface and generally follows an irregular meandering alignment. Edgars Creek is predominantly a dry creek bed and apart from occasional pools of water from local drainage or seepage, flow in the creek is infrequent. There is generally insufficient catchment area or channel and valley side slope to provide intermittent flow and the channel is too shallow to intersect the water table.

FLOOD RISK

There are no substantial flooding risks identified in the area other than along the identified creeks and associated tributaries. Anecdotal evidence suggests that there have been occurrences of sheet flooding in the past due to the very flat topography and weakly defined watercourses. The Edgars Creek Drainage Scheme has been developed

by Melbourne Water to identify the 1:100 year flood levels for the subject area. As part of each application for subdivision a drainage scheme that accords with the Edgars Creek Drainage Scheme will need to be prepared and subsequently approved by Melbourne Water. The scheme may be further refined as detailed subdivision plans are prepared.

The Urban Floodway zone, Land Subject to Inundation Overlay and the Rural Floodway Overlay apply to creeks and tributaries on the site (Refer to Figures 5 and 6 for zones and overlay locations). The urban floodway zone which applies to the west of Vearings Road currently flows south-east into the Lalor Golf course. The land in proximity to and including the Lalor Golf course is low lying and forms a natural collection point for overland flows. The construction of the wetlands and detention basins in association with the Craigieburn Bypass may alter the flow of some of these watercourses.

STRATEGIC ISSUES:

The land is generally low lying and Edgars Creek is weakly incised into the basalt surface and generally follows an irregular meandering alignment. Edgars Creek joins the Merri Creek at Coburg. Therefore an integrated approach to drainage is required. This area could then form a 'spine' for an appropriate public open space network and create amenity for the employment area.

4.7 EXISTING TRANSPORT NETWORK

TRANSPORT NETWORK

The transport network within and adjoining the Development Plan area is characterised by a discontinuous grid based system of north-south and east-west routes. The City of Whittlesea Strategic Transport Infrastructure Study (WSTIS) April 2002 highlighted the deficiencies in the current transport network caused by discontinuous routes which has resulted in:

- an over-reliance on few arterial routes;
- secondary routes carrying similar amounts of traffic to arterial routes;
- conflict between local and regional trips;
- land use/transport conflict; and
- an over-reliance on intersections which cannot accommodate additional traffic.

In addition to these deficiencies the WSTIS identified the general lack of capacity within the existing arterial and secondary network where additional growth is likely to result in increasing demand for north-south and east-west trips. The growing incidence of and demand for east-west trips is particularly relevant to the Development Plan and is attributed to:

- lack of north-south capacity in key routes such as Plenty Road and High Street;
- changing work destinations;
- the influence of the Ring Road; and
- the influence of the Craigieburn Bypass.

The existing road network in the western half of the municipality is limited and effectively restricted to arterial roads with some secondary roads. A brief description of the network and the current traffic volumes is outlined in Table B: Road Network Summary. In addition the key routes and network issues are described following.

COOPER STREET

The pressure on the arterial and secondary road network can be evidenced by the significant traffic volumes encountered, peak delays and localised congestion. East-west capacity has been progressively enhanced through duplication of Cooper Street which is a significant municipal gateway.

The recent visual character of Cooper Street was that of a rural road characterised by two-lane bitumen sealed surface, gravel shoulders and open swale drain. The excep-

tion to this was near High Street where the development of the Epping Plaza and Northern Hospital and associated road widening has incorporated a concrete kerb and channel and underground drainage system, changing the landscape character from rural to urban. Duplication of this route by Vic Roads is nearing completion. Notably the cross-section provides for an ultimate 6 lane configuration with provision for a 14m central median to accommodate boulevard style planting.

Traffic growth in the region can be divided into two major categories. Firstly, 'regional' trips and secondly, 'local' trips. The extent to which both regional and local trips will grow is significant and will require a suitable transport network to effectively separate and distribute these trips with a beneficial land use/transport relationship. The major determinants which will affect growth and the distribution of regional and local trips are construction of the Craigieburn Bypass and growth in Cooper Street Employment Area and Epping North Residential Area.

CRAIGIEBURN BYPASS

The Craigieburn Bypass is currently under construction and when complete in 2006 will form a continuous 'bypass' link between the Metropolitan Ring Road and the Hume Highway north of Craigieburn. The section between the Metropolitan Ring Road and Cooper Street is complete and operational. This route will form part of the National Highway network and will accommodate a significant amount of freight based travel to alleviate pressure from the southern section of the Hume Highway. In addition to freight based travel, however, the Craigieburn Bypass is likely to significantly affect the local transport network in Whittlesea. The impact of the Craigieburn Bypass is likely to be similar to the Western Ring Road where it has been generally accepted that the Ring Road has:

- drawn traffic from other parallel, less convenient routes;
- led to increased traffic on major routes which have an interchange;
- caused concentrated congestion at major interchanges in peak periods; and
- caused significant land use change along the alignment of the route and in proximity to major interchanges.

TABLE B: ROAD NETWORK SUMMARY

North-South Routes	Current Traffic Volumes
High Street/Epping Road High Street is a primary arterial orientated in the north-south direction, which connects the outer suburb of Epping with inner city suburbs of the City of Darebin. South of Kingsway Drive High Street is configured as a two-lane two-way road, while to the north it is configured as a four-lane divided road. At Epping Township High Street narrows to become a two lane two way road.	3-8,000 vpd north of O'Herns Road 37,000 vpd south of Cooper Street 24,000 vpd south of Childs Road
Dalton Road Dalton Road is a high standard four lane divided road that interchanges with the Ring Road in the south and terminates at Cooper Street in the north.	22,000 vpd south of Cooper Street to Childs Road
Edgars Road Edgars Road is classified as a secondary arterial road and presently connects Mahoneys Road in the south to Kingsway Drive in the north. Edgars Road is configured as a four-lane divided road and has a full diamond interchange with the Ring Road. North of Kingsway Drive Edgars Road is a dead-end road and has a single carriageway being duplicated by VicRoads and will be extended to Cooper Street as a four lane divided road.	30,000 vpd south of the Kingsway to the Ring Road

East-West Routes	Current Traffic Volumes
Western Ring Road This freeway is an undivided four lane route east of Plenty Road and four lane divided from Plenty Road to the municipal boundary where it becomes a six lane route. Access is at grade separated intersections at Plenty Road, Dalton Road and Edgars Road. It is an important arterial that provides a high capacity, high speed route that helps distribute traffic.	59,000 vpd between Dalton Road and High Street 62,000 vpd west of Edgars Road
Childs Road Childs Road is a secondary arterial road aligned in the east-west direction effectively connecting High Street and Plenty Road. At High Street it extends west as a two-lane two-way road for approximately 200 metres.	21,000 vpd east of High Street to Dalton Road
McDonalds Road McDonalds Road is an undivided two lane road from Epping Road to Plenty Road. It delivers traffic to High Street. Land is available from Darebin Creek to Civic Drive to accommodate a four lane divided road.	16,000 vpd from High Street to Plenty Road
O'Herns Road/Findon Road This is an undivided two lane generally unsealed road west of High Street, undivided two lane road east of High Street to Glendale Avenue and a divided two lane road east of Glendale Avenue to Civic Drive. This road will become a principal east-west route connecting the Craigieburn Bypass to Plenty Road and ultimately Gorge Road.	4,000 vehicles per day east of Epping Road 1,000 vehicles per day west of Epping Road
Cooper Street Cooper Street is a primary arterial road which connects to the Hume Highway in the west and Epping Activity Centre in the east. West of the Hume Highway Somerton Road (Cooper Street) extends through to Roxburgh Park and Greenvale. Cooper Street is configured as a two-lane two-way road and is currently being duplicated as a four-lane road with provision for six lanes ultimately.	23-24,000 vpd west of High Street
Kingsway Drive Kingsway Drive is a secondary arterial road which provides an east west connection between High Street and Edgars Road. It is configured as a two-lane two-way road and extends west of Edgars Road for approximately 800 metres before it reaches a dead-end.	18,650 vpd west of High Street

EDGARS ROAD

The extension of Edgars Road as a four lane divided road with bike lanes, between the Metropolitan Ring Road in Thomastown and Cooper Street Epping, is now complete and operational. The next stage is to extend Edgars Road through to O'Herns Road as part of the Development Plan.

Whilst the impact of the new section is yet to be fully understood it is likely that the number of vehicles travelling between the Metropolitan Ring Road and High Street utilising Kingsway Drive or Main Street has been reduced. These are local roads and are not suitable for high volumes of traffic.

CURRENT PUBLIC TRANSPORT NETWORK

There is currently limited public transport through the Development Plan area, however there is a rail service and numerous bus routes that operate in the adjoining Epping area.

RAIL

The Epping and Lalor Railway Stations are located approximately 1600m east and 1200m south-east of the Development Plan area on the Epping line.

BUS

The 571 scheduled bus route from Somerton to South Morang is the only existing service which runs along Cooper Street, although several routes operate on High Street from Epping Plaza Shopping Centre. These services operate to areas such as Epping Plaza, Bundoora/RMIT and Greensborough.

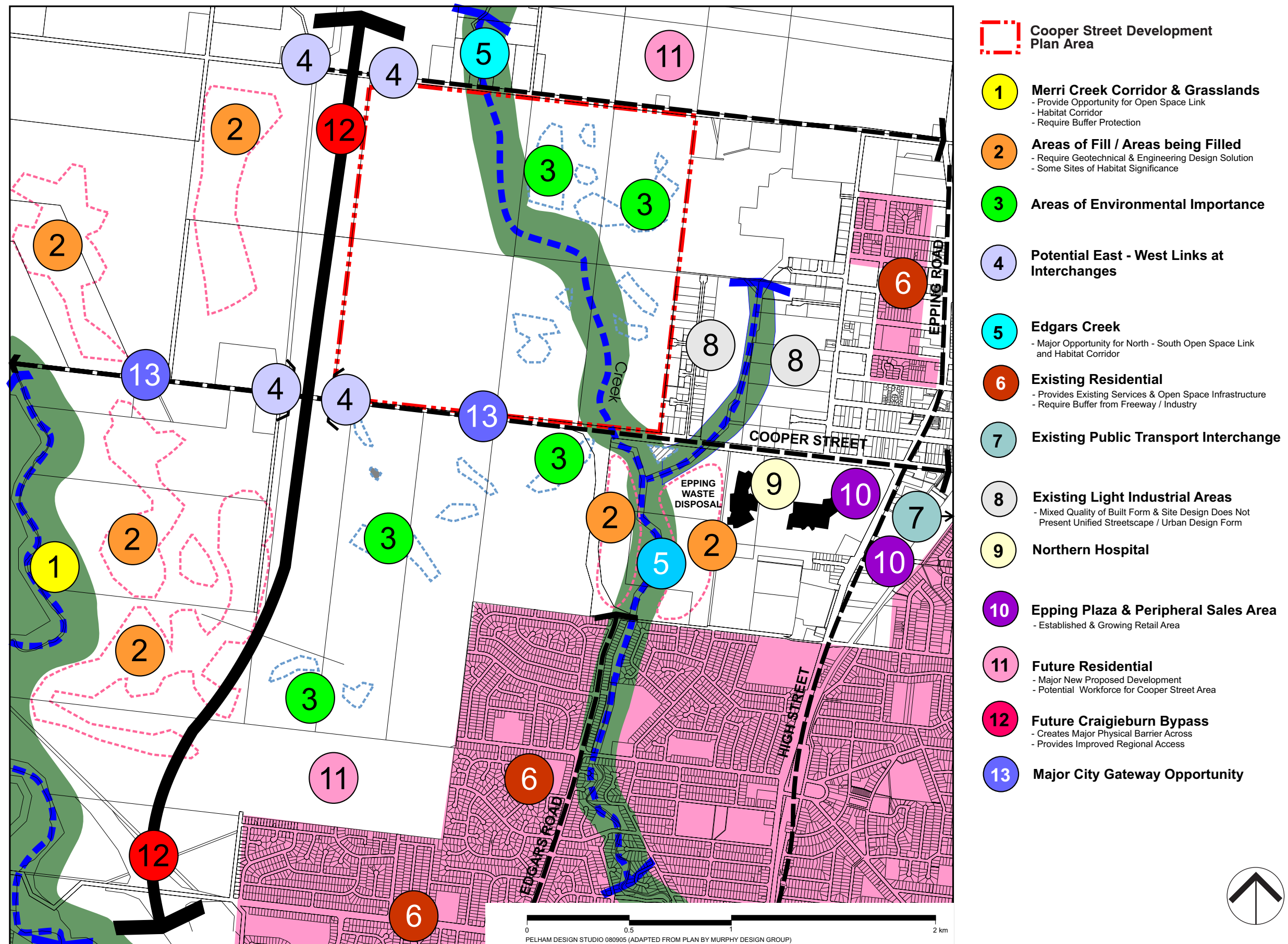
PEDESTRIAN AND CYCLIST NETWORK

No dedicated pedestrian or cycle facilities have been found to exist within the Development Plan area, although an on-street bicycle path exists on Epping Road north of McDonalds Road. A shared path network is proposed as part of the construction of the Craigieburn Bypass and the Epping North Strategic Plan.

STRATEGIC ISSUES

- There is a need to provide connectivity within the Plan area.
- Lack of north/south and east/west connections.
- An east west connection is required to provide access for vehicles between Edgars Road and High Street. Traffic movements that need to be catered for include:
 - Vehicles utilising the Metropolitan Ring Road and Edgars Road to obtain access to key destinations such as Epping Plaza and the Northern Hospital;
 - Access between the Lalor residential area and High Street and the Epping Plaza; and
 - The future Cooper Street employment area and High Street.
- Current construction of the Cooper Street duplication and Craigieburn Bypass.
- Limited public transport.
- Over reliance on a few arterial roads.
- Poorly developed streetscape character and qualities.
- Need to separate employment and residential traffic.
- Need to integrate planning for Epping North public transport corridor within the land use framework outlined in the Whittlesea Strategic Transport Infrastructure Study.
- Need to resolve the alignment and accommodate the future northward extension of Edgars Road.
- Need to accommodate provision for and demonstrate civic leadership in pursuit of quality streetscapes via street tree planting and other initiatives to enhance the public realm.

FIGURE 13 OPPORTUNITIES AND CONSTRAINTS



City of Whittlesea

5.0 DEVELOPMENT VISION

5.1 DEVELOPMENT VISION

The land adjoining Cooper Street, Epping, is the main focus for future greenfield industrial and business development in the City of Whittlesea. Council is committed to establishment of the Development Plan Area as a high quality industrial and office development with the function of providing business and industrial services, functions and employment to the growing population of the Northern suburbs of Melbourne.

5.2 DESIGN PHILOSOPHY

The design philosophy has been generated by utilising the information collected from relevant policies, natural landform and environmental features, cultural heritage, zoning and overlays, transport and open space requirements and existing and proposed uses around the site, as outlined in Section 4.0 Site Context and Analysis. The design philosophy has also been influenced by the following design objectives.

DESIGN OBJECTIVES

1. Integrate the site into the fabric of the greater Whittlesea area.
2. To provide **high quality, easily accessible employment land** with good exposure to Cooper Street, O'Herns Road, the Craigieburn Bypass and the Edgars Road extension.
3. Provide for development that is **cost effective** and **economically feasible**.
4. To provide a sensitive and **positive interface** between the wholesale market and other employment areas and existing and proposed residential areas through use of the natural landform, creation of linear open space and landscape buffers, considered design of roads and orientation of lots to minimise visual impact of employment uses.
5. To provide the opportunity for **high quality industrial uses** that will attract profile industry and business by:
 - Capitalising on the high exposure position along the Craigieburn Bypass, Cooper Street and Edgars Road extension and proximity to the established shopping precinct along High Street;
 - Utilising topography and elevation of the land to maximise views to and from the site;
 - Providing a variety of regular shaped lots to cater for various employment and business uses;
 - Encouraging frontages onto streets and open space to increase exposure and to landscape the streetscape;
 - Maximising aspect and access to open space, and incorporating picnic areas and outdoor amenities within parks for consumers and staff to enjoy;
 - Creating active and vibrant street frontages by reducing setbacks, encouraging landscaping in the frontage and contemporary architecture with a pedestrian scale;
 - Creating a high quality streetscape incorporating central medians, planted and grassed verges, robust street tree planting, appropriate car parking and easy accessibility for all types of vehicles; and
 - Providing for intersection gateways along Cooper Street at appropriate spacings (minimum 400m) while providing equitable access to property owners onto Cooper Street.
6. To create a safe, permeable and coherent **transport network** by:
 - Minimising the intrusion of industrial traffic onto residential streets;
 - Minimising the impact of increased traffic volumes on existing local residential streets by providing a centrally located collector road that will funnel the majority of traffic from within the site and distribute to Cooper Street and Edgars Road extension (while not duplicating the function of Edgars Road and Cooper Street);
 - Providing off road pedestrian and cycle paths;
 - Recognising and reinforcing the role of both on-road and off-road public transport routes;
 - Recognising and reinforcing the role of Cooper Street and Edgars Road as main vehicular circulation routes;
 - Providing connectivity where possible with existing roads that terminate at the site; and
 - Aligning roads to create views of open space and external features.
7. Design to incorporate the **natural attributes** of the site in a manner which enhances the development and therefore its asset value to the community by:
 - Providing habitat linkages through the site; and
 - Retaining areas of environmental significance.
8. Utilise the principles of water sensitive urban design to reduce the impact of the site's development on **Edgars Creek** and tributaries that flow through the site.
9. Design to respond to existing and future **site features** by:
 - Siting development to front onto Edgars Creek rather than rear storage areas and loading docks; and
 - Orientating buildings so that development presents a frontage to the Craigieburn Bypass or a landscaped setback.

6.0 DEVELOPMENT PLAN COMPONENTS

This section of the Development Plan will detail the individual components which have contributed to the design of the Development Plan. The individual components include strategic responses to the issue raised in Section 4.0.

6.1 OPEN SPACE NETWORK

A key driver in the design response is definition of an appropriate open space network. In the Development Plan area there are strategic issues as highlighted in Section 4 that need to be addressed relating to:

- Areas of Environmental significance;
- Areas of Landscape and Heritage Significance;
- Linkage opportunities;
- Areas of Visual significance and viewing opportunities;
- Provision for Active Recreation opportunities; and
- Need to accommodate an appropriate and efficient drainage network.

In response to these strategic issues the Development Plan has sought to designate areas of public open space which:

- incorporate sites of environmental significance for fauna and habitat;
- incorporate sites of environmental significance for indigenous flora;
- incorporate landscape values;
- incorporate heritage features such as drystone walls;
- provide open space linkages that can connect pedestrian and bicycle routes; and
- incorporate wetlands and detention basins required for stormwater management.

More specifically the key sites and issues which have influenced the spatial arrangement of the open space network (refer Figure 10 Environment and Cultural Features and Figure 13 Opportunities and Constraints) include the following.

AREAS OF ENVIRONMENTAL SIGNIFICANCE

The Edgars Creek corridor is a central feature which bisects the plan area. The creek and surrounding area are for the most part highly degraded, with little indigenous vegetation remaining. However, through a strategic planting program a native fauna habitat corridor can be created along the length of the creek linking remnant Red Gum Woodlands to the north of O'Herns Road with developed land south of O'Herns Road.

Most of the vegetation in the study area is introduced, with all remaining stands of indigenous vegetation degraded to some extent. Certain remnants retain a dominant cover of indigenous species and can be considered to be reasonably intact. These areas have the greatest diversity of indigenous species present. The condition of all remnant areas has been assessed by Practical Ecology (refer Figure 10). All sites rated as being a priority for retention are incorporated into areas of open space in the Development Plan. Particular sites which are proposed for retention are described below.

Remnants of the plains grassland vegetation community in the northern central part of the plan area coincide with plains grassland stony rises (refer Figure 10). These sites are well positioned to be incorporated into public open space areas and have the potential to contribute to the amenity of the Edgars Creek corridor and surrounding development.

In a similar fashion plains grassland stony rises located in the central southern portion of the plan area have the same potential (refer Figure 10). While these areas are somewhat removed from the Edgars Creek corridor they are nonetheless well positioned to be the focus for local open space provision.

A review of the quality of the sites has determined that a site of particular significance in the central part of the plan area, is worthy of protection in dedicated open space reserve. A second site of lesser value also has the potential to be incorporated into a site for a retarding basin/wetland facility adjacent to the Edgars Creek corridor (refer Figure 10). Some adjoining areas of environmental significance that do not have a priority rating are also incorporated within areas of open space. Some of these highly degraded sites may still have conservation worth, either as faunal habitats or because of the presence of significant plant species.

Other sites of lesser value which do not justify creation of dedicated open space reserves will need to be considered on an individual basis as part of subdivision and/or development proposals.

Considerable landscape and heritage values remain in the Development Plan area, despite the generally degraded nature of much of the land. These values encompass sweeping vistas, old stone walls dotted through the landscape, stony rises emerging from a basically flat topography and stately groves of old remnant Red Gums, offering both a contrast with the surrounding land and a sense of enclosure.

HABITAT CORRIDORS

The major habitat corridor opportunity that has been identified is the Edgars Creek network. Edgars Creek corridor has been enhanced to facilitate retention and enhancement of movement of fauna.

LANDSCAPE AND HERITAGE VALUES

Certain landscape values can be retained within a developed environment. For example, by placing stands of mature Red Gums within single parcels of land (as Public Open Space) the visual appeal of the trees would not be fundamentally undermined. Certain stony rises can retain a similar presence when placed within reserves, reminding viewers of the subtle variations in landform that exist across Melbourne's northern suburban Volcanic Plains.

SURROUNDING VIEWS

Opportunities for viewing the Quarry Hills and the City skyline have the potential to be maximised through the alignment of streets and from areas of open space. The area of open space on 315 Cooper St is located on top of a hill and should provide viewing opportunities towards these areas.

Significant stony knolls proposed for retention in dedicated open space reserves, as described previously, also offer the added benefit of creating elevated viewing opportunities along the major view corridors (refer Figure 8 Visual Factors). This potential will need to be balanced with conservation and habitat objectives to ensure values are not compromised through inappropriate access.

OPEN SPACE LINKAGES - PEDESTRIAN AND BICYCLE PATHS

The Merri Creek Environs Strategy and Whittlesea Open Space Strategy, discussed in Section 3.7 Local Policy Context provide guidance for the development of the open space linkages within the Development Plan. The plan provides for an integrated system of open space linkages throughout the site.

The extension of the Edgars Creek open space corridor through the site from the O'Herns Road alignment to Lalor in the south of the site. The reservation along Edgars Creek will vary in accordance with Melbourne Waters requirements under the Edgars Creek Drainage Scheme. It is expected that a width of between 30 and 50 metres will be required on either side of the Creek centre line. The reservation along the Creek needs to be wide enough to encompass the requirements of the drainage scheme, areas of archaeological sensitivity, a pedestrian and bike path at or above the 1 in 10 year ARI flood level and planting of native vegetation.

These open space linkages mentioned above contain pedestrian and bicycle paths. Paths are expected to be constructed in accordance with the Guide to Traffic Engineering Practice Part 14 - Bicycles, Austroads, 1999 and their preferred location is at or above the 1 in 10 year ARI flood level.

FIGURE 14 RED GUM



WETLANDS AND DETENTION BASINS

Areas of wetlands and detention basins are to be provided in accordance with the Edgars Creek Drainage Scheme. Each subdivision may require stormwater management infrastructure and works additional to the scheme. There is an opportunity to locate areas of open space adjoining these facilities.

ACTIVE RECREATION

An active recreation area is to be incorporated into the proposed residential area adjoining Lalor. This is to contain the existing lake and two senior football ovals which can also be converted to soccer fields. This will provide for active recreation needs of the proposed residential population and go towards compensating the existing residential area of Lalor for the loss of open space caused by development on the Lalor golf course site. This area is shown as indicative and is outside the boundary of the Cooper Street Employment Area.

ASSOCIATED IMPLEMENTATION RECOMMENDATIONS

A fauna survey of all known and probable habitats for State and National Significant species should accompany any application for subdivision. Habitats to focus on would encompass stone walls, stone rises, artificial wetlands, areas of remnant grassland and some non-indigenous vegetation. This survey should also assess how likely it is that fauna populations can be preserved and sustained within a developed (industrial or suburban) environment. It should also address specific management requirements for enhancing habitats and sustaining fauna populations within a built-up environment.

In all retained sites (native fauna habitat and/or areas of indigenous vegetation) an active management program should be implemented to ensure sites remain viable for native fauna in the long-term. Plantings in developed land near retained sites should be of indigenous species of local provenance as a means of enhancing the overall habitat value of particular areas landscape.

Retained sites of native fauna habitat should be protected from damage during any construction phase (sites could be fenced, signposted, etc.).

FIGURE 15 VIEW TO QUARRY HILLS



Wherever possible, retained sites (stony rises, stone walls, Red Gums, grasslands, creek lines) should be fringed by roads and footpaths rather than being enclosed by buildings. This would make the landscape characteristics and values of each site far more obvious and accessible.

Selective plantings of indigenous species should be undertaken as a means of enhancing their visual appeal where there is little risk of compromising the conservation values of retained sites.

Non-indigenous tree - shrub plantings occur in paddocks, as barrier plantings along fence lines and around home-steads. Wherever possible these plantings should be retained as they have landscape (and habitat) values. (Note that plants identified as environmental weeds or in poor health should be removed).

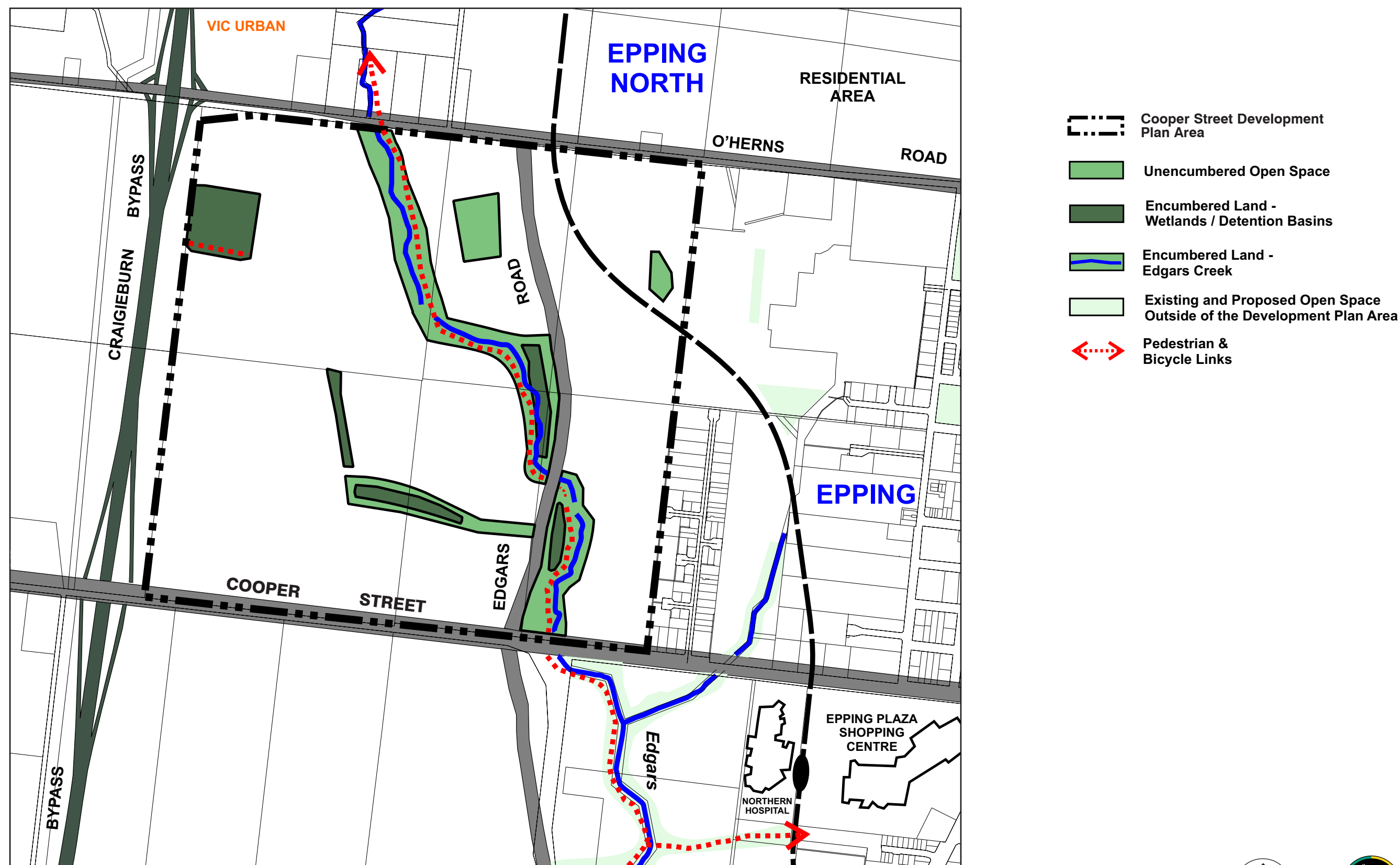
Secondary vegetation surveys should be undertaken on all parcels of land prior to subdivision designs being completed and these are to be submitted to council with permit applications. Any requirements of the Victorian Native Vegetation Management Framework, which includes guidelines for net gain, should also be addressed. Surveys should occur during mid spring-early summer as this is the time of year when the maximum number of species (indigenous and non-indigenous) is likely to be apparent.

In all retained indigenous vegetation sites an active management program should be implemented to ensure sites remain viable in the long-term. As a means of enhancing the overall values of particular areas landscape plantings in developed land near retained sites should be of indigenous species of local provenance.

Retained sites of indigenous vegetation should be protected from damage during any construction phase (sites could be fenced, signposted, etc.).

Retained sites should not have services (water, power, communications, etc.) placed through them.

FIGURE 16 OPEN SPACE



City of Whittlesea

6.2 PROPOSED LAND USES

Given the increasing high profile nature of the Cooper Street area, construction of the Craigieburn Bypass, duplication of Cooper Street, the Edgars Road extension, proximity to residential development in Epping North, relocation of the Wholesale Markets and identification as a future proposed major industrial area in Melbourne 2030 (DOI Planning for Sustainable Growth October 2002) it is necessary for the Development Plan to indicate a preferred land use framework and transport system for the Cooper Street area.

From the proceeding site analysis and land use analysis the key issues that the Development Plan must address from a land use perspective include:

- The type and location of preferred employment based land uses taking into account planned infrastructure, adjoining land uses and other issues;
- The extent and preferred location for 'bulky goods' retailing; and
- The interface between the Epping Plaza Shopping Centre, Northern Hospital and the plan area.

TYPE AND LOCATION OF PREFERRED EMPLOYMENT BASED LAND USES

The Cooper Street area has numerous advantages including the availability of broad hectare land and is capable of appealing to a wide range of industrial investors. The priority is for this area to be utilised for employment generating activities rather than land consuming storage and distribution facilities (which do not necessarily generate significant local employment opportunities). In broad terms, two basic types of land use categories have been identified. These include higher order business related uses and lower order industrial type activities.

BUSINESS USES

The plan identifies that business type uses are appropriately located fronting the major arterial roads of Cooper Street, Edgars Road and O'Herns Road. These arterial roads provide a gateway role. Development along these routes should focus on the importance of establishing a high quality visual amenity, creating a corridor effect to the High Street – Cooper Street node. These uses should be more commercially orientated in the form of uses that complements the finer grain of uses that will develop around Epping Plaza and the Northern Hospital in connection with the development of this precinct as a designated Transit City under Melbourne 2030. The treatment of development abutting O'Herns Road will be important in preserving an attractive face of development to future development to the north.

The business type of uses are expected to include corporation headquarters, offices and commercial buildings, high technology, information technology, research and development, car showrooms, service uses and low density light industrial with quality façade treatments.

There is approximately 55 hectares of land for business type uses.

INDUSTRIAL USES

The industrial type of uses are expected to include general manufacturing and assembling and associated offices, research and development, warehouse, self storage and a limited amount of transport and distribution. These industries are encouraged adjoining the collector and local road network, thereby reducing their visibility to through traffic travelling on the arterial road network. These industries will provide employment suited to the local labourforce and can maximise the precincts advantages with respect to access to regional and international transport and business networks. To reflect the broadening skill set of the population the establishment of "new economy" business including information technology, research and development and communications is also encouraged.

In determining applications for industrial uses consideration must be given toward maintaining EPA buffer distances between proposed uses and future residential development north of O'Herns Road.

There is approximately 122 hectares of land for industrial type uses.

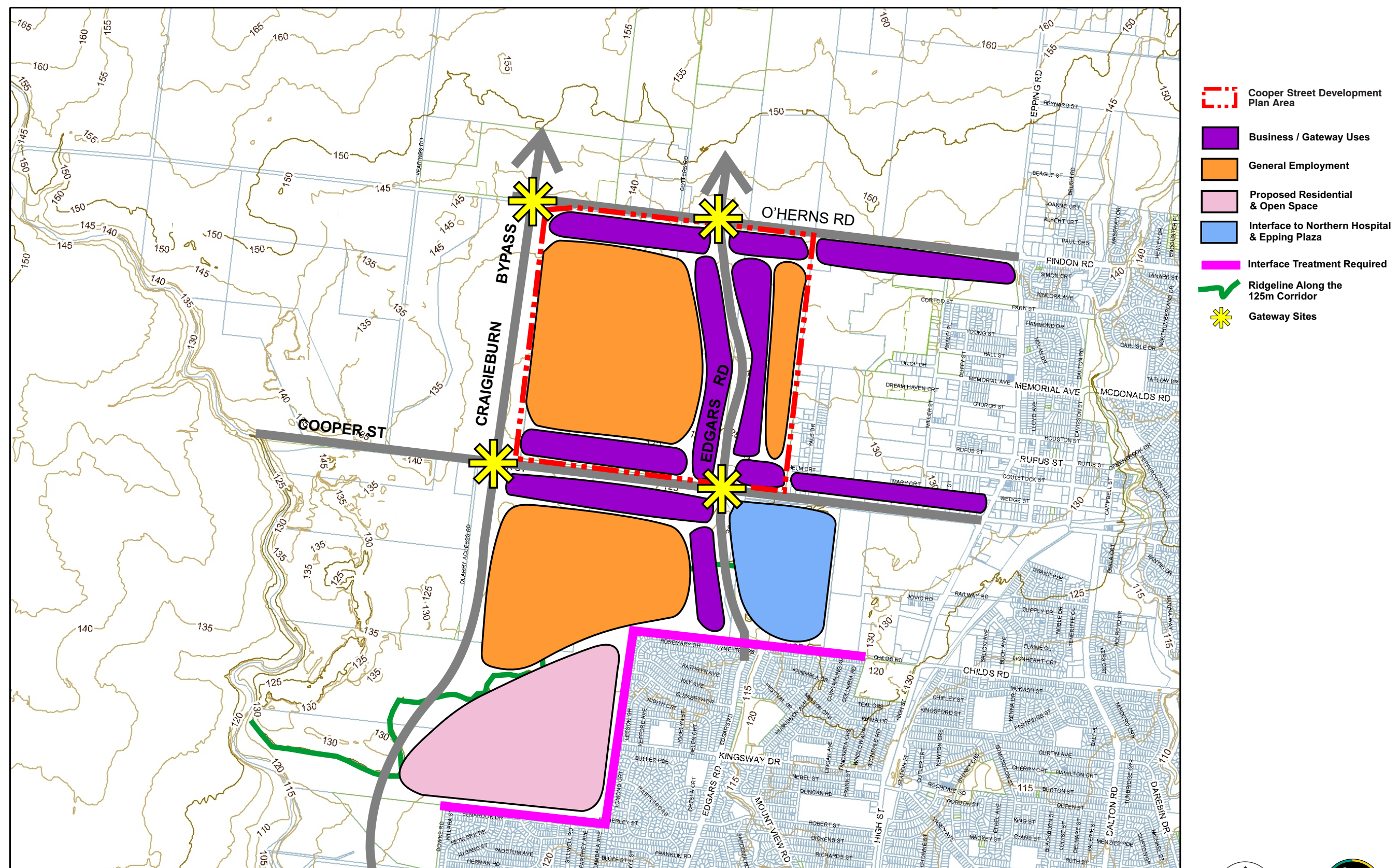
EXTENT AND PREFERRED LOCATION FOR 'BULKY GOODS' RETAILING

A particular category of land use for which there is likely to be pressure is bulky goods retailing. This land use type has the potential to create a number of problems both in terms of its location and configuration if not properly considered. In terms of configuration the typical model for this type of development in fringe locations has been modular building design with little articulation and expansive (often shared) car parking at the front of the building.

In this configuration bulky goods (or restricted retail premises) outlets often offer little contribution to the streetscape particularly with regard to pedestrian accessibility or potential to promote and incorporate mixed use activity. This issue is particularly significant in key locations where a more 'dense' form of development is preferred such as in the vicinity of Epping Plaza and the Northern Hospital. While this area is not contained within the Development Plan area there is nonetheless a strategic relationship which must be considered.

To protect land in the vicinity of Epping Plaza and the Northern Hospital from short term pressure to accommodate bulky goods outlets, provision has been made within the plan area for such uses along sub-arterial and arterial road frontages. It is expected that these outlets will contain a substantial component of manufacturing and assembly. Within the plan area, bulky goods retail outlets will be required to conform to the general intent of the Cooper Street Employment Area Development Plan Design and Use Guidelines with regard to siting. Fundamental to this will be attention to three principal matters. Firstly reduced front setbacks, secondly car parking located at the side or rear and thirdly attention to detail in the building design and articulation of the façade. In addition to these general design criteria in terms of specific locations, corner gateway sites will be retained for 'landmark' buildings which offer a point of difference and which display desirable design and employment based outcomes.

FIGURE 17 INTERFACE TREATMENT



- Cooper Street Development Plan Area
- Business / Gateway Uses
- General Employment
- Proposed Residential & Open Space
- Interface to Northern Hospital & Epping Plaza
- Interface Treatment Required
- Ridgeline Along the 125m Corridor
- Gateway Sites



City of Whittlesea

6.3 TRANSPORT NETWORK

6.3.1 OBJECTIVES

A key part of the Development Plan is the transport network proposed for the area. The importance of an efficient and connected transport system is recognised within the MSS, which includes the following objectives and action plans relating to the transport network.

- Advocate greater transport options by reducing dependence on car based transport and provide improved public transport and pedestrian/cycle options within existing urban and growth areas of the municipality.
- Improve the level of accessibility to services and facilities within growth areas so that individual communities are more self sufficient and do not rely on access to existing services and facilities in existing communities
- Reduce dependence on the arterial and main road network by establishing a high level of connectivity and accessibility for all forms of transport within and between subdivisions
- Identify potential bus routes in all new subdivisions and ensure that the infrastructure provided, including road pavement widths, is sufficient to accommodate efficient bus movements and all residents are within suitable walking distance.
- Maintain efficient functioning of main roads by ensuring there is effective access control via the use of service roads along main roads or otherwise by limiting the number of direct access points.

The objectives of the Whittlesea Strategic Transport Infrastructure Study are also of relevance and these are outlined in Section 3.2.2 Local Planning Policy Framework, of this document.

The overall objective for the transport network within the Development Plan area is to:

- Establish an efficient and safe, multi-modal transportation system that will provide for the requirements of the Cooper Street employment and business precinct and which reduces dependence on the motor vehicle and promotes public transport and pedestrian/cycle options.

The above objective is to be achieved through the following transport elements:

- Social Equity and Safety – development of a network which caters for the needs of all community members in a safe and efficient manner.

- Transportation Design Integrated with Urban Design Objectives – development of a logical and multi-modal transportation network throughout the precinct;
- Road Hierarchy – development of a hierarchy of roads to result in a coherent and logical network;
- Public Transport – development of a public transport network, including a road network, which allows for efficient links for public transport services; and
- Pedestrian and Cyclist Paths – development of a pedestrian and cycle path network that connects to transport interchanges, activity centres and regional paths and linkages.

This section sets out the traffic and transport issues as they relate to the transport networks' overall objective and responds in detail to the transport elements above.

The traffic and transport report prepared by GTA Consultants (February 2003) assesses the transport related impacts of the proposed land uses within the Development Plan area and adjoining proposed uses and provides feedback into the urban design, in terms of the location, standard and hierarchy of roads, pedestrian and cycle paths and public transport services. It also provides input into the development contributions component of the Development Plan.

The anticipated development yields within and adjoining the Development Plan are summarised in Table C.

6.3.2 TRAFFIC GENERATION ASSESSMENT

RESIDENTIAL

The proposed residential area (Am. C71) immediately south of the Cooper Street Employment Area is expected to generate traffic at an average rate of 10 vehicle trips/lot/day.

TABLE C: **SCHEDULE OF TRAFFIC GENERATING DEVELOPMENT FROM THE COOPER STREET DEVELOPMENT PLAN (PARTS 1 & 2), MILLER STREET DEVELOPMENT PLAN AND FUTURE RESIDENTIAL AREA (AM. C71) - LAND USES AND ESTIMATED YIELD**

Use	Land Area	Estimated Yield
Residential	587,249m ² (58ha)	881 lots [1]
(Future proposed area to the south of the Cooper Street Employment Area)		
Industrial	1,636,000m ² (163.6ha)	818,000m ² GFA [2]
Business	625,000m ² (62.5ha)	500,000m ² GFA [3]
Melbourne Wholesale Markets	1,335,300m ² (133.53ha)	unknown [4]

[1] Based on an average yield of 15 lots/ha.

[2] Based on an average building coverage of 50% of the site area per lot.

[3] Based on an average building coverage of 80% of the site area per lot.

[4] This area is approxiamte only the ultimate land area and estimated yield are yet to be determined.

The traffic volumes expected to be generated by the fully developed Epping North residential area have been estimated by Grogan Richards Pty Ltd in their report to the C12 Epping North Panel, Epping North Growth Area – Traffic and Infrastructure Assessment, dated 9 May 2001. The traffic volumes generated by Epping North are included in the three traffic scenarios prepared to update projected traffic volumes.

NON-RESIDENTIAL

There are generally two types of non-residential land uses proposed, business and industry. As discussed in section 6.2 Proposed Land Uses, these groups in themselves contain a range of individual uses, each of which has varying levels of vehicle activity and traffic generating characteristics.

The Melbourne Wholesale Fruit and Vegetable Markets, in particular, will be a significant traffic generator. A report prepared by GTA Traffic and Transport Consultants for the Department of Infrastructure outlined the findings of traffic and parking surveys of the current Wholesale Market in Footscray Road. In and out counts of cars and trucks were conducted at the seven Market gates and the Fish Market gate between 12:00am to 10:00am on Thursday 7th July 2005. This data has been utilised to assess a 24 hour traffic generation for the existing operation. The data collected by GTA indicates that the current Market (including the Fish Market) has a daily traffic generation of some 7,500 vehicles per day.

The Melbourne Market Authority has advised that the Wholesale Market currently generates 6,000 vehicles per day, presumably this excludes the Fish Market. Advice from the Melbourne Market Authority (MMA) has established that the new Market will be completely different from the existing Market, but no information is available on what this is likely to be.

Therefore, for the purposes of this assessment, and a conservative analysis, the following assumptions have been made: -

- business uses have a traffic generation rate of 10 vehicle trips/100m²GFA/day, equivalent to the traffic generation of an office development;
- industry uses have a generation rate of 4.5 vehicle trips/100m²GFA/day, which is the average rate of industry and warehouse type uses; and
- three scenarios for the Melbourne Markets have been applied, the first is the low scenario which estimates 8,000 vpd, this is midway between the existing Market generation and the proposed "Design". The medium scenario, represents the "Design" which generates 10,000 vpd. The third scenario, the high scenario, assumes 15,000 vpd which incorporates the "Design" and the Fish Market generation.

These figures have been based on the MMA advice that 10,000 vehicles per day generation would be a reasonable design generation rate to use. If the Fish Market were also to relocate this would generate an additional 5,000 vpd. Moreover guidance on the above business and industry rates has been sought from RTANSW, "Guide to Traffic Generating Developments", 1995.

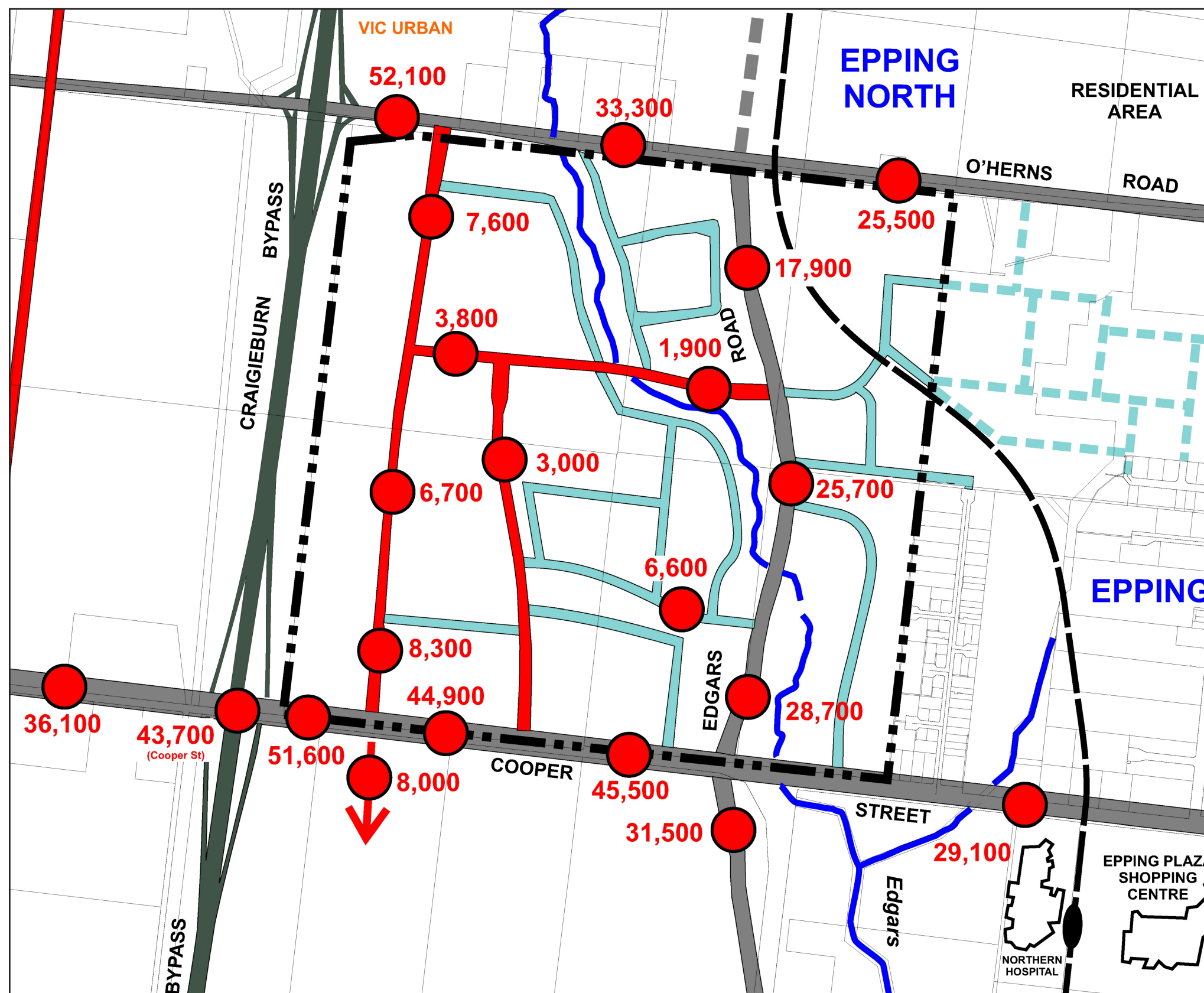
Table D shows each land use, the adopted traffic generation rates and the resultant daily traffic generation. Table D indicates that the area is estimated to generate between 103,620 to 110,620 vehicle trips per day once all development has been completed. This is expected to occur over an extended timeframe.

The Industrial and Business land uses are expected to generate commercial vehicle percentages in the order of 12% and 5-7% of their total daily traffic generation respectively, whereas the Markets will generate approximately 25%.

TABLE D: **SCHEDULE OF LAND USES AND TRAFFIC GENERATION**

Use	Estimated Yield	Generation Rates (vehicles per day)	Daily Veh. Trips
Residential	881 lots	10/dwelling	8,810 vpd
Industrial	818,000m ²	4.5/100m ²	36,810 vpd
Business	500,000m ²	10/100m ²	50,000 vpd
Melbourne Wholesale Markets	unknown	Scenario A	8,000 vpd
	unknown	Scenario B	10,000 vpd
	unknown	Scenario C	15,000 vpd
Total	Scenario A		103,620 vpd
	Scenario B		105,620 vpd
	Scenario C		110,620 vpd

FIGURE 18 TRAFFIC VOLUMES (SCENARIO 1)



Cooper Street Development Plan Area

9,999 Scenario 1 Traffic Volumes

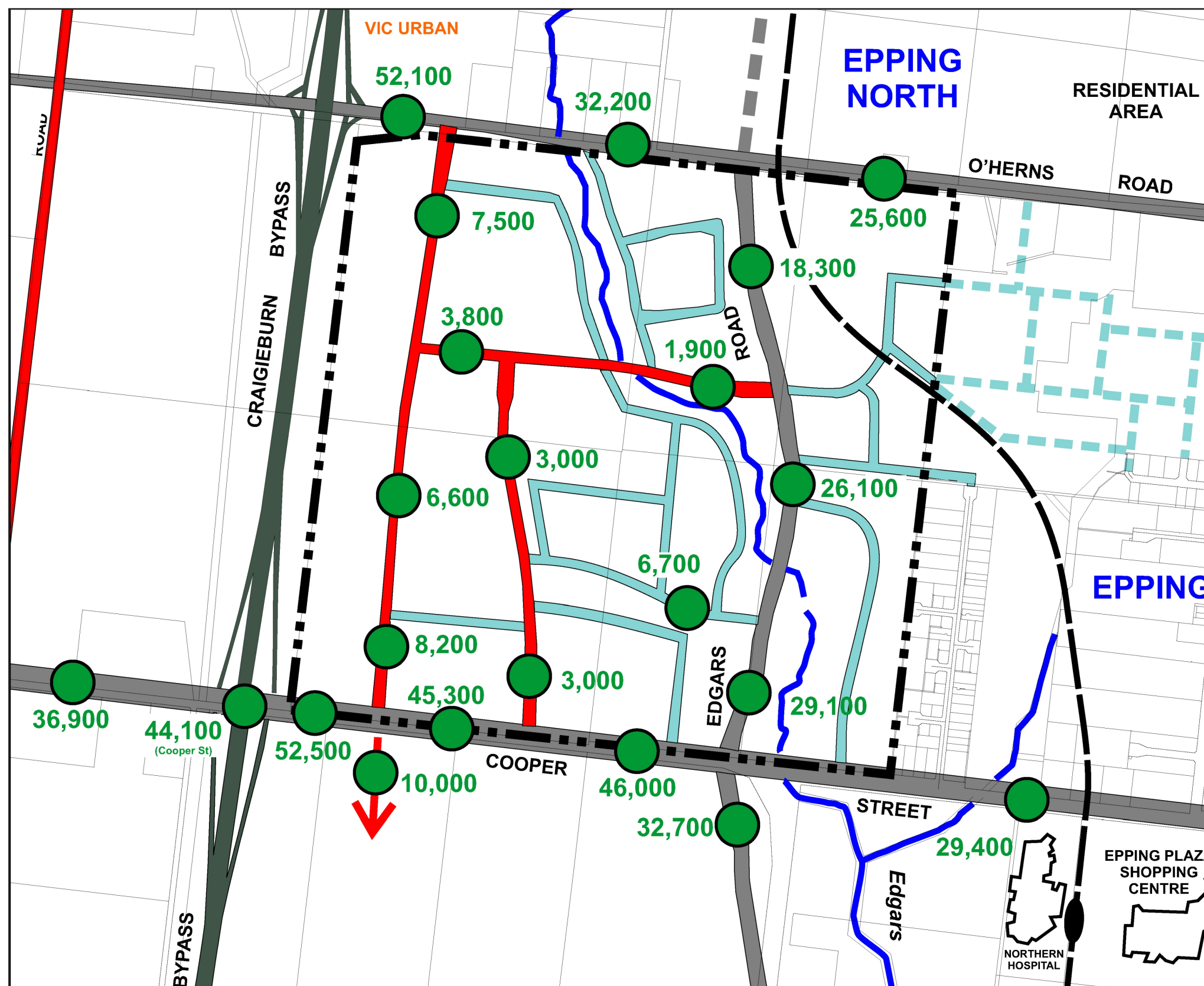
Total daily two-way traffic volumes generated by existing traffic, residential traffic from Epping North & commercial traffic from the Cooper Street Development Plan Employment Area

In this scenario, it is assumed that the Melbourne Market generates 8,000 vehicles per day & that the E6 is operational.



City of Whittlesea

FIGURE 19 TRAFFIC VOLUMES (SCENARIO 2)



Cooper Street Development Plan Area

9,999 **Scenario 2 Traffic Volumes**

Total daily two-way traffic volumes generated by existing traffic, residential traffic from Epping North & commercial traffic from the Cooper Street Development Employment Area

In this scenario, it is assumed that the Melbourne Market generates 10,000 vehicles per day & that the E6 is operational.



City of Whittlesea

The map displays the Epping North area with various bus routes and stops. Key features include:

- Geographical Labels:** VIC URBAN, EPPING NORTH, RESIDENTIAL AREA, O'HERNS ROAD, CRAIGIEBURN BYPASS, EDGARS ROAD, COOPER STREET, EDGARS STREET, EPPING, EPPING PLAZA SHOPPING CENTRE, and NORTHERN HOSPITAL.
- Bus Stops and Numbers:**
 - 52,300 (Top left)
 - 32,700 (Top center)
 - 25,500 (Top right)
 - 17,900 (Center right)
 - 7,600 (Center left)
 - 3,800 (Center left)
 - 1,900 (Center right)
 - 3,000 (Center left)
 - 6,700 (Center left)
 - 25,700 (Center right)
 - 6,600 (Center right)
 - 8,400 (Bottom left)
 - 45,900 (Bottom left)
 - 3,000 (Bottom center)
 - 28,700 (Bottom right)
 - 36,600 (Far left)
 - 45,500 (Cooper St) (Bottom left)
 - 54,900 (Bottom left)
 - 15,000 (Bottom center, highlighted with a red arrow)
 - 46,500 (Bottom center)
 - 32,800 (Bottom right)
 - 29,400 (Far right)
- Routes:** A red line with arrows indicates a specific route, starting from the bottom left and moving towards the top left. A red arrow points to the stop at 15,000.

9,999 **Scenario 3 Traffic Volumes**

In this scenario, it is assumed that the Melbourne Market generates 15,000 vehicles per day & that the E6 is operational.



COOPER STREET EMPLOYMENT AREA **DEVELOPMENT PLAN**

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6.3.3 TRAFFIC DISTRIBUTION

The distribution of the traffic generated by the development has been estimated based on previous work completed by Grogan Richards Pty Ltd. (General Distribution in work dated 7 May 1999 and titled “Epping North Study Area Analysis of Employment Zones”). This distribution has been modified to fit with the study area cordons and the road network in the vicinity of the subject land.

6.3.4 TRAFFIC ASSIGNMENT

The assignment of traffic onto the road network has been estimated based on the location of each land use cell with respect to the immediate road network and its intended origin/destination. The assigned traffic route is selected by assessing the most direct and/or quickest route.

TOTAL FUTURE TRAFFIC VOLUMES

The total future traffic volumes, including the entire Cooper Street Employment Area, Epping North and Amendment C71 area being fully developed and all proposed infrastructure being constructed, are shown in figures 18, 19 and 20. These volumes represent the expected ultimate traffic volumes for each road link in scenarios 1, 2 and 3.

It should be noted that Figures 18, 19 and 20 also include an estimate of the re-assigned existing traffic volumes on the future road network, based on modelling work undertaken by Veitch Lister Consulting and commissioned by VicRoads. (Modelled traffic volumes output titled “Hume Freeway: Craigieburn Bypass – Full Bypass without O’Herns Road Interchange, Estimated 2001 Traffic Volumes, Daily Traffic Volume”, dated 17 August 2001).

6.3.5 INTERNAL ROAD NETWORK AND HIERARCHY

ROAD HIERARCHY AND CROSS-SECTIONS

The hierarchy of roads have been set out in a traditional grid based network as shown in Figure 21 with typical cross-sections shown in Figures 22-26. The road network is described as follows:

- Freeway - Craigieburn Bypass;
- Arterial roads - Edgars Road, Cooper Street and O’Herns Road;
- Collector Roads – extension of Childs Road and two north-south collectors known as Gateway Boulevard and Scanlan Drive, and an east-west collector north of Cooper Street;
- Collector Roads - two north-south collectors known as Gateway Boulevard and Scanlon drive, and an east-west collector on north of Cooper Street;

- Local Roads - providing local access and connecting to the Collector Road network; and
- Service Roads - along the O’Herns Road, Cooper Street and Edgars Road frontages.

When constructed the Craigieburn By-pass, Cooper Street and O’Herns Road will provide major visual elements and will conceptually and visually divide the site. The following section provides a designation of the role of the key routes.

FREEWAY - CRAIGIEBURN BYPASS

Although not technically within the Development Plan area the Craigieburn Bypass plays a key role in the transport network in providing access and connectivity to regional origins and destinations. The Craigieburn Bypass forms the western boundary of the Development Plan Area. It will facilitate excellent access opportunities to the region for workers, residents and freight activities as it will link the Hume Highway in Craigieburn with the Western Ring Road. Initially the Bypass will have a full diamond interchange at Cooper Street, with a second expected to be provided at O’Herns Road when there is demand. This second interchange, if provided in a short time frame, would be a significant influence on the timing and location of development in the Development Plan area and in Epping North. The Craigieburn Bypass is expected to be completed by 2006. It is expected that the Craigieburn Bypass will be configured initially as a four lane divided road with capacity for expansion to six lanes with grade separation as required.

ARTERIAL ROADS

Arterial roads include Cooper Street, O’Herns Road and Edgars Road. These roads provide connectivity and access on a regional basis, Cooper Street and O’Herns Road in the east-west direction and Edgars Road in the north-south direction. The primary function of these roads is to facilitate through traffic movements.

The arterial roads are typically a coarse network located 1200 – 1600 metres apart and have limited local access, usually by collector roads or sub-arterials. The connections with lower order roads are typically signalised, with the separation of intersections planned to minimise delays and disruptions to flow on the arterials.

Local access to land frontages on the arterial roads is generally proposed via service roads, which will minimise safety concerns and reduce delays on the arterials.

The cross-sections of the arterial roads is typified as 4-lane divided roads with services roads, noting Cooper Street will have capacity to be widened to six lanes. O’Herns Road between the Craigieburn Bypass interchange and Edgars Road will include provision for 6 lanes.

EDGARS ROAD

The Development Plan and the Epping North Strategic Plan indicate Edgars Road being extended to connect the established residential areas of Lalor and Thomastown with the future residential areas of Epping North. The alignment shown on the plan is conceptual north of Cooper Street. The alignment of Edgars Road from Lynette Crescent to Cooper Street was exhibited by Vic Roads in April and May of 2003. Until construction of the Craigieburn Bypass is complete Edgars Road will act as the major connection to the Western Ring Road at Thomastown.

The first stage of the Edgars Road extension is being funded by Vic Roads and a four lane divided road from Kingsway Drive to Cooper Street with a reserve width of 42 metres has been constructed and opened in September 2005. This will improve network continuity and reduce the existing demand at the High Street/Cooper Street intersection. Edgars Road will have a landscaped median to achieve a boulevard style effect. Access controls will apply to Edgars Road and a service road or other form of access control will be required along its alignment. Commensurate with its important linkage role, a high quality of design is expected from any development fronting Edgars Road.

Edgars Road is to accommodate a commuter bicycle lane, providing access to the employment land from the bicycle path on the western ring road. Bicycle lanes are to be clearly line marked and sign posted. A footpath has not been provided as part of this alignment as footpaths will be provided on the adjoining service roads.

North of O’Herns Road Vic Urban are designing the Aurora residential development town centre to be located on Edgars Road. Edgars Road will provide a gateway to this development.

COOPER STREET

Cooper Street is a Gateway to the City of Whittlesea and in particular the Development Plan. This road was duplicated as a Vic Roads project and the cross section will be capable of ultimately accommodating six lanes. Cooper Street is the most important east-west arterial in the middle region of the municipality. Its role is significant because of the absence of any other existing or likely road crossing of the Merri Creek corridor to link the urban area in Whittlesea with the Hume Highway corridor. Its importance is also due to the interchange with the Craigieburn Bypass and because it forms part of a very long arterial route, with Somerton Road, from Epping to Roxburgh Park, Greenvale and Bulla. A landscaped median and landscaped verges will significantly increase the amenity of this road. A high standard of design is expected from development fronting Cooper Street to reflect the gateway location and the high level of exposure that these businesses will receive.

O’HERNS ROAD

O’Herns Road is the designated east-west arterial route from the Craigieburn Bypass to the Shire of Nillumbik. To support the traffic generated by the expected population from Epping North and the Development Plan, O’Herns Road will be upgraded from a two lane undivided road to a four lane divided road with six lanes west of Edgars Road. Road widening will occur on the north side of O’Herns Road in the vicinity of the Development Plan.

O’Herns Road east of High Street is known as Findon Road, this will be extended and will be known as Yarra Waters Boulevard and will connect to Plenty Road and beyond.

O’Herns Road will have a full interchange with the Craigieburn Bypass and will be upgraded to provide local access to the west of the Craigieburn Bypass. Due to the environmental importance of the Craigieburn Grasslands and the Merri Creek it is not proposed that O’Herns Road will be constructed to cross through these areas and connect with the Hume Highway.

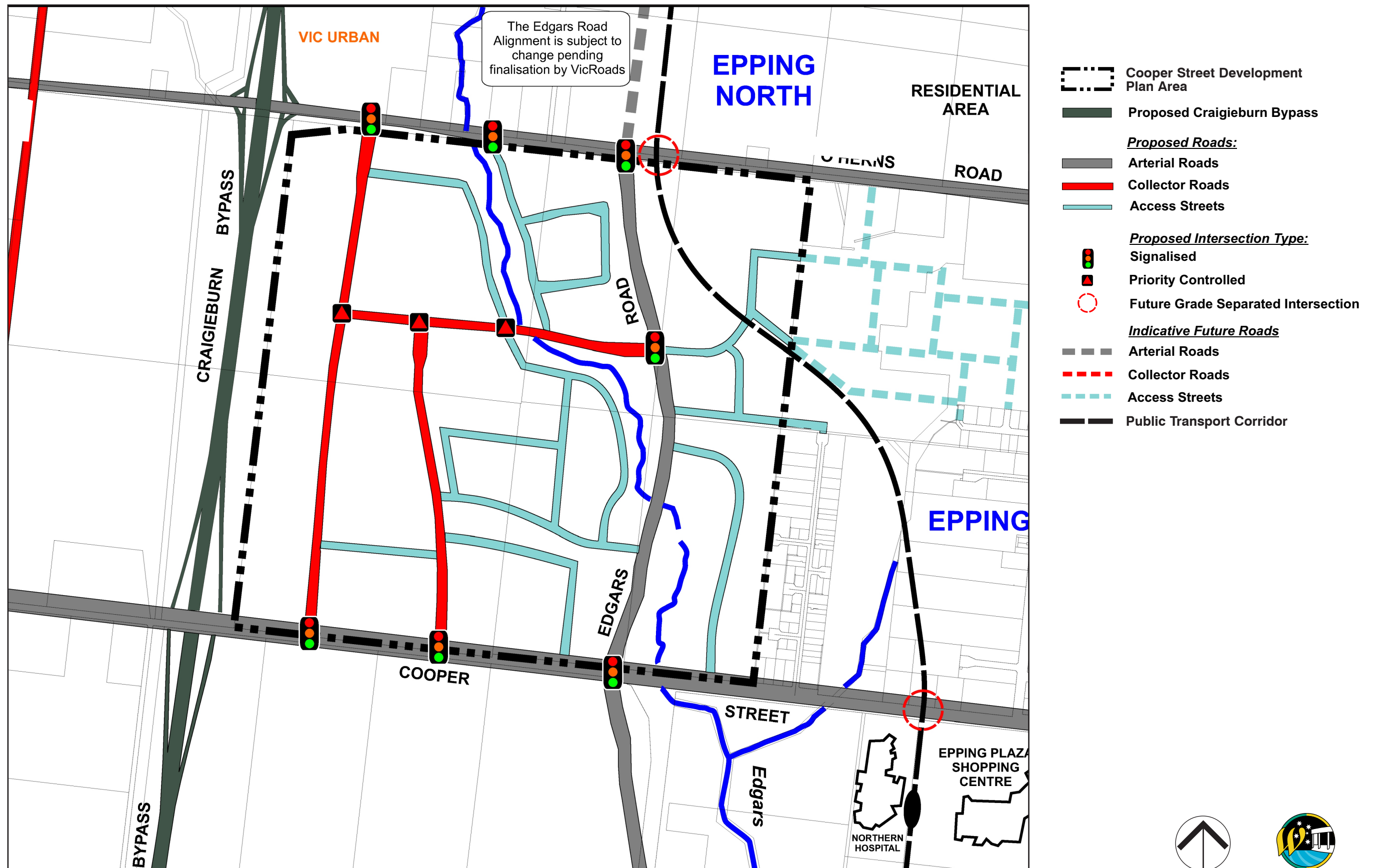
COLLECTOR ROADS

Collector roads perform a local access and through traffic function and are proposed to run either in the north-south or east-west directions in a grid based network. They are generally separated from each other and arterial roads by 400 – 800 metres and provide a highly permeable network. Collector roads are typified as having a single carriageway and have been designed to allow for convenient and efficient movement of commercial vehicles, including buses.

North-south collector links are necessary between the Development Plan and the Epping North Strategic Plan area. This is to ensure ease of access between the employment and the residential area and to reduce the pressure on Edgars Road.

The east-west collector road located between Cooper Street and O’Herns Road provides a connection to Edgars Road via a signalised intersection.

FIGURE 21 ROAD NETWORK



City of Whittlesea

FIGURE 22 **CROSS SECTION OF
EDGARS ROAD**

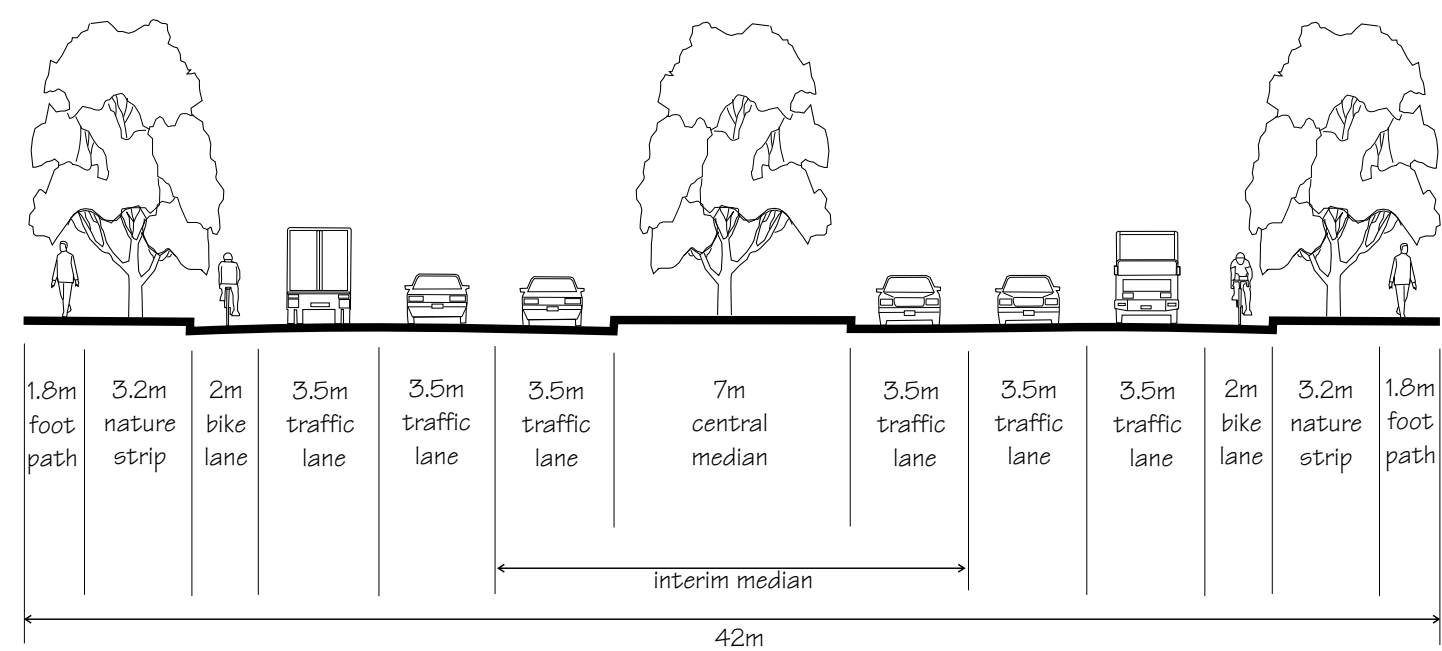


FIGURE 23 **CROSS SECTION OF COLLECTOR ROADS
(MID BLOCK)*1**

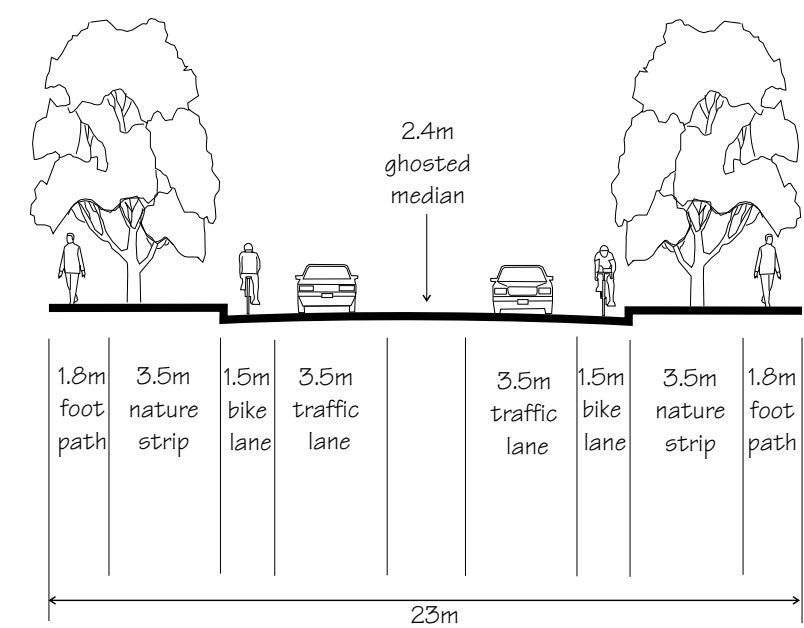
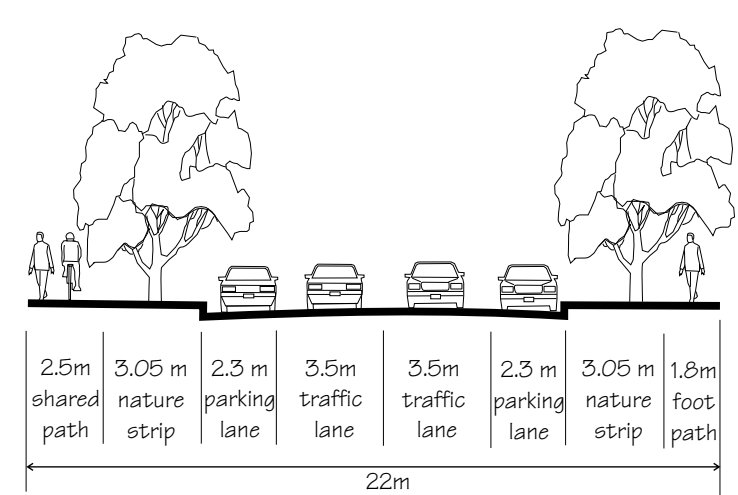


FIGURE 24 **CROSS SECTION OF ACCESS
STREETS**



*1 Additional widening will be required at intersections to accommodate intersection treatments (e.g. roundabouts, traffic signals, or turning lanes).



LOCAL ROADS

The local roads perform a purely local access function with the typical cross-section designed to allow commercial vehicles to manoeuvre into and out of individual sites.

A local access road is provided crossing the proposed train line extension to Epping North. This is to link the land in the Miller Street Outline Development Plan with the Cooper Street Employment area and provide traffic from this development with access to Edgars Road. It is anticipated that the design of the transport routes will provide for grade separation at railway crossings except with the approval of the Minister for Transport.

A connection is provided to link Yale Drive and Edgars Road to provide flexibility within the transport network. To the east of the Development Plan a connection between Edgars Road and High Street in the vicinity of Memorial Avenue and McDonalds Road would also provide greater flexibility within the transport network.

TABLE E: PRELIMINARY COSTING OF ROAD WORKS

No	Works	Length (m)	Cost Per Unit	Cost
For a more detailed description of the road works refer to the Development Contributions Plan				
1	Construction of Edgars Road from Cooper Street to O’Herns Road	1,700	\$2,372 per metre	\$4,031,615
2	Construction of O’Herns Road from Epping Road to Edgars Road	1,600	\$2,391 per metre	\$3,825,483
3	Construction of O’Herns Road from Edgars Road to Craigieburn Bypass	1,000	\$2,200 per metre	\$2,200,000
4	Construction of signalised intersection at O’Herns Road and Scanlon Drive	1 Item	\$524,205	\$524,205
5	Construction of signalised intersection at Edgars Road and O’Herns Road	1 Item	\$524,205	\$524,205
6	Construction of signalised intersection on Edgars Road between Cooper Street and O’Herns Road	1 Item	\$524,205	\$524,205
7	Construction of signalised intersection at Scanlon Drive and Cooper Street	1 Items	\$524,205	\$524,205
8	Construction of signalised intersection at Gateway Boulevard and Cooper Street	1 Item	\$524,205	\$524,205
9	Construction of signalised intersection at Edgars Creek and O’Herns Road for pedestrians and cyclists	1 Item	\$200,000	\$200,000
Reference: GTA Traffic and Transport Report February 2003. Updated to include: a) revisions to length of O’Herns Road covered by the plan, b) costs of Traffic Signal installations of \$60,000 per site for 10 year maintenance of signals, which allows for Vic Roads surveillance; and c) north side of signalised intersection at Cooper Street and Edgars Road.				

Note: some of these costs will be apportioned to areas outside of the Development Plan Area.

Where possible local roads front onto Edgars Creek, the Craigieburn Bypass, areas of open space and conservation significance. This is to avoid the view from these areas being of rear loading docks and storage areas.

6.3.6 ROAD INFRASTRUCTURE COSTS

Table E identifies a number of road infrastructure projects anticipated to be joint funded through a development contributions scheme and provides preliminary cost estimates for their construction.

6.3.7 ROAD CROSS SECTIONS

The road cross sections depicted in Figures 22-24 contain the following key elements:

- substantial nature strips which incorporate provision for street tree planting;
- local environment and cultural features retained within verges median strips where appropriate;

- provision for on-street parking;
- provision for commercial vehicles;
- on-pavement bicycle lanes; and
- facilitation of public transport, pedestrian and cycle access.

6.3.8 PUBLIC TRANSPORT SERVICES

Melbourne 2030 identifies a principal public transport network which includes Cooper Street.

BUSES

The road network within the Development Plan area has been purposely designed to be a grid based system to allow maximum flexibility for bus operators to select specific routes through the area. Road cross-sections of the arterial and collector roads have been designed to allow for heavy vehicle movements including buses.

Anticipated bus routes would connect heavy rail stations at Epping or Upfield with retail centres and employment areas through to residential areas and other activity areas. It is important to note that Cooper Street is part of the proposed Smart Bus route.

In particular, upon completion of Edgars Road between Cooper Street and O’Herns Road it is proposed that a bus service will travel along Edgars Road linking the Cooper Street Employment Area and Epping North area to the SmartBus “Yellow Orbital” and Epping Station.

TRANSPORT CORRIDOR

Rising fuel prices, concerns regarding environmental impacts and equity of access issues, combined with recent widespread re-evaluation of the way in which growth areas are planned have motivated incorporation of a reservation for a heavy rail extension or transport corridor.

An objective of the Whittlesea Strategic Transport Infrastructure Study (April 2002) and Melbourne 2030 Planning for Sustainable Growth (October 2002) is facilitation of provision of public transport infrastructure from the

existing Epping train line to the future Epping North residential area, north of O’Herns Road. The major developer in this area, Vic Urban, is also supportive of this transport infrastructure being provided.

The plan makes provision for a transport corridor that would branch from Lalor Railway Station with potential stops at Epping Plaza, and two or three interchanges within the Aurora residential development, north of O’Herns Road.

The proposed transport interchanges at Aurora and Epping Plaza have been designed to meet the standard distance requirements between interchanges and to ensure each interchange is located in an activity centre. Given the proximity between each of these interchanges, combined with the cost of including an additional interchange and absence of a node/concentration of activity within the Cooper Street Employment Area it is not deemed practical or reasonable to locate an additional station in this area. However, the road network surrounding the public transport corridor has been designed to accommodate bus services, as outlined in the earlier section.

Notwithstanding this, the Department of Infrastructure is prepared to investigate a transport interchange in the form of a bus stop as part of a first stage dedicated bus way using the public transport reservation subject to patronage levels and adequate integration with adjacent land use.

A 27 metre reservation has been outlined in the plan as there is likely to be a single track. The exact alignment however is subject to the change by Department of Infrastructure.

Development is to contribute towards this corridor through the acquisition of land. This will reflect a partnership approach and may assist in the earlier provision of public transport.

PUBLIC TRANSPORT OUTCOMES

The proposed public transport facilities to cater for the Development Plan area have the potential to achieve a more sustainable transport mode split, particularly considering the following:

TABLE F: BICYCLE PARKING REQUIREMENTS

Land Use	Employee / Resident Bicycle Spaces	Class [1]	Visitor / Shopper Bicycle Spaces	Class [1]
Office	1 per 200m ² GFA	1 or 2	1 per 750m ² over 1000 m ²	3
Light Industry	1 per 1000m ² GFA	1 or 2	-	3
[1] Class 1: High security level – fully enclosed individual lockers. Class 2: Medium security level – locked compounds fitted with Class 3 facilities and communal access using duplicate keys or electronic swipe cards. Class 3: Low security level – facilities to which the bicycle frame and wheels can be locked.				

- The connectivity of the Epping North residential development with the employment precinct (i.e. being on the same heavy rail line and only one or two stops apart);
- The connectivity of the employment precinct with residential areas south of Epping along the heavy rail line; and
- The efficient bus routes that are available to the operators connecting residential areas with employment, retail activity centres and heavy rail.

6.3.9 PEDESTRIAN AND CYCLIST FACILITIES

The proposed pedestrian and bicycle paths provide excellent access and connectivity to key activity centres in the wider area, including Epping Plaza Shopping Centre, the Northern Hospital, open space areas and the future Merri Creek Regional Park.

A north-south linear park including a pedestrian and bicycle path runs along Edgars Creek from Childs Road in the south to O’Herns Road in the north. The path will connect Epping Plaza Shopping Centre with the employment precinct and residential land in Epping North and to the south. This path is planned to connect into the Epping North residential development’s pedestrian and bicycle paths. It is anticipated that grade separated crossings of Cooper Street, Edgars Road and O’Herns Road, will be provided unless the Minister for Transport has approved otherwise, allowing for quick, convenient and safe pedestrian and cyclist activity for commuting and recreation. Designated signalised intersections will also be provided where Edgars Creek meets O’Herns Road. On-road bicycle paths will also be provided on Edgars Road, primarily to cater for commuter traffic.

In summary the following routes have been included within the plan to effect the implementation of links as outlined in the Open Space Strategy, the Epping North Strategic Plan and the Craigieburn Bypass:

- On road dedicated bicycle lanes are provided along the Edgars Road Extension, Cooper Street and O’Herns Road from Epping Road through the Cooper Street site north to O’Herns Road. These lanes are expected to cater predominantly for the commuter cyclist.
- A shared path along Edgars Creek. This will connect with a shared path in the Epping North residential area.

To facilitate cycling for both recreational and transport purposes, bicycle parking facilities should be provided as a matter of course at all activity nodes within the plan area including open space, community spaces, schools and any commercial facilities.

Shared pathways must be a minimum of 2.5m. Paths are expected to be constructed in accordance with the Guide

to Traffic Engineering Practice Part 14 - Bicycles, Austroads, 1999 and their preferred location is at or above the 1 in 10 year ARI flood level.

The notional network of pedestrian and bicycle paths is shown in Figure 15 Open Space Network.

BICYCLE PARKING PROVISION

Guidance for the provision of end-of-trip bicycle parking facilities has been sought from Section 14 of the Austroads’ Bicycle Guide to Traffic Engineering Practice. The parking rates are set out in Table F.

6.3.10 CAR PARKING GUIDELINES

SCHEDULE OF PARKING PROVISION / SUGGESTED RATES

Statutory requirements for the provision of on-site car parking are set out in Clause 55.03-11 of the Whittlesea Planning Scheme. The statutory parking rates are for specific uses likely to be developed within the area are set out as in Table G. The appropriateness for a dispensation to these parking rates would need to be considered on a case by case basis by Council’s Planning Services Department.

TABLE G: STATUTORY PARKING RATES

Land Use	Statutory Parking Rate
Office	3.5 spaces per 100m²
Industry	2.9 spaces per 100m²
Warehouse	1.5 spaces per 100m²

DESIGN PRINCIPLES

The provision of any on-site car parking facilities should be designed in accordance with the Australian Standard for Off-Street Car Parking Facilities, 1993, AS2890.1 and comply with the Whittlesea Planning Scheme and Cooper Street Employment Area Design Guidelines as required.

REFERENCES:

GTA Traffic and Transport Report February 2003

General Distribution sourced from Grogan Richards’ memo to the City of Whittlesea, dated 7 May 1999 and titles “Epping North Study Area Analysis of Employment Zones”.

Modelled traffic volumes output tiled “Hume Freeway: Craigieburn Bypass - Full Bypass without O’Herns Road Interchange, Estimated 2001 Traffic Volumes, Daily Traffic Volumes”, and dated 17 August 2001.

6.4 SERVICE PROVISION

6.4.1 WATER SUPPLY

CURRENT WATER SERVICING STRATEGY

Water Supply to Epping and South Morang currently occurs from the Quarry Hills Supply Zone. This zone is serviced via a 35 million litre capacity tank located in the eastern side of the Quarry Hills and a pump station in South Morang. A water servicing strategy has been prepared by Yarra Valley Water for the area around Cooper Street which is expected to contain about 4,000 residential equivalent industrial/commercial lots and 880 residential lots.

Yarra Valley Water and Melbourne Water are currently reviewing the water servicing strategy for the Cooper Street area in an attempt to establish a least community cost option. This review is scheduled for completion in 2003. The timing of works to accommodate various development staging will be considered after the strategy review is complete.

The works required to service the development are shown on Figure 25 Water Servicing Strategy. The smaller diameter pipes will be constructed and financed by developers and the larger diameter pipes will be constructed and financed by Yarra Valley Water.

Based on the current strategy, the Cooper Street development area is proposed to be divided in two sections along the 134m contour.

SOUTHERN COOPER STREET AREA

The elevation of the Southern section of the Cooper Street development area ranges between 118 metres and 134 metres. This section of the development will be supplied from the Yan Yean sub zone which has a Top Water Level (TWL) of 184 metres (the TWL is the highest measurement in the water tank above sea level). Pressures across the development area will range between 25 metres and 50 metres.

NORTHERN COOPER STREET AREA

The elevation of the Northern section of the Cooper Street development area ranges between 134 metres and 149 metres. This section of the development will be supplied from the Quarry Hill zone which has a TWL of 202 metres. Pressures across the development area will range between 26 metres and 65 metres.

6.4.2 THE EDGARS CREEK DRAINAGE SCHEME

The Edgars Creek Drainage Scheme was prepared by Egis Consulting Australia in 1999 for Melbourne Water. Melbourne Water is responsible for ensuring that major stormwater drains and flood protection infrastructure

are provided when urban development occurs (Council is responsible for the smaller drains within the catchment). The Edgars Creek Drainage Scheme was developed to examine the whole catchment (2,130ha) having regard to Council’s planning strategies for Epping North Residential Area and the Cooper Street employment area which occupy the major portion of the catchment area. This has involved a detailed examination of waterway condition and quality, agricultural, industrial and urban land development (current and future), water quality, heritage issues, geomorphology assessments and riparian habitat significance. This investigation has included the main Edgars Creek channel and associated tributaries and drainage lines.

The drainage scheme design has been developed to delineate the boundary of the creek and catchment. The scheme provides for the retention of natural open waterways and the location of retarding basins and wetlands, stormwater quality treatment and gross pollutant and sediment traps.

The scheme has also developed 1:100 year ARI flood levels and inundation lines (using hydraulic modelling), and sets out waterway capacity improvements, bed and bank stabilisation measures, dam removal requirements, culvert upgrades, land acquisition, scheme implementation, timing, costs and contributions. The drainage scheme is designed to be a flexible document with details such as the width requirements along Edgars Creek being established at subdivision design stage.

Some of the work undertaken in this scheme is under review by Melbourne Water in conjunction with the construction of the Craigieburn Bypass and development of the Epping North Area for residential purposes.

6.4.3 SEWERAGE INFRASTRUCTURE SEWER CAPACITY

The updated Cooper Street Sewerage Servicing Report (October 2003) prepared by Yarra Valley Water outlines that spare sewer capacity of 4,750 equivalent residential lots exists for servicing the Cooper Street Employment Area (2,500 lots of this capacity was originally allocated to the Epping North Strategic Plan area, however this area will now be serviced by the Vic Urban Aurora Sewerage Treatment Plant). This capacity is available in the Darebin Creek, Edgars Creek and Merri Creek sewerage systems during dry weather only and relies on Flow Control Facilities to store sewage flows during wet weather.

Servicing beyond 4,750 lots requires completion of major downstream relieving works by Melbourne Water and Yarra Valley Water, which also includes extension of the Merri Creek Main Sewer to Cooper Street. Once these permanent relieving works are completed in 2011/2012, the Merri Creek sewer system will have the capacity to service the whole of the Epping North area, including the Development Plan.

TABLE H AVAILABLE SEWERAGE CAPACITY

Sewerage system	Lots	Storage required (ML)	Connecting manhole	Critical down-stream manhole
Darebin	2500	2.5	MCD1B	DCN10
Edgars Creek	750	2.3	EDC176	EDC51
Merri Creek	1500	4.6	CCB84-1 (200 lots) & MCM122 (1300 lots)	MCM117
Total	4750			

TABLE I REQUIRED SEWERAGE INFRASTRUCTURE

Infrastructure	Functional requirements
Cooper Street FCF	
Volume	Stage 1 - 2.4 ML Stage 2 – 4.9ML
Number of lots	Stage 1a – 750 (discharge to Edgars Creek system) Stage 1b – 2500 (discharged to Darebin Creek system) Stage 2 – 3250 (discharge to both systems)
Discharge manhole	EDC176 (750 lots) MCD1B (2500 lots)
Maximum discharge rate	120 L/s to EDC176 180 L/s to MCD1B
Childs Road Pump Station	
Pump rate	102 L/s
Emergency Storage	0.5 ML
Discharge	Permanent outlet along Cooper Street
Lalor FCF	
Volume	Stage 1 - 0.56 ML Stage 2 – 4.6ML
Number of lots	Stage 1 – 200 Stage 2 – 1500 total
Discharge manhole	Stage 1 - CCB84-1 Stage 2 – MCM122 (possibly Northbourne BS)
Maximum discharge rate	Stage 1 - 25 L/s Stage 2 – 300 L/s

TABLE J BREAKDOWN OF SEWERABLE LAND BY FLOW CONTROL FACILITY

FCF	Gross developable area
2.4MLCooper Street FCF	156 Ha
2.4ML + 2.3ML Cooper Street	203 Ha
Merri Creek FCF	93 Ha
Total	296 Ha

Table H and I show the available capacity in the downstream sewer systems and the detention storage required (size of Flow Control Facilities) to make use of this capacity. Of the capacity, 750 equivalent lots have been allocated to the Northpoint Enterprise Park at 340 Cooper Street (This land currently has an Industrial I Zone).

Treatment of sewage by way of a local treatment plant for the Cooper Street Development Plan area in the interim is problematic given the large area needed for reuse of treated sewage via irrigation. EPA regulations also restrict the reuse of treated industrial sewage for irrigation purposes. The discharge of trade waste from employment uses is therefore more readily accomplished by way of a reticulated system. Access to the sewer capacity for the employment land (and uses) is therefore needed so as to ensure the long-term development of sustainable employment uses in the Cooper Street area.

SEWERAGE INFRASTRUCTURE CAPACITY

The updated Cooper Street Sewerage Servicing Report (October 2003) prepared by Yarra Valley Water details the infrastructure required to sewer the Cooper Street Development Plan area. A summary of the key infrastructure assets required to service the area is provided below.

The total area proposed to be rezoned is approximately 395ha which yields 6338 equivalent residential lots based on the design discharge rate of 0.13L/S/Ha for the area. A breakdown of how much land can be developed based on the design discharge rate of 0.13L/s/ha is shown below.

Therefore there is insufficient sewer capacity to fully develop the Cooper Street Employment Area until the Merri Creek Main sewer is constructed which Yarra Valley Water project to be in 2011/2012. As the gross developable area (rezoned area minus land encumbered by the Edgars Creek Drainage Scheme etc) is about 357ha this leaves approximately 61 hectares that will not be serviced by sewer until 2011/2012.

USE OF SPARE SEWER CAPACITY

In terms of allocating the available sewer capacity within the Cooper Street Development Plan area, it is Council's preference that the Melbourne Wholesale Markets take priority followed by subdivision applications in the vicinity of the major arterial roads of Cooper Street, O'Herns Road and Edgars Road. This is because development of the Melbourne Wholesale Markets is of State significance and development in these locations will attract the types of uses that will promote the desired urban form and landscape character of the area. As all property owners within the development plan area have frontages to these arterial roads, potentially they will all be able to develop a proportion of their land by 2011/2012. This timing will be subject to the infrastructure programs of the servicing authorities.

With regard to 'allocation' of spare sewer capacity it is relevant to note that the Whittlesea Municipal Strategic Statement makes the following comment:

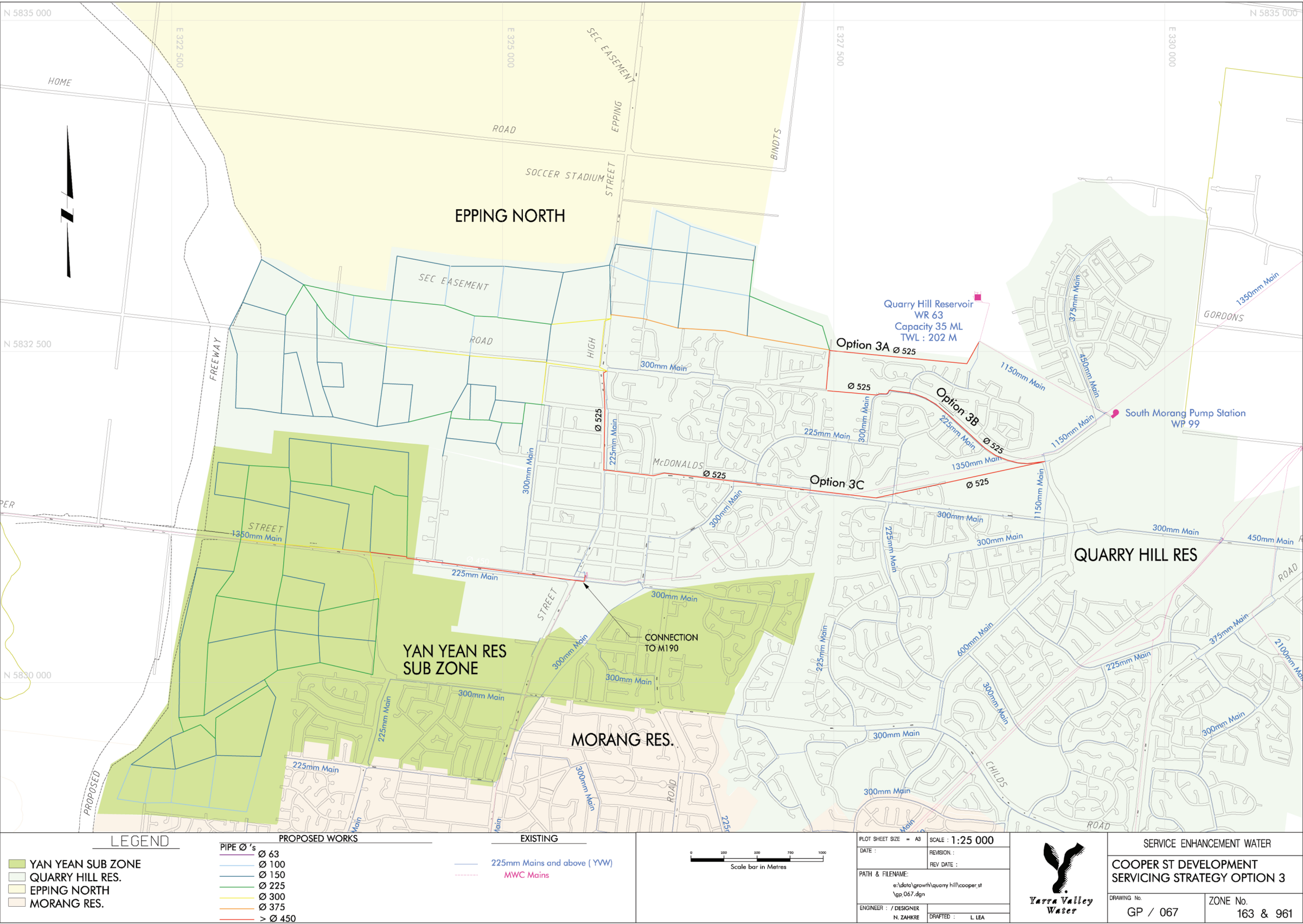
The key strategic issue in relation to infrastructure provision within the City of Whittlesea is sewer capacity. The Cooper Street Precinct, Epping North and Mernda/Doreen (apart from Laurimar) each require short and longer term servicing strategies to be prepared and implemented. In the absence of extension of the North Western Trunk Sewer, the City will play a key role in the allocation of existing sewer capacity, in consultation with service providers, to allow development to commence in an integrated and cost effective manner. To ensure that longer term strategies are resolved Council will continue to plan for and define development potential within Cooper Street, Epping North and Mernda/Doreen. Council's 'Wastewater Strategy' and 'Epping Bulge (Epping North) Position Statement' will continue to provide policy direction and information for prospective developers and service providers however Council must play an important co-ordinating role between developers, service providers and other levels of Government.

Council has decided in planning strategies such as the Epping Bulge Position Statement, that future employment lands adjoining Cooper Street will have priority access to the reticulated sewer capacity. The only exception to this would be where rezoning of the proposed residential land south of the proposed Childs Road extension will enable the employment land to be serviced more effectively or in a reduced time-frame. There are about 58 hectares of proposed residential land to the south of the Cooper Street Employment Area, adjoining the suburb of Lalor. This has the potential for about 1250 lots, at 15 lots per hectare. This is being considered as part of Amendment C71 and is being heard concurrently with Amendment C31 to resolve this issue.

6.4.4 FIBRE OPTIC CABLES

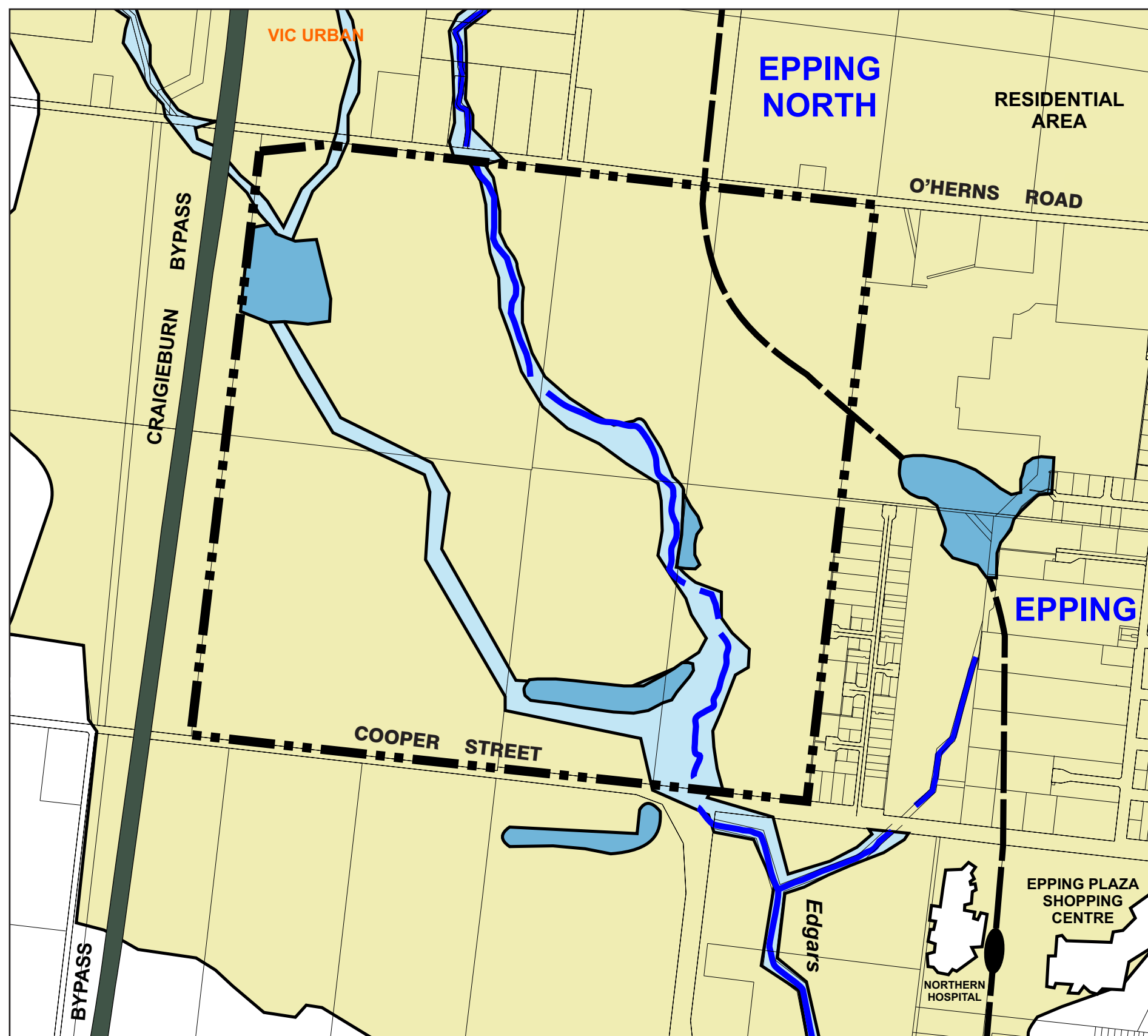
Council's telecommunications conduit policy states that infrastructure for the future provision of fibre optic cables is to be installed in all new subdivisions. Applications for subdivision are to indicate the location of piping for these services.




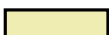
FIGURE 25 WATER SERVICING STRATEGY



City of Whittlesea

FIGURE 26 DRAINAGE

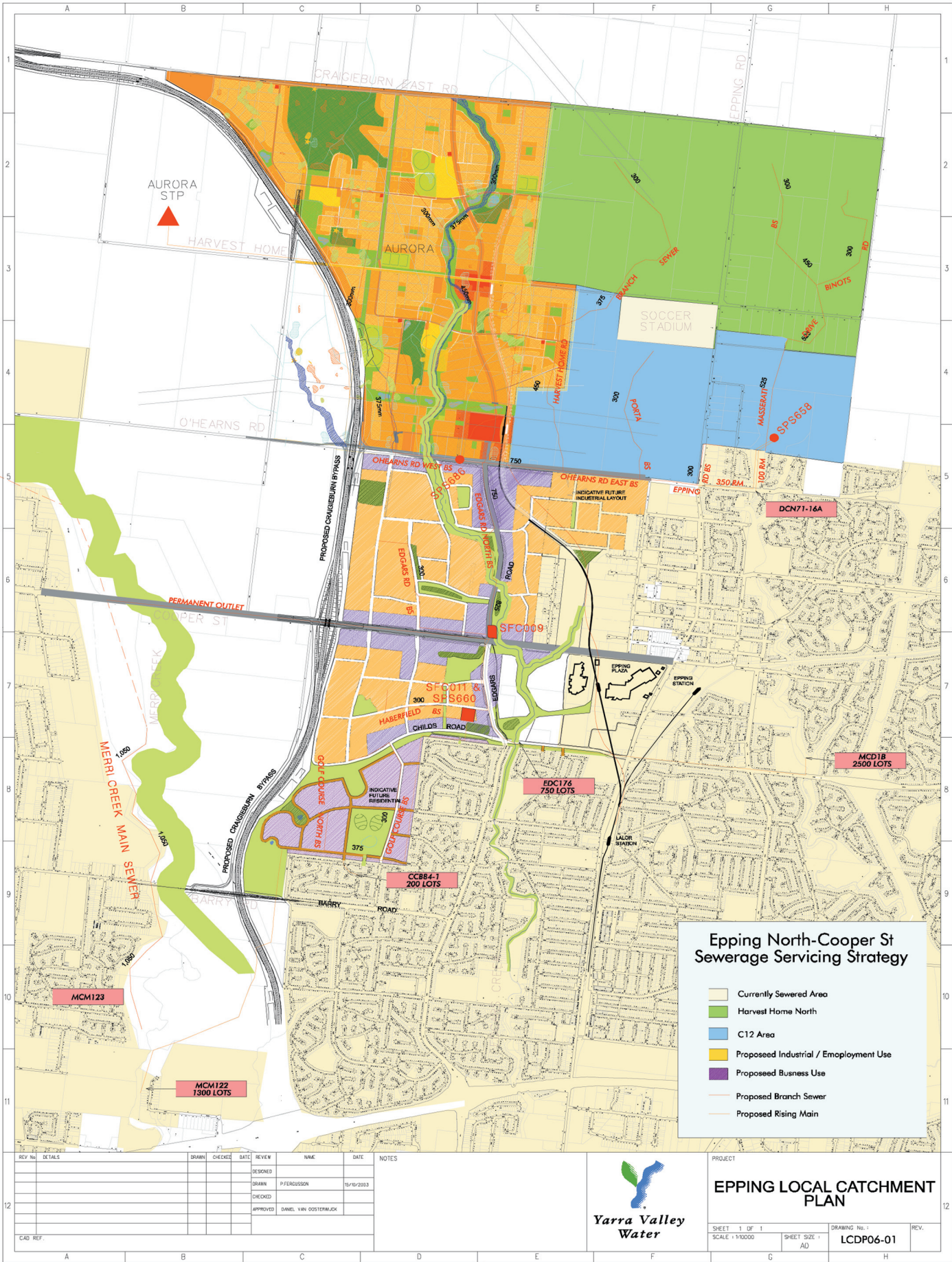


-  Cooper Street Development Plan Area
-  Detention Basins
-  Creek, tributary or drainage channel
-  Area within Edgars Creek Drainage Scheme



City of Whittlesea

FIGURE 27 SEWERAGE INFRASTRUCTURE SCHEME



6.5 RECOMMENDED PLANNING FRAMEWORK

EXTENT OF REZONING

The rezoning of the proposed employment area to the Comprehensive Development Zone is the first stage of proposed rezoning and development for the area. The land proposed for rezoning is bound by the following:

- Craigieburn Bypass to the west;
- O'Herns Road to the north;
- the boundary of the land currently zoned industrial; and
- Cooper Street to the south.

This land totals approximately 244ha in area. This area includes the land on the north side of Cooper Street which is currently zoned for industrial purposes and is being developed as the Northpoint Enterprise Park.

As discussed in a range of related reports on the Cooper Street and Epping North areas there is a limited amount of readily available sewer capacity which can be made available in the short term to enable development of the land. To provide access to the spare capacity within the system, flow control facilities will need to be constructed. Yarra Valley Water are indicating that in the longer term (2009-2011), the Northern Trunk Sewer and the Merri Creek Main Sewer will be constructed which will provide additional sewer capacity. It is Councils preference that the broad scale augmentation of services occurs so that the land can be provided with reticulated sewer and water so as to expedite development of the land.



City of Whittlesea

With regard to 'allocation' of available sewer capacity via the zoning system Council has previously indicated a consistent position that preference will be given to allocation of available capacity to the Melbourne Wholesale Markets and other employment land over residential land. This being the case it is appropriate for Council to continue to indicate a preference for employment based land uses by delaying the rezoning of the future residential area south of the Childs Road extension. Early rezoning of the future residential area will only be considered by Council in the instance where it can be successfully demonstrated that identified servicing capacity (sewer) is not required to service the Melbourne Wholesale Markets and other employment areas or where provision of services to the land will bring forward the timing or increase the capacity of services to be provided to the employment land.

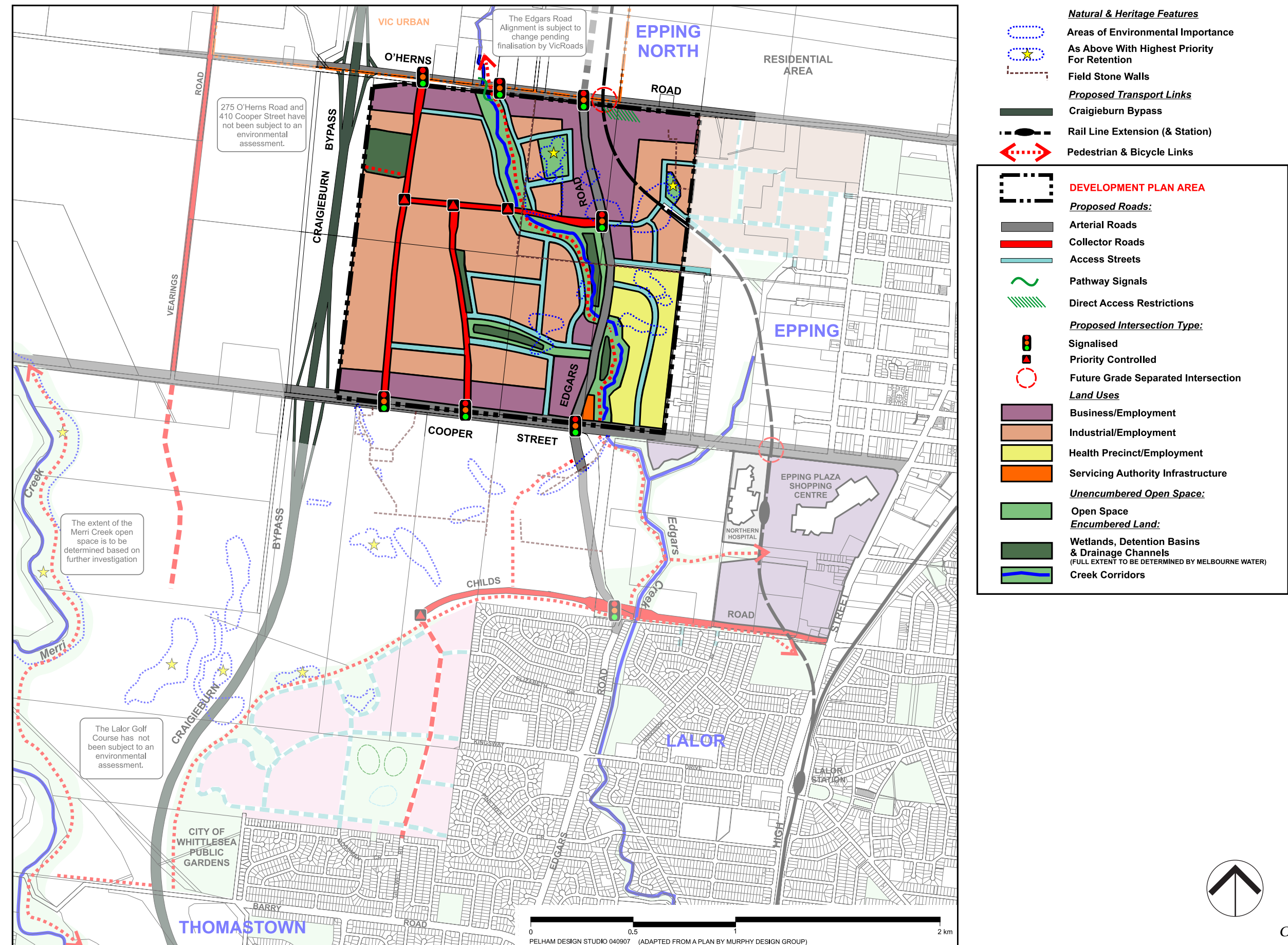
6.6 IMPLEMENTATION FRAMEWORK

The Cooper Street Employment Area Development Plan is to be implemented in conjunction with the Cooper Street Development Contributions Plan and the Cooper Street Employment Area Design and Use Guidelines as per the requirements of Schedule 2 of the Comprehensive Development Zone and Schedule 14 to the Development Plan Overlay and Schedule 4 to the Development Contributions Plan Overlay of the Whittlesea Planning Scheme.

Within this planning framework, the Cooper Street Employment Area Development Plan will facilitate the establishment of a range of employment generating land uses within the area. This will be achieved in a co-ordinated manner that will result in high quality architectural responses to site conditions consistent with the state and regional significance of this major employment area.

For further information regarding the Cooper Street Employment Area please contact Council's Strategic Planning Department on 9217 2407

FIGURE 28 DEVELOPMENT PLAN



APPENDICES

APPENDIX 1 INDIGENOUS PLANTS RECORDED FOR THE COOPER STREET PRECINCT

This is an extract from Practical Ecology's Report titled Cooper St Employment Lands: Preliminary Vegetation Assessment Practical Ecology Pty Ltd, April 2001. The following sources were used:

Field Surveys: 7-9th March 2001, Muyt and Gannon.

References: George et al (2001); Muir et al (1998); Muir (1999).

Species in bold type are of Regional or National Significance (note, no State Significant Species were recorded).

Site 3 includes Quadrat 8 of Muir et al (1998); Site 4 includes Quadrat 11 of Muir et al (1998); Site 5 includes Quadrat 11 of Muir et al (1998).

Sites not surveyed or where no records exist are not included in the table. These sites are: Site 8 (340-360 Cooper St); Site 9 (410 Cooper St); Site 10 (480 Cooper St); Site 14 (375 O'Herns Road). Of these sites 340- 360 and 410 Cooper Street is within the Cooper Street Development Plan Area.

* Denotes National Significant Species

Summary:

- 24 Species of Regional Significance;
- 1 Species of National Significance (+ 1 Species of National Significance possibly occurring);
- 70 Indigenous Species in total.

TABLE P INDIGENOUS PLANT SPECIES

INDIGENOUS SPECIES		Location of Species by Individual Site									
Botanical Name	Common Name	20 Jovic Rd St 1	215 Cooper St St 2	315 Cooper St St 3	335 Cooper St St 4	475,425 Cooper St St 5	300 Cooper St St 6	310 Cooper St St 7	490 Cooper St St 11	135 O'Herns Rd St 12	195 O'Herns Rd St 13
<i>Acacia implexa</i>	Lightwood					X			X		
<i>Acacia mearnsii</i>	Black Wattle					X			X	X	X
<i>Acacia melanoxylon</i>	Blackwood Wattle		X			X					
<i>Acacia paradoxa</i>	Hedge Wattle			X	X	X			X	X	X
<i>Acaena echinata</i>	Sheep's Burr		X	X		X			X		X
<i>Agrostis avenacea</i>	Blown Grass	X				X					
Amphibromus nervosus	Swamp Wallaby Grass		X								
Arthropodium minus	Vanilla Lily			X							
Arthropodium strictum	Chocolate Lily			X	X	X					X
<i>Asperula conferta</i>	Common Woodruff			X							
<i>Asperula scoparia</i>	Prickly Woodruff			X							
<i>Austrodanthonia duttoniana</i>	Brown-back Wallaby Grass	X	X		X						
Austrodanthonia penicillata	Slender Wallaby Grass			X							
<i>Austrodanthonia setacea</i>	Bristly Wallaby Grass			X							
<i>Austrodanthonia sp.</i>	Wallaby Grass			X	X	X	X	X	X	X	X
<i>Austrostipa scabra ssp. falcata</i>	Rough Spear Grass					X					
<i>Austrostipa sp.</i>	Spear Grass			X	X	X			X	X	X
<i>Austrostipa sp.</i>	Spear Grass			X	X	X			X	X	
<i>Bolboschoenus medianus</i>	Marsh Club-sedge		X			X					
Burchardia umbellata	Milkmaids				X					X	
<i>Bursaria spinosa</i>	Sweet Bursaria					X			X		
Caesia calliantha	Blue Grass Lily			X							
Cheilanthes sp.	Rock Fern			X	X						
<i>Chloris truncata</i>	Windmill Grass					X					
<i>Convolvulus erubescens</i>	Pink Bindweed			X							
<i>Crassula decumbens var. decumbens</i>	Spreading Crassula			X							
<i>Crassula sieberiana ssp. tetramera</i>	Australian Stonecrop		X	X							
Desmodium varians	Slender Tick-trefoil *							X?			
Dianella amoena	Matted Flax Lily *			X							
<i>Eleocharis acuta</i>	Common Spike-sedge		X			X					
<i>Epilobium hirtigerum</i>	Hairy Willow Herb		X								
Eryngium ovinum	Blue Devil			X	X		X			X	X
<i>Eucalyptus camaldulensis</i>	Red Gum			X		X					X
<i>Geranium retrorsum</i>	Grassland Cranesbill			X	X						
<i>Gonocarpus tetragynus</i>	Common Raspwort			X		X					
Helichrysum apiculatum	Common Everlasting				X						X
Hymenanthera dentata	Tree Violet			X	X	X			X	X	X
Hypericum gramineum	Grasslands St.Johns Wort			X							
Isolepis hookeriana	Grassy Club-sedge		X								
Juncus amabilis	Hollow Rush		X								
<i>Juncus bufonius</i>	Toad Rush		X								
<i>Juncus flavidus</i>	Yellow Rush				X						
<i>Juncus filicaulis</i>	Thread Rush			X	X	X					
<i>Juncus subsecundus</i>	Finger Rush	X	X	X		X					
<i>Juncus sp.</i>	Rush				X	X	X				
Kennedia prostrata	Running Postman									X	
Lomandra filiformis s.l.	Wattle Mat-rush			X	X			X	X	X	X
<i>Lythrum hyssopifolia</i>	Lesser Loosestrife	X	X		X						
<i>Microlaena stipoides</i>	Weeping Grass			X	X				X		
Microtis sp.	Onion Orchid			X							
<i>Oxalis perennans</i>	Grassland Wood-sorrel			X							
<i>Oxalis radicata</i>	Wood-sorrel			X							
<i>Phragmites australis</i>	Common Reed		X			X					
Pimelea curviflora	Curved Rice Flower			X	X			X		X	X
<i>Poa labillardierei</i>	Common Tussock Grass			X		X	X				
<i>Poa morrisii</i>	Velvet Tussock Grass			X							
<i>Poa sieberiana</i>	Grey Tussock Grass			X			X	X			
<i>Poa sieberiana var. hirtella</i>	Grey Tussock Grass			X							
Potamogeton pectinatus	Fennel Pondweed		X								
Potamogeton tricarinatus	Floating Pondweed		X								
Rumex dumosus	Wiry Dock			X	X						
<i>Schoenus apogon</i>	Common Bog-rush			X		X					
<i>Senecio quadridentatus</i>	Cotton Fireweed			X							
<i>Solenogyne dominii</i>	Solenogyne			X							
<i>Themeda triandra</i>	Kangaroo Grass			X	X	X	X	X	X	X	X
Tricoryne elatior	Yellow Rush-lily			X	X					X	
<i>Typha domingensis</i>	Cumbungi	X	X			X			X		
Veronica gracilis	Slender Speedwell			X		X					
Wahlenbergia luteola	Yellowish Bluebell			X							
Wurmbea dioica	Early Nancy			X							

APPENDIX 2 VEGETATION COMMUNITIES

The following section describes the predevelopment vegetation communities in more detail than in Section 4.4 Fauna, Flora and Habitat Significance, as outlined in the Cooper Street Employment Lands: Preliminary Vegetation Assessment Practical Ecology Pty Ltd, April 2001

VOLCANIC PLAINS RIPARIAN COMPLEX

This community occurs on permanent creeklines across the Victorian Volcanic Plains. Broadly it consists of an overstorey canopy of Red Gums (*Eucalyptus camaldulensis*) with an open to closed shrub canopy of species such as Woolly Tea-tree (*Leptospermum lanigerum*), Tree Violet (*Hymenanthera dentata*), River Bottlebrush (*Callistemon sieberi*) and Silver Wattle (*Acacia dealbata*). Common Tussock Grass (*Poa labillardierei*) characteristically dominates the ground-flora of the banks. Various aquatic and semi-aquatic species are found in or close to the water.

The only location for this community within the study area is the Merri Creek. This area contains significant weed populations and is subject to disturbance from adjacent land use practices.

ESCARPMENT SHRUBLAND

This community occurs on basalt escarpments above streams across the Victorian Volcanic Plains. Exposed and sub-surface basalt rock outcrops are found throughout these areas, influencing the specific location of species and overall composition of the vegetation. The community is characterised by an open to closed canopy of shrub species including Lightwood (*Acacia implexa*), Black Wattle (*Acacia mearnsii*), Sweet Bursaria (*Bursaria spinosa*), Tree Violet, Drooping She-Oak (*Allocasuarina verticillata*), Wedge-leaf Hop-bush (*Dodonaea viscosa*) and Rock Correa (*Correa glabra*). The ground-layer consists of various grasses and forbs. A number of fern species are associated with this community's rock crevices and outcrops.

The only location for this community within the study area occurs along the Merri Creek valley. This area contains significant weed populations and parts of it are subject to on-going disturbance from current land use practices.

PLAINS GRASSLAND

This community is found on volcanic (Basalt) derived soils across western Victoria, from Melbourne to the South Australian border. This vegetation community consists of various sub-communities:

- Grassy Plains dominated by Kangaroo Grass (*Themeda triandra*) intermingled with other grasses and various forbs. Largely treeless.
- Grassy Plains dominated by Common Tussock Grass intermingled with other grasses and various forbs. Largely treeless.
- Grassy Woodlands characterised by an open woodland canopy of Gums and sometimes Wattles with a grassy ground-layer (usually Kangaroo or Common Tussock Grass).
- Stony Rises consisting of a mix of grasses, forbs and shrub species adapted to or preferring drier soils. Sometimes with low-lying margins supporting species adapted to or preferring moist soils.
- Grassy Wetlands consisting of a mix of grasses and forbs adapted to or preferring moist or wet soils. Sometimes with a fringing shrub-tree component.
- Drainage Systems (seasonal, ephemeral or semi-permanent) supporting various herbaceous species preferring moist or wet soils. Sometimes with a fringing shrub-tree component.

Plains Grassland is severely depleted across Victoria with less than 1% of it remaining. The community (and its associated sub-communities) is therefore listed as a Threatened Community under the Flora & Fauna Guarantee Act (1988). Other than the riparian and escarpment communities associated with the Merri Creek and its valley, Plains Grassland vegetation would once have occurred over the entire study area. A number of very small, scattered remnants of the various Plains Grassland sub-communities are found through the study area. All are severely degraded and subject to on-going weed invasion and disturbances.

NON-INDIGENOUS (EXOTIC) VEGETATION

Non-indigenous vegetation covers more than 90% of the study area. This exotic vegetation consists of a mix of woody and herbaceous agricultural sowings, landscape plantings and a suite of invasive weed species. In general, woody species (either as plantings or as invasive weeds) are restricted to fencelines and the Merri Creek environs. Herbaceous exotic species (grasses and forbs) are found in all parts of the study area.

An area dominated by exotics may still retain some indigenous flora amongst it. For example, sections of 315 Cooper Street (as well as other sites) retain a scattered cover of Wallaby Grass (*Austrodanthonia* spp.) within a dominant cover of various introduced grasses such as Rough Dog's-tail (*Cynosurus echinatus*), Needle Grass (*Nassella* spp.) Canary Grass (*Phalaris aquatica*) and various introduced forbs such as Plantain (*Plantago lanceolata*), Cat's Ear (*Hypochoeris glabra*) and Bristly Ox-tongue (*Helminthotheca echioides*). Any such scattered occurrences have to be seen in the context of representing the last of the pre-European flora in any one section of the site. Taken on their own they do not necessarily retain conservation significance.

Non-indigenous vegetation can sometimes provide habitat for native fauna. A moist area dominated by exotic vegetation abuts Lalor Golf Course and provides habitat for at least two frog species as well as various native birds. Along the Merri Creek valley various exotic shrubs provide nesting and/or roosting sites for native birds. Similarly a Cypress tree (*Cupressaceae*) at 335 Cooper Street offers a nesting site for the Australian Hobby, a native raptor. There are also highly modified landscapes in the study area known to provide habitat for native animals. Old stone fences through the area provide habitat for native lizards, reptiles and possibly mammals. Similarly, some former quarries with water in them support various native bird species as well as frogs.

ENVIRONMENTAL WEED MANAGEMENT

Environmental weeds are introduced plants that invade and undermine indigenous vegetation, in the end compromising the sites long-term sustainability. There are several very serious environmental weeds through the study area, either within remnant areas or through highly modified environments such as degraded pastures. Many populations will ultimately be 'controlled' or 'eradicated' by being built over. Other populations will continue to pose a risk to specific areas due to having already established populations within remnant stands.

There is little point in retaining areas of remnant vegetation or wildlife habitat if they are then left to degrade as a consequence of weed invasion. Therefore, environmental weed management of all retained sites is fundamental. At the same time disturbances that favour the spread of environmental weeds (either into or within a retained site) must be minimised. It is also critical to recognise that specific environmental weeds located within the study area have the potential to spread outside the site thereby threatening remnant vegetation elsewhere, be it within the City of Whittlesea or outside the City. Therefore care must be taken to ensure such species are not dispersed elsewhere during the development phase.

GUIDELINES FOR ENVIRONMENTAL WEED MANAGEMENT

- In all retained remnant sites a weed management program should be implemented to ensure they remain viable in the long-term.
- During the construction phase all retained sites should be protected from disturbances that may favour the spread of environmental weeds. Sites could be fenced, signposted, etc.
- Following development, retained sites should be managed in ways that minimise disturbances which favour environmental weed invasion. This can encompass: limiting access to parts or all of a site; developing complimentary horticultural landscape management programs around the perimeters of sites; creating buffer zones around sites (10-20 metres); and developing weed hygiene practices for management crews working within sites.
- Landscape plantings within developed areas (in reserves, streets, roundabouts, etc) should avoid the use of any known or potential environmental weed species.
- Populations of Lobed Needle Grass (**Nassella charuna*) found south of Cooper St, (425-475 Cooper St) have been the subject of a control and eradication program since 1997, co-ordinated by the Department of Natural Resources & Environment under its 'Emergent Weed Program'. This population is one of only three known in Victoria. The species poses a very serious risk to remnant grasslands and grassy woodlands in south-east Australia as well as to agricultural activities. A management program will be needed with input from DNRE and Council to prevent Populations of Lobed Needle Grass from being spread elsewhere (in fill, on vehicles, etc) during development activities.

APPENDIX 3 NATIVE FAUNA OBSERVED IN THE STUDY AREA

Native Fauna Recorded During Field Surveys, 7th-9th March 2001, for the Practical Ecology Report titled Cooper St Employment Lands: Preliminary Vegetation Assessment Practical Ecology Pty Ltd, April 2001.

TABLE Q NATIVE FAUNA OBSERVED IN THE STUDY AREA

Common Name	Scientific Name	Method
Birds:		
Pacific Black Duck	<i>Anas superciliosa</i>	Visual
Chestnut Teal	<i>Anas castanea</i>	Visual
Australian Wood Duck	<i>Chenonetta jubata</i>	Visual
White-faced Heron	<i>Ardea pacifica</i>	Visual
Masked Lapwing	<i>Vanellus miles</i>	Visual
Little Black Cormorant	<i>Phalacrocorax sulcirostris</i>	Visual
Little Pied Cormorant	<i>Phalacrocorax melanoleucos</i>	Visual
Eurasian Coot	<i>Fulica atra</i>	Visual
Black-winged Stilt	<i>Himantopus himantopus</i>	Visual
Black-fronted Dotterel	<i>Elseyornis melanops</i>	Visual
Purple Swamphen	<i>Porphyrio porphyrio</i>	Visual
Australasian Grebe	<i>Tachybaptus novaehollandiae</i>	Visual
Black Swan	<i>Cygnus atratus</i>	Visual
Superb Blue Wren	<i>Malurus cyaneus</i>	Visual
Yellow-rumped Thornbill	<i>Acanthiza chrysorrhoa</i>	Visual
White-fronted Chat	<i>Epthianura albifrons</i>	Visual
Welcome Swallow	<i>Hirundo neoxena</i>	Visual
Black-shouldered Kite	<i>Elanus axillaris</i>	Visual
Brown Falcon	<i>Falco berigora</i>	Visual
Australian Hobby	<i>Falco longipennis</i>	Visual
White-plumed Honeyeater	<i>Lichenostomus penicillatus</i>	Visual
Raven	<i>Corvus sp.</i>	Visual
Willy Wagtail	<i>Rhipidura fuliginosa</i>	Visual
Richard's Pipit	<i>Anthus novaeseelandiae</i>	
Australian Magpie	<i>Gymnorhina tibicen</i>	Visual
Reptiles:		
Marbled Gecko	<i>Christinus marmoratus</i>	Visual
Skink sp. (small)	-	Visual
Skink sp. (large- Cunninghams Skink?)	<i>(Egernia cunninghami?)</i>	Visual
Frogs:		
Common Froglet	<i>Crinia signifera</i>	Heard
Striped Marsh Frog	<i>Limnodynastes peronii</i>	Heard
Mammals:		
Eastern Grey Kangaroo	<i>Macropus giganteus</i>	Visual

Summary: 25 Bird species. 3 Reptile species. 1 Mammal species.

Regional, State or National Significant fauna species known to occur in or possibly occurring in the study area are outlined below. Reference: Cooper St Employment Lands: Preliminary Vegetation Assessment Practical Ecology Pty Ltd, April 2001 (p32)

NATIONAL SIGNIFICANCE - GROWLING GRASS FROG (WARTY BELL FROG) LITORIA RANIFORMIS

The Warty Bell Frog, also commonly referred to as the Growling Grass Frog, is vulnerable in Australia (Schedule I of EPBC Act 1999), vulnerable in Victoria (NRE 2000b) and has been recently listed under the Victorian Flora and Fauna Guarantee Act 1988. The Warty Bell Frog is largely associated with permanent water bodies - streams,

lagoons, farm dams and old quarry sites (Cogger 1996, Hero et al. 1991). The species is largely aquatic, preferentially inhabiting vegetation and debris within or at the edges of water bodies. Breeding usually extends from August through to April the following year when the males can be heard calling (Hero et al. 1991). Land adjoining the Development Plan at 215 Cooper St contains important habitat resources for the Warty Bell Frog (Conservation Strategy for the Warty Bell Frog Litoria raniformis at the proposed Edgars Road extension, Epping, Victoria). This species is also known from the Merri Creek, approximately 2 kilometres west of the study area. (p67)

APPENDIX 4

TABLE R LOCALLY OCCURRING SIGNIFICANT FAUNA

Significant Species	Preferred habitats
National Significant Species:	
Striped Legless Lizard	Stony rises, stone walls, grasslands (indigenous & non-indigenous)
Grassland Earless Dragon	Sparse grasslands and adjacent rock areas
Swift Parrot	Red Gums (vagrant)
Growling Grass Frog (Warty Bell Frog) see below	Permanent deep water bodies (artificial wetlands, Merri Creek)
Regent Honeyeater	Red Gums (vagrant)
State Significant Species:	
Fat-tailed Dunnart	Stony rises, stone walls
Blue-billed Duck	Artificial wetlands
Freckled Duck	Artificial wetlands
Australian Shoveller	Artificial wetlands
Lewin's Rail	Swamps, marshy areas, drainage ditches
Regional Significant Species:	
Platypus	Merri Creek
Plains Froglet	Shallow water bodies, moist grasslands
Brown Toadlet	Shallow water bodies, moist grasslands
Cunningham's Skink	Rocky areas (including rocky walls of quarries)
Bouganville's Skink	Rocky areas (including rocky walls of quarries)
Marbled Gecko	Rocky areas, wooded areas
Southern Water Skink	Rocky areas near Merri Creek
Little Whip Snake	Stony rises, rocky areas
Long-necked Tortoise	Artificial wetlands, Merri Creek
Various bird species	Merri Creek, artificial wetlands, drainage lines, marshy areas, grasslands (indigenous & non-indigenous)

REFERENCES

- Andrew Long and Associates (April 2001) Cultural Heritage Assessment for 315 and 335 Cooper Street Epping
- Biosis Research (October 2000) An archaeological, flora and fauna assessment of the Edgars Road duplication and extension
- City of Whittlesea (2000) Rural Review - Draft City of Whittlesea
- City of Whittlesea (August 1997) Open Space Strategy (prepared by Context Pty Ltd, Merri Creek Management Committee staff, Robin Crocker and Associates and EDGe Environmental Design Group)
- City of Whittlesea (February 2002) Epping North Local Structure Plan
- City of Whittlesea (February 2002) Epping North Strategic Plan
- City of Whittlesea Municipal Strategic Statement
- City of Whittlesea General Plan (1995)
- Department of Infrastructure (October 2002) Melbourne 2030 Planning For Sustainable Growth
- Metropolitan Rail Upgrades - Epping Rail Extensions: Final Report (21 June 2002) PPK Environment and Infrastructure prepared for Department of Infrastructure
- Ecology Australia (May 2001) Hume Freeway Study Area - Thomastown to Craigieburn - Southern Bell Frog Study
- Greg Tucker and Associates (13 February 2003) Cooper Street Development Plan - Traffic and Transport Report
- Grogan Richards (7 May 1999) Epping North Study Area Analysis of Employment Zones - Memo to City of Whittlesea
- Melbourne Water Corporation (May 1999) Edgars Creek Drainage Scheme 4440
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