

Development Plan: Part 1

Aurora Dev

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Aurora Development Plan: Part 1

September 2003

Edition 5

VicUrban



Aurora Development Plan: Part 1

Development Plan approved by the City of Whittlesea on
5 August, 2003, in accordance with Clause 43.04 Schedule 12
of the Whittlesea Planning Scheme

19/09/2003

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Signature for the Responsible Authority

Aurora Development Plan: Part 1

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1 INTRODUCTION

1.1 AURORA DEVELOPMENT PLAN: PART 1

A Development Plan (DP) is a report and enclosed map that provides a general outline of the way land is intended to be developed.

The DP designates proposed housing areas and other main land uses, collector and arterial street layouts and the location of community facilities, for a comprehensively planned development of land.

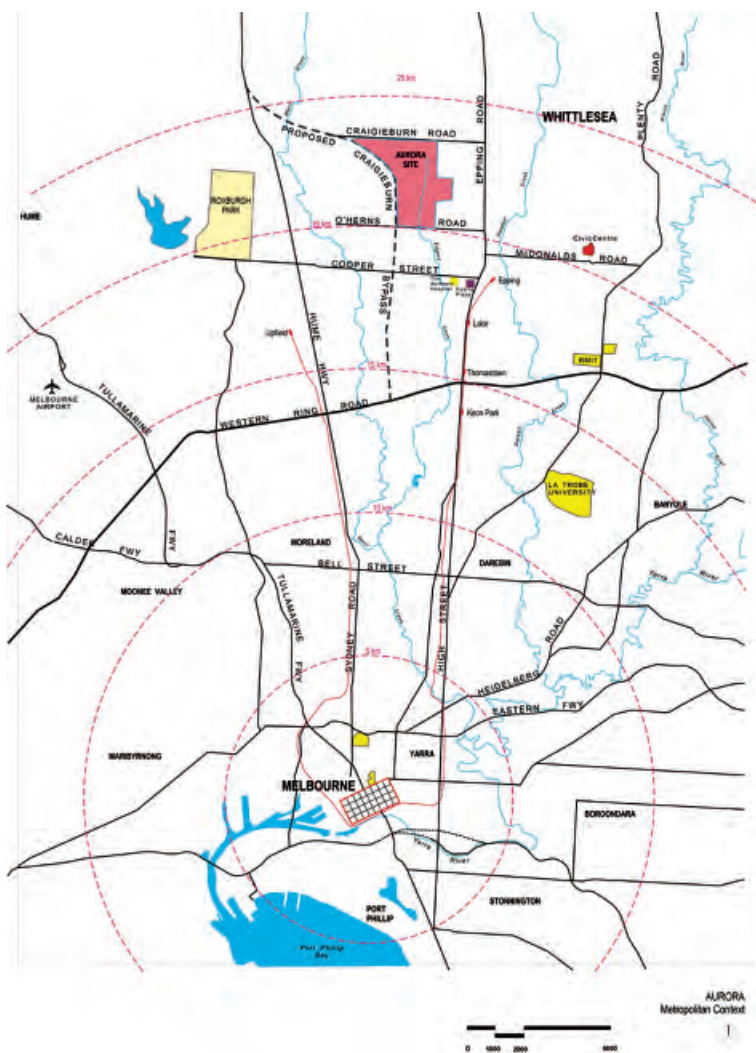
The DP forms the framework for more detailed planning at the subdivision and permit application plans stages. The detail may vary or 'fine-tune' the DP provided it does not change its general intent (except to the satisfaction of the responsible authority).

Objectives for the development of the land and guidelines relating to the provision of infrastructure, facilities, services and other matters may form important parts of the DP.

1.2 SECTION A OF AURORA ESTATE

The area north of Epping in the City of Whittlesea (Whittlesea) has been known for some time as Epping North. In the past, a constraint to the development of Epping North has been the availability and capacity of infrastructure services and the cost of overcoming these servicing constraints. An associated constraint has been the fragmented land ownership, which has made it more difficult to plan for and implement the necessary coordinated approach to overcoming the identified constraints.

Whittlesea representatives have acknowledged over time that the solution would lie with a larger developer becoming involved in Epping North and thus having the capability of coordinating the planning and development.



METROPOLITAN CONTEXT

In 2001 and 2002, VicUrban determined to put in place arrangements to become the developer of a significant (in area and focal location) portion of Epping North. These arrangements have now resulted in VicUrban controlling a large part of the land: known as the Aurora Estate (Aurora).

Aurora is approximately twenty kilometres north of the Melbourne central activities district and consists of about 634 hectares of land bordered by Craigieburn Road East to the north, O'Herns Road to the south and the Craigieburn Bypass to the west. The east boundary follows existing property titles and is not marked by physical features of note.

The Aurora Development Plan: Part 1 (ADP: Part 1) relates to Section A of Aurora (the subject land). The subject land forms the eastern extreme of Aurora and is approximately 37 hectares.

The Whittlesea Planning Scheme (the Scheme) includes the subject land in a zone suitable for residential development, while an amendment to the Scheme is required to facilitate the residential development of the remainder of Aurora. The subject land has been chosen by VicUrban therefore as the starting point for the development of Aurora.

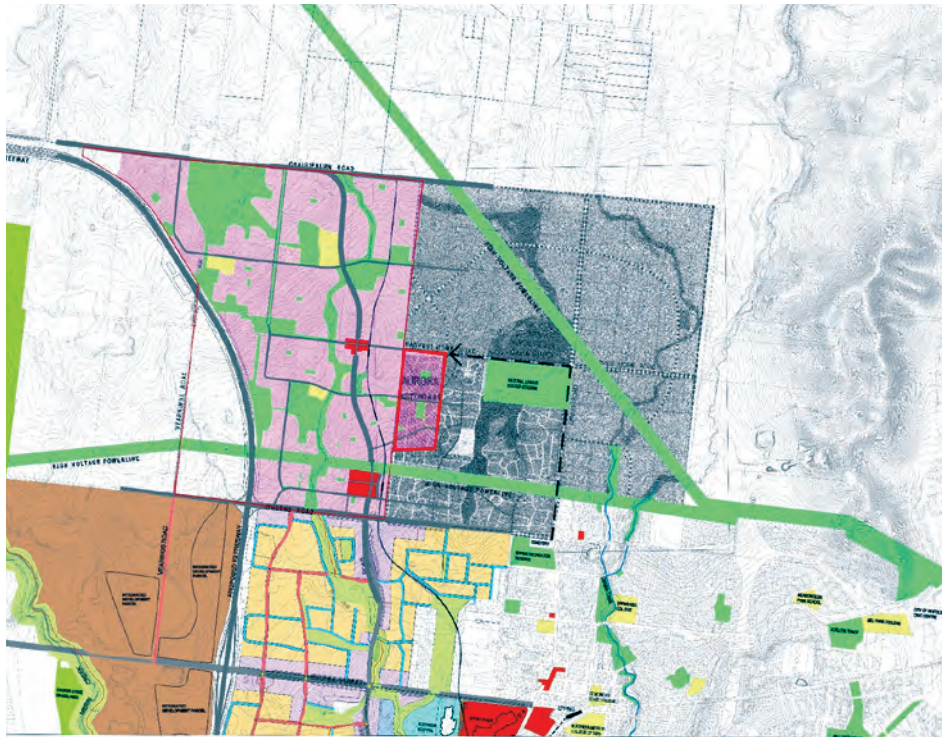
1.3 VICURBAN AND AURORA

ADP2 has been prepared by VicUrban as the intending developer of the subject land.

VicUrban is a merger of the Docklands Authority and the Urban and Regional Land Corporation (URLC). The charter of VicUrban is to deliver sustainable urban development including affordable housing, prosperous communities and excellence in design.

VicUrban has extensive experience in urban development, ranging from comprehensively planned outer suburban estates to complex redevelopments in the established urban area. In its 28 years, the former URLC developed and sold over 35,000 residential lots.

Aurora aims to raise the benchmark within the land development industry by demonstrating new and innovative ways to manage our finite resources. Aurora will be a pioneer in the reuse of water



REGIONAL CONTEXT

- Recreational Open Space
- Grasslands
- Proposed and Existing Commercial Areas
- Proposed and Existing Educational Use
- Health Facilities
- Residential
- Proposed Industrial Use
- Proposed Integrated Development Area

and energy efficiency. VicUrban aims through demonstration to continue to lead private industry in order for its sustainable practices to be replicated and built upon within the private land development sector.

Like sustainability, Aurora will evolve over time. The goal of Aurora is to continuously raise the benchmark and push to more sustainable land, community and built form outcomes. The initiatives that Aurora implements today will continue to evolve and change over time as new technology allows VicUrban to improve its practices. VicUrban is confident that Aurora will be a model for the future, both now and through its life.



2 SITE CONTEXT AND ANALYSIS

2.1 PLANNING POLICY AND STATUTORY CONTROLS

2.1.1 Melbourne 2030 - planning for sustainable growth

Melbourne 2030 - planning for sustainable growth (Melbourne 2030) "is a 30-year plan to manage growth and change across metropolitan Melbourne and the surrounding region" (page 1).

Melbourne 2030 includes Section A of Aurora within the interim Urban Growth Boundary and designates it as 'Future urban' within the Plenty Valley-Epping North growth area. Aurora is specifically described as providing "*best practice design and integrated community development. Features include a mandatory five-star energy rating for all dwellings, a pilot project for water reuse, a rainwater tank for each dwelling and significant dwelling diversity and densities*" (page 26, draft Implementation Plan 2).

The ADP: Part 1 responds as follows to the features of Aurora described in Melbourne 2030.

- A minimum six-star energy rating for dwellings.
- Treating sewage locally to tertiary standard and reticulating the recycled water back to lots for toilet flushing and private and public open space irrigation.
- Compulsory use of rainwater tanks for capture of roof water for hot water, bathroom and laundry uses, subject to satisfactory field testing in the early stages.
- A lots size mix ranging from approximately 220 to 500 square metres with encouragement for a range of housing options.

Changes to the State Planning Policy Framework are proposed to give effect to Melbourne 2030, including a new clause 12 Metropolitan Development. The draft clause 12 "*sets out the directions, policies and implementation measures in Melbourne 2030 that are relevant to land use,*

development and subdivision" (page 5, Implementation in the Planning System).

The following key directions of draft clause 12 *"aim to ensure that land use and transport planning and investment always contribute to economic, social and environmental goals"* (clause 12.05).

- *"Take full advantage of existing settlement patterns, investment in transport and communications, water and sewerage and social facilities"* (clause 12.05-1, Direction 1: A more compact city).
- *"Locate metropolitan growth close to transport corridors and services and provide efficient and effective infrastructure to create benefits for sustainability while protecting primary production, major sources of raw materials and valued environmental areas"* (clause 12.05-2, Direction 2: Better management of metropolitan growth).
- *"Develop Metropolitan Melbourne and the surrounding regional cities as a network of cities to provide a choice of places to live, set up business and find a job"* (clause 12.05-3, Direction 3: Networks with the regional cities).
- *"Create a strong and innovative economy"* (clause 12.05-4, Direction 4: A more prosperous city).
- *"Create urban environments that are of better quality, safer and more functional, provide more open space and an easily recognisable sense of place and cultural identity"* (clause 12.05-5, Direction 5: A great place to be).
- *"Fairer access to and distribution of social and cultural infrastructure is vital for community development and a strong cultural environment"* (clause 12.05-6, Direction 6: A fairer city).
- *"Minimise impacts on the environment to create a sustainable path for future growth and development"* (clause 12.05-7, Direction 7: A greener city).
- *"Create a more sustainable transport system by integrating land-use and transport"* (clause 12.05-8, Direction 8: Better transport links).

The guiding principles and objectives of Aurora outlined in section 4 below are consistent with the above directions and the related policies of clause 12. Sections 2.2 to 7 below provide a comprehensive explanation of the response of Section A of Aurora to the directions and policies of draft clause 12.

2.1.2 Municipal Strategic Statement

The Whittlesea Municipal Strategic Statement (MSS) contained in clause 21 of the Scheme *"encapsulates significant planning policy directions for the municipality and in turn provides the strategic basis for statutory land use controls"* (clause 21.01).

The MSS describes the framework for growth area planning in Whittlesea, which following on from Ministerial Directions and the MSS includes strategic plans, local structure plans / incorporated plans, development plans and permits for subdivision. Whittlesea has prepared the Epping North Strategic Plan and Epping North Local Structure Plan, which include Section A of Aurora. The ADP: Part 1 is the DP for the subject land required by this framework.

The vision of Whittlesea for the Municipality is summarised in twelve key land use planning objectives and the Municipal Framework Plan, which identifies the subject land as 'residential - future'. The key land use planning objective for Residential Growth Areas is *"to plan for a diverse series of residential communities that have a unique identity and sense of place, cater to all segments of the housing market and respect and incorporate local environmental and cultural features"* (clause 21.06-1).

Epping North / Bulge, which includes Section A, is identified as a growth opportunity. Clause 21.06-1 states that investigations *"as to the suitability of urban growth occurring within the Epping North area will continue with the possibility of short to medium term growth occurring within the first stage of development subject to a comprehensive strategic planning process"*. The preparation of this ADP: Part 1 is the final step in the 'comprehensive strategic planning process' required to demonstrate the suitability of the subject land for residential development.

Clause 21.06-1 summarises the development density, style of development, capacity and intended housing market for the Epping North / Bulge growth opportunity as follows.

- *"Range of development densities with a target density across the entire area of approximately 10 lots per hectare.*
- *Comprehensive permeable style of development which emphasises; subdivision*

design, provision of public transport and local services, connections to the Epping Township and future employment areas, interface with adjoining rural land, retention of local features and access to appropriate open space areas.

- *Central redgum grassy woodland and rocky knolls will form the nucleus of the open space network.*
- *Maximum capacity of approximately 40,000 persons . . .*
- *Predominantly first home buyers however emphasis will be placed upon the provision of a range of allotment sizes and housing opportunities".*

Other relevant key land use planning objectives of the MSS are as follows.

- *" To effectively manage urban growth in a manner that maximises beneficial relationships between compatible land uses and which avoids inappropriate incursions into non-urban or environmentally sensitive areas" (clause 21.06-2 Managing Urban Growth).*
- *" To promote the establishment of increased diversity and quality in housing provision to meet the needs of existing and future residents of the City of Whittlesea in a manner which contributes positively to local character and sense of place" (clause 21.06-3 Housing Provision).*
- *"To create a better jobs / housing balance and achieve greater diversity in employment opportunities" (clause 21.06-4 Employment and Economic Development).*
- *" To establish an efficient, interconnected (multi modal) transportation system which increases the level of accessibility and choice within and beyond the City of Whittlesea " (clause 21.06-6 Transport and Accessibility).*
- *" To actively pursue resolution of provision of key strategic items of physical infrastructure for unserviced growth areas and plan for and identify means to fund the establishment and maintenance of social and physical infrastructure in a timely and efficient manner" (clause 21.06-7 Infrastructure Provision).*
- *" To progressively upgrade the image and appearance of the City of Whittlesea focusing on retention of local environmental features, landscape qualities and urban and landscape design improvements " (clause 21.06-9 Image and Appearance).*

- *"To identify, permanently preserve and promote opportunities for the enhancement of local environmental assets which are vital to the maintenance of ecological processes"* (clause 21.06-10 Environmental Assets).
- *"To plan for the comprehensive leisure and recreation needs of existing and future residents and to support the establishment of tourism enterprises that are compatible with the local environment and pattern of land uses"* (clause 21.06-11 Leisure, Recreation and Tourism).
- *"To increase the level of protection for and opportunities for incorporation of the City's European and Aboriginal Heritage"* (clause 21.06-12 Heritage and Culture).

Sections 2.2 to 5 below provide a comprehensive explanation of the response of Section A of Aurora to the key land use planning objectives of the MSS.

2.1.3 Local Planning Policies

(a) Open Space Policy

The Open Space Policy (clause 22.01) of the Scheme relates to the provision of open space in the Municipality.

The objective of this Policy is *"to provide a framework to undertake planning, provision, development and maintenance of an integrated open space system which meets the wide ranging needs of the community"*.

The objectives of the provision of open space and recreation at Aurora and the provision of public open space on the subject land are outlined in section 5.5 below. Section A forms a small part of the overall public open space system at Aurora, which provides the comprehensive response to the objective and policy directions of this Policy.

(b) Subdivision Design Policy

The Subdivision Design Policy (clause 22.04) of the Scheme applies to subdivision for residential, rural residential, rural living, industrial and commercial development.

The objectives of this Policy are as follows.

- *"To achieve appropriate site responsive subdivision design for the creation of new undeveloped allotments for residential, rural residential, rural living, industrial and commercial development.*
- *To define and evenly apply municipal planning objectives for subdivision design.*
- *To create a sense of place and community focus through subdivision design.*
- *To promote subdivision that ensures integration, lot size diversity, efficient open space provision, movement, and appropriate streetscape design.*
- *To define the need for and requirements for site analysis procedures".*

Section 5 below provides a comprehensive explanation of the response of Section A of Aurora to the objectives and policy directions of this Policy.

(c) River Redgum Protection Policy

The River Redgum Protection Policy (clause 22.10) of the Scheme applies to the protection of River Red-gums located in urban and rural areas.

The objective of this Policy is *"to ensure that the development of urban and rural areas takes into account the presence, retention, enhancement and long term viability of River Red Gums in urban areas"*.

Four large River Red-gums remain on the subject land and are in poor condition with canopy dieback. Section 5.3 below describes the response of Section A of Aurora to the objective and

policy directions of this Policy in relation to these trees.

(d) Development Contributions Plan Policy

The Development Contributions Plan Policy (clause 22.11) of the Scheme applies to new residential and non-residential subdivisions in the Municipality.

The objective of this Policy is *"to ensure the provision of basic infrastructure in a timely fashion to meet the needs generated by new development"*.

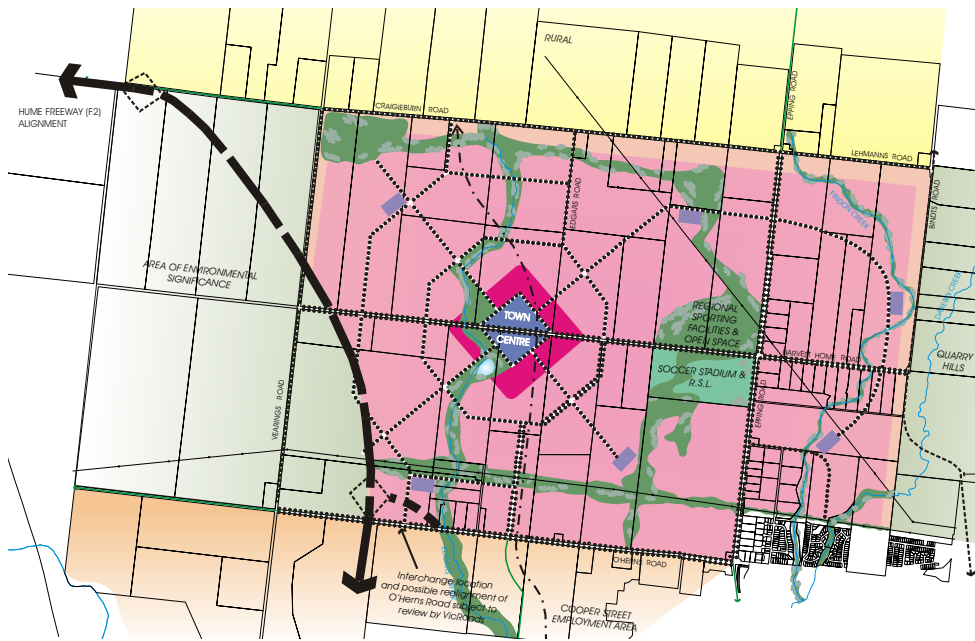
The Scheme includes the subject land in schedule 1 to the Development Contributions Plan Overlay. The development contributions for Section A of Aurora are discussed in section 6 below and provide the response to the objective and policy directions of this Policy.

2.1.4 Incorporated Documents

(a) Epping North Strategic Plan

Clause 21.05 of the Scheme describes the Epping North Strategic Plan (ENSP) as setting *"the broad directions for urban development within Epping North covering issues such as the pattern of urban development, a neighborhood based approach to more detailed local structure planning, open space, provision for a broad transport network, protection of environmental features, servicing, and provision for community, commercial and recreational facilities"*.

Integral to the overall layout of the ENSP is the creation of interlinked communities with each having a relationship to the central core or 'town centre', which is shown to the immediate north west of Section A of Aurora. The town centre is shown surrounded by 'high density residential', which includes the north west portion of the subject land.



EPPING NORTH STRATEGY PLAN DIAGRAM - FEBRUARY 2002
City of Whittlesea



	MAJOR ROADS - DUPLICATED
	MAJOR ROADS - SINGLE PAVEMENT
	RESIDENTIAL
	LOW DENSITY RESIDENTIAL
	HIGH DENSITY RESIDENTIAL
	TOWN CENTRE
	NEIGHBOURHOOD CENTRES
	RECREATION RESERVE
	PUBLIC OPEN SPACE
	TRANSPORT CORRIDOR
	INDICATIVE TRANSPORT INTERCHANGE

Other key features of the ENSP include the following.

- Neighbourhood based planning. Five broad neighbourhoods are identified in the ENSP, each with a 'neighbourhood centre' that will provide the educational, community, recreational and retail facilities required at a neighbourhood level. The subject land is within Neighbourhood 1. The neighbourhood centre for Neighbourhood 1 is shown to the immediate south east of the subject land.
- A main recreational precinct near the intersection of Harvest Home Road and Epping Road.
- An open space network that links areas of conservation value, the neighbourhood centres, the main recreational precinct and the town centre. No part of this open space network is shown on the subject land.
- A broad grid based road pattern. Harvest Home Road is shown as a major road. Edgars Road is shown extending along the east boundary of Section A south from Harvest Home Road and then crossing the subject land diagonally to extend south along the west boundary. A main road is shown extending diagonally south east from the town centre towards the neighbourhood centre for Neighbourhood 1.
- The provision for alternative modes of transport.

As part of the broader planning of Aurora, the town centre and the alignment of Edgars Road have moved west of the locations shown on the ENSP and therefore Section A.

This has resulted in the higher density residential development surrounding the town centre, also moving to the west of the subject land. It has also necessitated changes to the street network of the subject land, which does not match that shown on the ENSP. The street network of Section A achieves the same outcomes as the ENSP however, as follows.

- Harvest Home Road is intended to be a divided, secondary arterial in its ultimate configuration. Section 5.8.5 below provides further detail on the design of Harvest Home Road.
- Harvest Home Road and the northern and southern, east-west neighbourhood

connector streets all provide direct access to Edgars Road, which is the principal north-south street through Aurora and links the central and southern town centres. This combination of streets also provides a straightforward connection between the town centres of Aurora and the neighbourhood centre to the east of Section A.

- The southern, east-west neighbourhood connector street provides a direct connection between the subject land and the neighbourhood centre to the east.

Based on the above, the ADP: Part 1 is generally consistent with the ENSP.

(b) Epping North Local Structure Plan

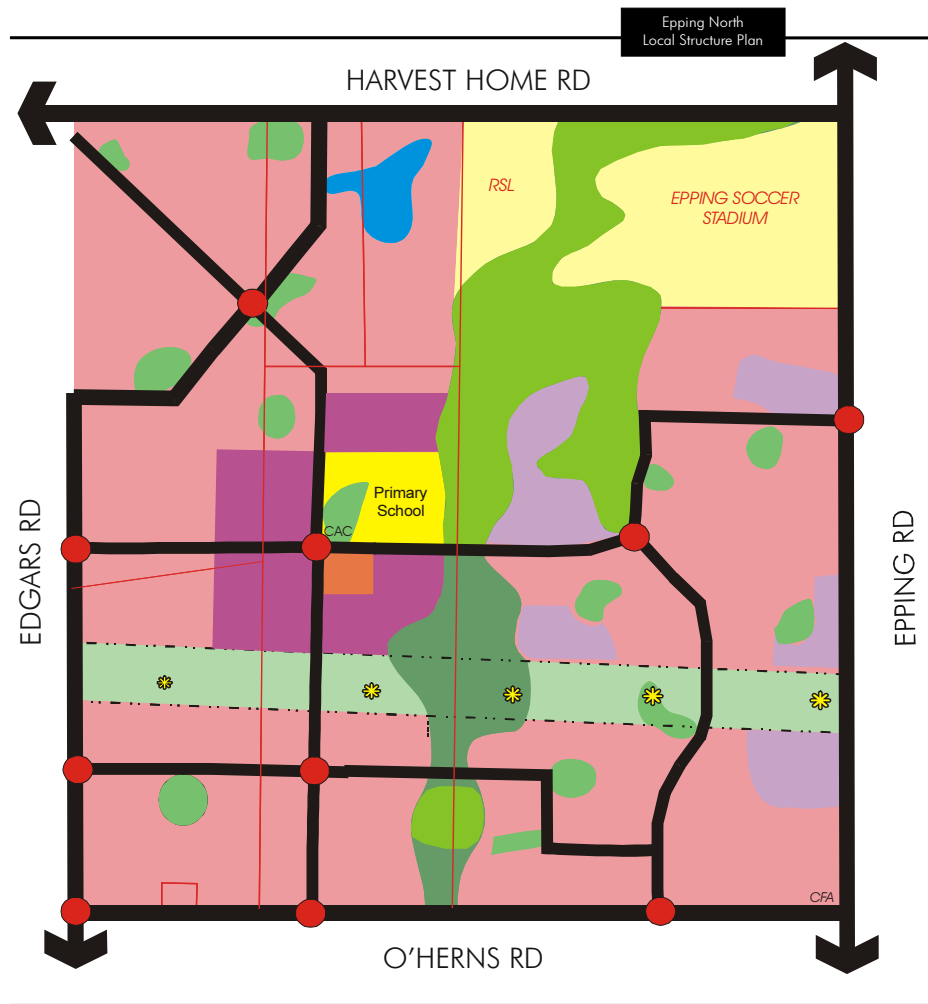
The Epping North Local Structure Plan (ENLSP) *"outlines the planning framework for development within the first Epping North neighbourhood"* (page 1). It *"contains guidance and performance based criteria relating to subdivision design and urban character; housing; environmental features; open space and recreation; community facilities; activity centres; the transport network; development contributions; and, staging"* (page 2). The ENLSP relates to the land bordered by Harvest Home Road to the north, Epping Road to the east, O'Herns Road to the south and existing property boundaries to the west. Section A of Aurora forms the north west corner of the ENLSP.

The ENLSP identifies the following features of Section A.

- Three 'stony knolls' - one in the north east corner, one midway along the east boundary and one in the north west corner of the subject land. The vegetation community of these knolls is described as 'Stony Knoll Shrubland / Grassland' of 'poorer quality' (page 38) and the conservation value as 'some (or potential)' (page 43).
- Remnant vegetation - along the southern portion of the east boundary of the subject land. The vegetation community of this remnant is described as 'Open Woodland' of 'lower quality' (page 38) and the conservation value as 'moderate' (page 41).
- Rock walls - predominantly extending in a north-south direction through the eastern portion of the subject land.

The ENLSP identifies and / or shows the following in relation to Section A.

- Five public open spaces based on the three stony knolls and the remnant vegetation described above and an additional area not otherwise identified in the ENLSP.
- Harvest Home Road as an 'arterial road' with an 'on pavement bike lane'.
- Edgars Road as crossing the subject land generally diagonally from midway along the east boundary to the west boundary and then south along the west boundary. Edgars Road is classified as an 'arterial road' with an 'on pavement bike lane'.
- A 'collector road' as crossing the subject land diagonally from the north west corner to an intersection with Edgars Road midway along the east boundary.
- An east-west 'collector road' near the south boundary of the subject land connecting the neighbourhood centre in the east to an intersection with Edgars Road in the west.
- Medium density housing in the south east corner of the subject land, surrounding the neighbourhood centre to the east.
- The subject land as part the third stage of development of the ENLSP area.



- CORE CONSERVATION AREA & HABITAT LINK
- OPEN SPACES
- AREAS OF SENSITIVE DESIGN
- TRANSMISSION EASEMENT
- PRIMARY SCHOOL
- RETAIL
- RESIDENTIAL
- MEDIUM DENSITY HOUSING
- RETARDING BASIN
- ▬ COLLECTOR ROAD
- ✻ TRANSMISSION TOWER
- INTERSECTION CONTROL

**EPPING NORTH LOCAL STRUCTURE PLAN
DIAGRAM - FEBRUARY, 2002**

City of Whittlesea



The ENLSP acknowledges that the preparation of development plans for the land within the ENLSP area will require more detailed investigations of the land and may result in refinements to the ENLSP.

More detailed investigations of Section A of Aurora have been completed as part of the preparation of the ADP: Part 1 and are described in sections 2 and 3 below. The ADP: Part 1 responds as follows to the features identified and / or shown on the ENLSP.

- The north east stony rise has been assessed as the most intact example of Stony Knoll Shrubland (Grassland) and in the best condition of the stony rises on the subject land. It is retained therefore as public open space - environmental.
- The north west stony rise is incorporated into the passive / unstructured recreation public open space at the south west corner of Harvest Home Road and the north-south neighbourhood connector street.
- The stony rise midway along the east boundary and the remnant vegetation along the southern portion of the east boundary of the subject land form part of the catholic primary school site.
- Most of the peppercorn trees in the additional area of public open space in the centre of the subject land will be retained in a widened road reserve.
- Harvest Home Road is intended to be a divided, secondary arterial in its ultimate configuration. Section 5.8.5 below provides further detail on the design of Harvest Home Road.
- As part of the development of Aurora, the alignment of Edgars Road has moved west of the location shown on the ENLSP and therefore of Section A.
- As outlined above, the combination of the movement of Edgars Road and the ENSP town centre to the west has necessitated changes to the street network of the subject land. The diagonal collector road shown on the ENLSP is intended to provide a connection between the ENSP town centre and the ENLSP neighbourhood centre. The combination of Edgars Road, Harvest Home Road, the north-south neighbourhood connector street, the northern, east-west neighbourhood connector street and the southern, east-west neighbourhood connector street, provides a

straightforward connection between the town centres of Aurora and the ENLSP neighbourhood centre to the east of Section A.

- The southern, east-west neighbourhood connector street provides a direct connection between Edgars Road, the subject land and the ENLSP neighbourhood centre.
- The highest dwelling densities at Aurora will be concentrated around the transport nodes and town centres to support the provision of high quality public transport. The subject land is at the furthest reach of the 'walkable catchments' of these facilities. Consequently, Section A will provide a significant percentage of lots at the larger end of the size range. Smaller lots (approximately 220 to 350 square metres) will be provided adjacent to public open space.
- Section A will be one of the first stages of development of the ENLSP area. Section 5.9 below demonstrates that the engineering infrastructure is or can be made available to support the development of the subject land.

Section 5 below provides a more comprehensive explanation of these responses. Based on the above, the ADP: Part 1 is generally consistent with the ENLSP.

2.1.5 Zoning and Overlays

(a) Residential 1 Zone

The Scheme includes Section A of Aurora in a Residential 1 Zone (R1Z). The purpose of the R1Z is as follows.

- *To implement the State Planning Policy Framework and the Local Planning Policy Framework, including the Municipal Strategic Statement and local planning policies.*
- *To provide for residential development at a range of densities with a variety of dwellings to meet the housing needs of all households.*
- *To encourage residential development that respects the neighbourhood character.*

- *In appropriate locations, to allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs" (clause 31.01).*

A planning permit is not required to use land for a dwelling (clause 32.01-1) in a R1Z. A planning permit is required to subdivide land (clause 32.01-2), to construct and extend one dwelling on a lot of less than 300 square metres (clause 32.01-3) and to construct and extend two or more dwelling on a lot and residential buildings (clause 32.01-4).

The ADP: Part 1 is consistent with the purpose of the R1Z as it:

- facilitates the residential development of the subject land;
- provides a range of lot sizes to facilitate the construction of a variety of dwelling types;
- includes educational and recreational uses to serve the needs of the local community.

(b) Vegetation Protection Overlay

The Scheme includes the subject land in schedule 2 (Significant Vegetation - River Redgum Grassy Woodland) to the Vegetation Protection Overlay (VPO2),

The vegetation protection objectives to be achieved in VPO2 are as follows.

- *" To protect and enhance the diversity of vegetation types and communities within Epping North*
- *To maintain and enhance the ecological integrity of indigenous vegetation within Epping North during its transition from rural to urban*
- *To allow for faunal movement through the area by the maintenance and enhancement of habitat links*
- *To protect the ongoing viability of vegetation communities by allowing for regeneration*

- *To preserve and maintain significant vegetation and the character of the area*
- *Preserve natural habitat for flora and fauna".*

A planning permit is generally required to remove, destroy or lop native vegetation in VPO2. A planning permit is not required to remove, destroy or lop vegetation that is not native vegetation.

The preparation of the ADP: Part 1 has involved a flora and fauna assessment of the subject land that considers all of the matters specified in the VPO2 (refer sections 2.2.3 and 2.2.4 below). The environmental conservation objectives for Section A of Aurora and the response of the ADP: Part 1 to these objectives are outlined in section 5.3 below and are consistent with the vegetation protection objectives of VPO2.

(c) **Development Plan Overlay**

The Scheme includes the subject land in schedule 12 (Epping North Development Plan) to the Development Plan Overlay (DPO12).

The Development Plan Overlay requires that a DP be prepared to the satisfaction of the responsible authority generally before a planning permit is granted to use or subdivide land, construct a building or construct or carry out works (clause 43.04-1). Once the DP has been prepared to the satisfaction of the responsible authority, any planning permit application that is generally in accordance with the DP is exempt from notice requirements, decision requirements and review rights (clause 43.04-2). Any permit granted must also be generally in accordance with the DP (clause 43.04-1). The DP may be amended to the satisfaction of the responsible authority (clause 43.04-3).

DPO12 states that a development plan "*must include sufficient area to demonstrate that development of the area to be subdivided is so far as practicable integrated with the immediately surrounding area*", must show fourteen elements and is to include assessments of and be informed by four aspects of the land. These elements and aspects are addressed in sections 2 to 5 below.

(d) Development Contributions Plan Overlay

The Scheme includes the subject land in schedule 1 (Epping North LSP Development Contributions Plan) to the Development Contributions Plan Overlay (DCPO1).

The Development Contributions Plan Overlay requires that a development contributions plan be incorporated into the Scheme generally before a planning permit is granted to subdivide land, construct a building or construct or carry out works (clause 45.06-1). Any permit granted must be consistent with the provisions of the relevant development contributions plan (clause 45.06-1).

DCPO1 covers the land within the ENLSP area, including the subject land. The development contributions for Section A of Aurora are outlined in section 6 below.

2.2 NATURAL ENVIRONMENT

2.2.1 Topography, Soils and Drainage

Section A of Aurora is typical of the relatively flat volcanic plains of the north and west of Melbourne. The subject land is slightly undulating, falling from approximately RL 162 metres at the northern end (Harvest Home Road) to approximately RL 149 metres at the southern end.

From the high point in the north, a number of subtle ridges extend generally in a north-south direction, including some stony rises that are important features and add to the topographic relief of the subject land and surrounds. While there are locally steep sections of land adjacent to the stony rises, overall, the subject land is gently sloping with the majority grading at less than three per cent (1 in 33). A subtle depression is located in the centre of the Harvest Home Road frontage, nestled between two stony rises, which reinforces the gentle slope to the south.

The parent geology is basalt, which produces soils that are high in clay content, fertile and often

seasonally waterlogged in flat, low lying situations. There is a high presence of surface rock as well as indications of shallow subsurface rock. A substantial stony rise in the north east corner of the subject land spans the east boundary. Other stony rises occur in the north west corner, midway along the east and west boundaries and in the southern portion of the subject land.

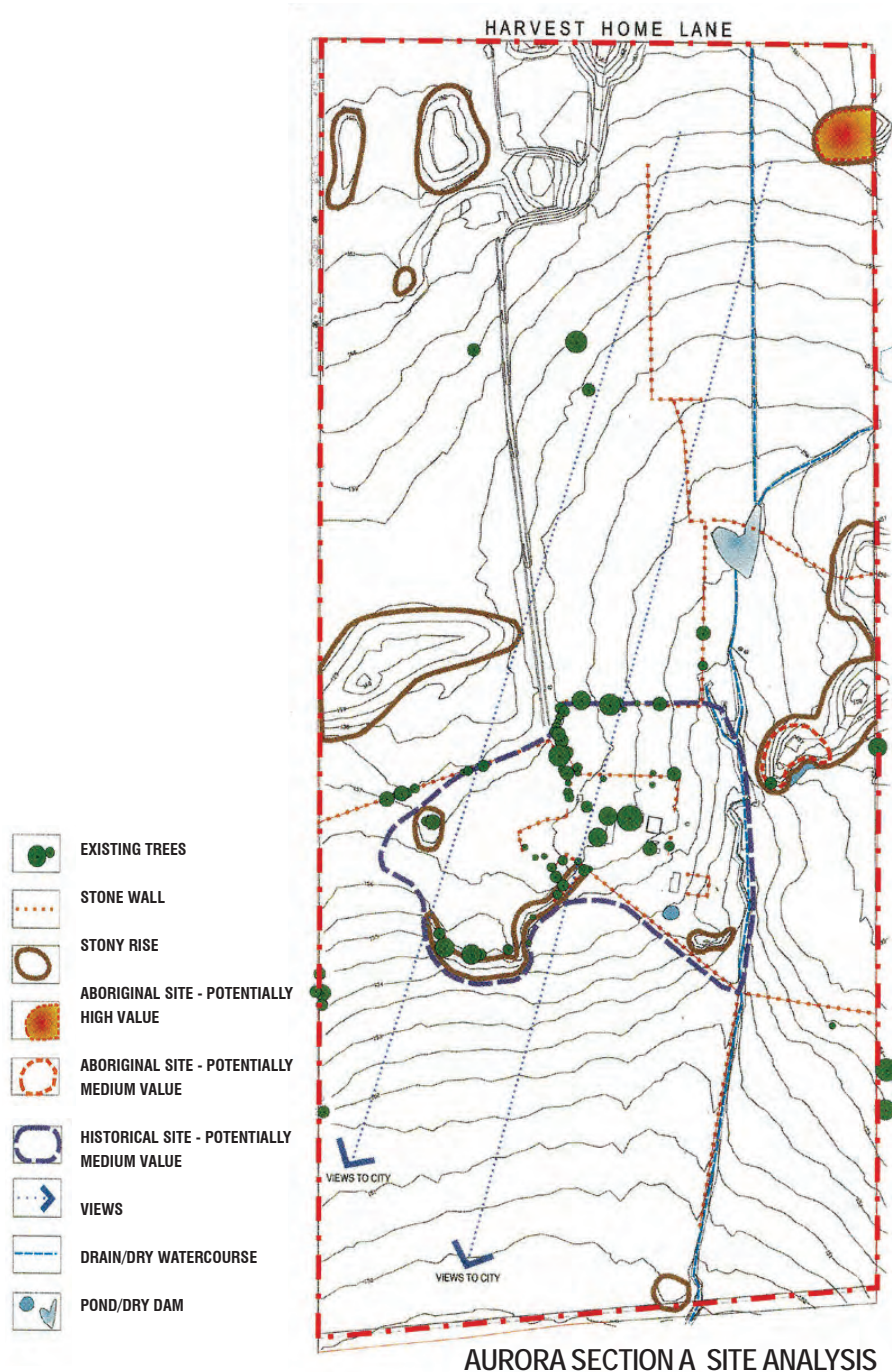
The subject land is located approximately 600 metres to the east of Edgars Creek and sits within the upper reaches of its catchment. Edgars Creek runs north-south through the centre of the remainder of Aurora and in its upper reaches is little more than an ephemeral stream, flowing only after rainfall events. Edgars Creek is part of the larger Merri Creek Catchment. Merri Creek is located approximately 4.5 kilometres to the west of the subject land.

A dry watercourse runs north-south through the full length of the Section A passing to the east of Creed's Farm. The watercourse is poorly formed in the northern portion and is a straightened channel for most of the southern portion of the subject land. Generally, the drainage of the subject land is not highly concentrated into depressions or gullies and consists predominantly of 'sheet flow' to the south.

2.2.2 Landscape and Visual Character

The majority of Section A of Aurora has been cleared and grazed. A number of remnant River Red-gum (*Eucalyptus camaldulensis*) are present in the northern portion of the subject land and contribute to the sense of place and local character. Exotic species predominate in the vicinity of Creed's Farm, including some cypress and pine windrows, as well as remnant orchard trees around the homestead.

The stony rises are important visual elements that also contribute to a sense of place. The stony rises are considered to be the source material for many of the dry stone walls and stone buildings of the district. Substantial lengths of stone walls, as well as the buildings associated with Creed's Farm, demonstrate the use of this material on the subject land.



Views from the subject land include:

- Quarry Hills to the east;
- Dandenong Ranges to the south east;
- skyline of Melbourne central activities district to the south;
- Macedon Ranges to the west.

Many of the above views will be limited once development of the subject land occurs, although the stony rises will still provide good views to some of the distant locations.

2.2.3 Flora

(a) Vegetation Types (Ecological Vegetation Classes)

A large proportion of Section A of Aurora contains highly altered vegetation. Remnants of one Ecological Vegetation Class (EVC) - Stony Knoll Shrubland (Grassland) - do however exist. Degraded examples of this EVC occur on the stony rises on the subject land, although these are altered by weed invasion and the loss of native species through grazing. This EVC would always have been of restricted occurrence on the basalt plain because of the limited extent of the stony rise habitat. The most intact example of Stony Knoll Shrubland (Grassland) on the subject land is in its north east corner. Before European settlement, Plains Grassy Woodland would have been the most widespread EVC on the flatter parts of the subject land, occurring in a mosaic with Stony Knoll Shrubland (Grassland).

Throughout Aurora, the soils on the stony rises are shallow, well-drained and dry out more quickly in the growing season than soils on the flatter ground. The ground surface often has a high cover of surface rock and the vegetation occupies cracks and shallow soil areas between the rock outcrops.

Within Section A, the stony rises have all been heavily grazed and the vegetation comprises mainly

exotic annual grasses and herbs, with the original vegetation being almost completely altered. The stony rises in the worst condition are those that have been used as 'stock camps' or have had extensive rock removal. A very small proportion of native flora species persists on the stony rises, each usually in small populations.

The stony rise in the north east corner of the subject land is higher and steeper than the others, which has made it less accessible to stock. It is in marginally better condition therefore than the other stony rises. The dominance of weed species over the stony rises results in all of them being considered of low botanical significance.

The remainder of the subject land is completely dominated by pasture grasses, predominantly Toowoomba Canary grass (*Phalaris aquatica*) or swards of Chilean Needle-grass (*Nassella neesiana*). There are also four remnant River Red-gums (*Eucalyptus camaldulensis*) that are in poor condition with canopy dieback.

(b) Flora Species

A flora survey of Section A of Aurora was completed by Biosis Research Pty Ltd during December 2001 and a list of species was compiled. The flora survey was concentrated on portions of the subject land that support native vegetation remnants, especially stony rises, and other portions with the potential to support threatened species. Detailed survey and data collection was not completed in highly altered sections of the subject land that contain few native species. A total of 58 species was recorded - 28 native and 30 exotic.

One species of National significance - Matted Flax-lily (*Dianella amoena*) - and one species of State significance - Glaucous Flax-lily (*Dianella longifolia* var. *grandis*) - were recorded during the survey of Aurora. Neither species was recorded on the subject land. No other flora species of State significance or greater were recorded or have been recorded previously on Aurora. It is highly unlikely that significant flora species would persist on the subject land given the extent of alteration to native vegetation due to the long history of grazing and high proportion of exotic species in the vegetation.

The following eleven native species recorded during the survey are of regional significance within the Victorian Volcanic Plains Bioregion. Most of these species were recorded on stony rises on the subject land.

- Hairy Sheep's Burr (*Acaena agnipila*)
- Common Maidenhair (*Adiantum aethiopicum*)
- Chocolate Lily (*Arthropodium strictum s.s.*)
- Bristly Wallaby-grass (*Austrodanthonia setacea*)
- Rough Spear-grass (*Austrostipa scabra ssp. falcata*)
- Fibrous Spear-grass (*Austrostipa semibarbata*)
- Sieber Crassula (*Crassula sieberiana*)
- Grassland Cranesbill (*Geranium retrorsum s.l.*)
- Grassy Club-sedge (*Isolepis hookeriana*)
- Hollow Rush (*Juncus amabilis*)
- Wattle Mat-rush (*Lomandra filiformis*)

The following remaining native species are all considered locally significant.

- Lightwood (*Acacia implexa*)
- Hedge Wattle (*Acacia paradoxa*)
- Common Wallaby-grass (*Austrodanthonia caespitosa*)
- Brown-back Wallaby-grass (*Austrodanthonia duttoniana*)
- Kneed Wallaby-grass (*Austrodanthonia geniculata*)
- Stiped Wallaby-grass (*Austrodanthonia racemosa var. racemosa*)
- Knob Sedge (*Carex inversa*)
- Pink Bindweed (*Convolvulus erubescens*)
- River Red-gum (*Eucalyptus camaldulensis*)
- Club Sedge (*Isolepis spp.*)
- Toad Rush (*Juncus bufonius*)
- Small Loosestrife (*Lythrum hyssopifolia*)
- Weeping Grass (*Microlaena stipoides var. stipoides*)

- Grassland Wood-sorrel (*Oxalis perennans*)
- Common Bog-sedge (*Schoenus apogon*)
- Kangaroo Grass (*Themeda triandra*)
- Yellow Rush-lily (*Tricoryne elatior*)

2.2.4 Fauna

(a) Fauna Habitat Types

Fauna habitat types vary in size and quality throughout Section A of Aurora. The following main fauna habitat types are present on the subject land.



- Stony rises

- Stony rises habitat consists of the surface or near / sub surface congregation of large and small rocks, in this instance basalt, that form a low rise above the general level of the surrounding landscape.

Stony rises on the subject land are generally isolated with a vegetation structure dominated by grasses and other ground storey flora species. A sparse tree and shrub layer would once have occurred on many of the stony rises on the subject land but has largely disappeared due to past land use practices. The presence of this rock means that the stony rises have not been subjected to disturbances such as ploughing.

Higher quality stony rises are those which are relatively large, have a high density of emergent rock, a moderate to high density of loose surface rocks (especially larger rocks), a dense tussock grass structure (preferably with native tussock forming grass species) and are near other stony rises or connected to them via rock walls.

For vertebrate fauna, the stony rises are of most value for small ground dwelling species, such as lizards, snakes and marsupial dunnarts. The majority of reptile records from Aurora are within or adjacent to stony rises.

The stony rises on the subject land have some habitat value for fauna, notably reptiles. Their value is greatly reduced however due to the alteration in vegetative cover and structure that has resulted from grazing and weed invasion. Although some of the stony rises are relatively large in size, they have a moderate level of emergent rock, little or no loose surface rock and generally do not have a dense tussock grass structure. The majority of the loose surface rock from the stony rises has been removed for the construction of the stone walls, which further degrades the value of the stony rises for fauna. The stony rises on the subject land are generally considered to be of a lower quality for fauna.

- Waterway (unnamed ephemeral watercourse)

- Waterways provide potential habitat for some frog species however the waterway though the subject land is not fenced and the original aquatic vegetation is missing.

In the southern portion of the subject land, the waterway appears to be artificially straightened and heavily overgrown with grassy weeds such as Toowoomba Canary-grass.

The waterway widens to an open area of shallow water and mud near Creed's Farm, where it has been used by a small number of Masked Lapwings, a common and versatile waterbird species.

While common frog species are also likely to persist along this waterway, in general it is considered to be in a poor and degraded condition.

- Agricultural grasslands (predominantly non rocky)
 - The agricultural grasslands fauna habitat type is characterised by relatively flat agricultural grasslands dominated by exotic grass species. In general, this habitat is most likely to be used by a range of common native (such as Australian Magpie, Little Raven and Richards Pipit) and introduced (such as Common Starling, European Rabbit and Red Fox) species adapted to open grassy environments. Similar habitat is abundant in Epping North.

Although the agricultural grasslands themselves provide few resources for many species that specialise in better quality habitats on Aurora and beyond, these species may move through the agricultural grasslands as they travel between these and other habitats. This includes particularly ground dwelling species, such as lizards, snakes and frogs.

- Non-natural rock structures

- The non-natural rock structure habitat type includes rock walls and the remnants of the bluestone buildings that occur on the subject land.

The rock walls provide long, narrow, linear habitats that are most likely to be used as protective cover by small ground dwelling species, particularly lizards and snakes. They provide abundant protective cover, foraging locations and potential breeding sites.

The remnant rocky areas within and around Creed's Farm provide small areas of isolated cover for small ground dwelling species such as lizards. The buildings forming part of this complex could also be used as a bat roosting site. In general they are too small and isolated however to be of much value to native fauna species.

- Remnant indigenous trees
 - Four large River Red-gums remain within Section A and may be in the vicinity of 300 to 400 years of age. These remnant trees are likely to have been part of a larger stand of trees in the past. They now remain as isolated individuals due to land clearance practices and the dieback of older trees without regeneration.

These trees possess hollow bearing trunks and limbs. There is little or no River Red-gum regeneration, with the understorey dominated by exotic grasses. The River Red-gums provide habitat for a range of fauna, including hollow dependent species, diurnal and nocturnal avian predators and a depleted assemblage of woodland dependent birds, mammals and reptiles.

- Planted vegetation
 - Planted vegetation occurs across the subject land, but particularly mature trees are in the vicinity of Creed's Farm and the western boundary. This includes a number of pine, peppercorn, eucalypt and fruit trees.

These planted trees may be used as perches or for protective cover by a range of common native birds. Many species may opportunistically feed from the fruit trees although these trees generally have few values for most native fauna species.

(b) Fauna Species

A fauna survey of Section A of Aurora was completed by Biosis Research Pty Ltd during December 2001 and a list of species was compiled. The fauna survey was concentrated on portions of the subject land that support native vegetation remnants, especially stony rises, and other portions with

the potential to support threatened species.

Incidental records of terrestrial vertebrate fauna observed through active searching and bird census, as well as the habitat condition and conservation significance of the subject land, were assessed. Detailed surveys were not carried out due to the paucity of quality habitat on the subject land. A total of eighteen species were recorded - twelve native and six exotic. A number of other native vertebrate species, particularly common birds and reptiles, are expected to use the subject land. The native species recorded are listed below.

- Common Brushtail Possum (*Trichosurus vulpecula*)
- Crested Pigeon (*Ocyphaps lophotes*)
- Masked Lapwing (*Vanellus miles*)
- Brown Falcon (*Falco berigora*)
- Sulphur-crested Cockatoo (*Cacatua galerita*)
- Welcome Swallow (*Hirundo neoxena*)
- Brown Songlark (*Cincloramphus cruralis*)
- Yellow-rumped Thornbill (*Acanthiza chrysorrhoa*)
- Golden-headed Cisticola (*Cisticola exilis*)
- Red Wattlebird (*Anthochaera carunculata*)
- Australian Magpie (*Gymnorhina tibicen*)
- Little Raven (*Corvus mellori*)

No species of National or State significance were recorded during the survey of the subject land.

One species of National conservation significance - Warty Bell Frog (*Litoria raniformis*) - has been recorded west of Edgars Creek, approximately one kilometre north west of the subject land. The waterway within the subject land provides suboptimal habitat for this species but may function as a movement corridor.

A further five species of National conservation significance have been recorded (Atlas of Victorian Wildlife (AVW) database) within five kilometres of the subject land. One species - Striped Legless Lizard - is difficult to detect even when it is known to be present in an area. Pitfall trapping was



conducted recently in many locations across Aurora, including one area less than 500 metres to the west, without success. Overall, the subject land is considered to contain suboptimal habitat for the Striped Legless Lizard and there is a low probability that individuals are present. The subject land at most will provide occasional habitat resources for small numbers of individuals of the other four species (Grey-headed Flying-fox, Plains Wanderer, Swift Parrot and Regent Honeyeater) of National conservation significance previously documented within five kilometres of Section A.

Thirteen species of State conservation significance have been recorded (AVW database) within five kilometres of the subject land. Small numbers of some of these species may visit the subject land on occasions. Eight species recorded during the fauna survey of Aurora are of regional conservation significance. Some of these species may use the subject land on occasions. The stone walls and possibly the degraded stony rises may support small numbers of species of regional conservation significance (such as Little Whip Snake and Fat-tailed Dunnart). The remaining native species are all considered locally significant.

Two bird species (Masked Lapwing and Brown Falcon) listed as 'migratory' under the *Environment Protection and Biodiversity Conservation Act 1999* were recorded during the survey. Others were recorded on Aurora or have been previously recorded (AVW database) within five kilometres of the subject land. Many of these species would be expected to use the subject land on occasions, although for most it comprises less than optimal habitat.

2.3 CULTURAL HERITAGE

2.3.1 Aboriginal History

A field survey and subsurface archaeological testing program has been carried out by Biosis Research Pty Ltd in consultation with the Wurundjeri Tribe Land Compensation and Cultural Heritage Council Incorporated. These investigations have demonstrated that Aboriginal archaeological sites survive on several stony rises on Section A of Aurora.

The subject land lies within the boundary of the Kulin Aboriginal people, who identified themselves as members of 'a regional block or confederacy - maintained by intermarriage, a common language and mutual interests' (Barwick,D.E.(1994) 'Mapping the Past: An Atlas of Victorian Clans 1835-1904', Aboriginal History, Vol 8 No. 1-2, pp.100-131). The lands of the Kulin people cover much of present day western and central Victoria.

Within the Kulin Nation, groups identify themselves by a language name and typically share a common dialect or manner of speaking, as well as economic and political affiliations. The subject land is located in the territory of the Woi wurrung who were composed of a number of clans that spoke the same language. Their territory extended from Kyneton to West Gippsland and the Werribee River and Bacchus Marsh to Mount Baw Baw.

The Wurundjeri balug clan of the Woi wurrung language group occupied the region containing the subject land. This clan was divided into two patrilineal groups: the Wurundjeri willam and Bulug willam. The Wurundjeri willam, which means 'white gum tree dwellers', would have inhabited the region. The camp sites of the Wurundjeri willam were located along the main creeks and rivers with most of their preferred occupation sites being close to permanent sources of fresh water.

Epping provided a range of resources to Aboriginal people, including large game such as kangaroos and emus, plant foods including the staple yam daisy or 'Murrnong', eels and fish in the waterways and plants for medicine, fibres and many other uses. At Epping North, the original ephemeral swamps and creeks between the stony rises would have been rich hunting and foraging grounds. These were drained by farmers in the nineteenth century. The stony rises provided good vantage points and dry sites for temporary camps.

The majority of Aboriginal archaeological sites found on Section A of Aurora are on the higher stony rises close to creeks and former swamps. The sites opposite have been identified.

SITE NAME	SITE TYPE	LOCATION	SIGNIFICANCE
Cauduro 1 IA	Isolated artefact	West of Creed's Farm on a stony rise	3 (low)
Cauduro 2 SAS	Surface artefact scatter and buried material	A small and steeply rising, stony rise located in the north east corner of the site	6 (moderate)
Cauduro 3 SAS	Buried material	Stony rise east of Creed's Farm near a branch of Edgars Creek	3 (low)

2.3.2 European History

European occupation of Epping North came only a few years after Europeans first settled in the Port Phillip District. Surveys and land sales were conducted in the mid 1840s and 50s. Section A of Aurora originally comprised part of Crown Allotment 2, Section 9, which was first purchased by Michael Lynch in 1853. In 1857 he sold the land to Michael Creed and it is believed that most of the buildings now remaining on the subject land were erected during Creed's ownership.

Michael Creed was an Irish migrant who arrived in the Port Phillip District aboard the 'Thetis' (as an assisted passenger) from Cork in 1842. When Creed died he left 158 acres of land, a four-roomed stone house and stables, which were subsequently sold for £1560/5/0. The property passed to his eldest son, John Creed. In 1878 the land was purchased by Patrick Toole of Richmond, a grocer, who leased the land for dairy farming.



The house, constructed of quarried and cut bluestone, was possibly built in two stages and consists of four rooms with a central hallway. The rear roof section of the house, which is no longer covered with corrugated iron, shows the original wooden shingles.

Behind the house, to the west, stands a large bluestone barn, opening to the east in a similar manner to the milking shed on the adjoining property. The southern end of the barn is enclosed, which indicates a hay storage area, while the open northern end indicates a stable area.

A roofed water cistern or well to the south of the house is constructed from bluestone. A timber and corrugated iron A-frame roof covers the well.

A dry stone walled stockyard, with cattle ramp in the north west corner, remains substantially intact to the south west of the house. The dry stone walls of the stockyard, measuring about 1.5 metres high in most places, are constructed from the abundant local stones still evident in many surrounding paddocks. Surrounding these buildings are dry stone walls and rows of cypress, pine and peppercorn trees planted as windbreaks. Several small paddocks are formed by the walls and tree rows in the vicinity of the farm buildings, representing the home paddocks. Immediately north

of the house is an orchard of relatively recent fruit and olive trees but also containing some very old fruit trees.

Subsequent owners of the subject land included William Jones, Robert Smith, Alfred Smith, Alice Earland, William Jellett, David Gow, Sydney and Myra Sutton, John Robinson, Daniel Williams, Leonard Righetti and Myrtle Carr. Around 1960 the land was subdivided and the northern 90 acres, where the existing buildings are located, was sold by Myrtle Carr to Clement and Ida Saunders. The immediate past owner (Cauduro) of the subject land occupied it for approximately twenty years up until 2003.

This complex (known as Creed's Farm) is the most significant and substantial historic structure on Aurora.

3 ASSESSMENT OF SERVICES AND FACILITIES NEEDS

3.1 LAND BUDGET

Area of Section A of Aurora	37.264 hectares
Encumbered land area	0
Gross developable land area	37.264 hectares

3.2 POPULATION

Section A of Aurora has an expected yield of about 660 lots. Based on the population projections of the Department of Sustainability and Environment and the demographic trends of adjoining suburbs, the average household size is anticipated to range from 2.9 to 3.1 people per household. Assuming that each lot is occupied by one household, this translates to an expected maximum population of 2015 people. Based on the population forecast for the ENSP area (20,984 people by 2016), the expected maximum population of Section A represents about ten per cent of the total population forecast within the ENSP area.

VicUrban anticipates that a significant proportion of the population of the subject land will be drawn from the primary catchment area of Epping, Lalor, Mill Park and Thomastown. The sustainability features of and range of dwelling types proposed in Section A of Aurora are also expected to attract people from outside the primary catchment area who will represent a wider cross section of the new housing market and a more balanced mix of households than has typically been the case in the outer suburbs. The actual demographic profile of the residents of the subject land is difficult to predict in any more detail.

3.3 HOUSING

Melbourne 2030 highlights the need for the growth of Melbourne to respond to changing demographic trends, in particular, to the ageing of the population and the rapid increase in the proportion of one and two people households.

The proportion of households living under some degree of housing stress continues to grow, with those households living in outer suburbs particularly subject to such stress. While dwelling prices in the outer suburbs are more affordable than those in the inner suburbs, the accessibility to services and facilities is generally restricted. The cost of transport, in particular running one or more vehicles, to meet basic needs such as work, education and obtaining food, precludes other uses for a portion of the household budget and contributes to stress. A development that provides convenient and attractive walking / cycling distances to meet basic needs will reduce the costs associated with transport and hopefully household stress.

There will be a sustained growth in demand for dwellings to meet the needs of a wide variety of family and individual living arrangements. VicUrban recognises that the downward trend in household size does not always translate into a demand for smaller dwellings. For example, a non-custodial parent may form a one person household for the majority of the time but require additional bedrooms to accommodate children who visit regularly. Likewise, older adults are likely to prefer additional bedrooms to accommodate for example, alternative uses, visiting grandchildren or to provide for the contingency of a future live in carer (permanent or respite).

Greater dwelling choice, including smaller dwellings, also creates the opportunity for existing family and social networks to remain intact by encouraging the families and friends of the traditional occupiers of new developments - young couples and families - to join them. This contributes to the social and cultural diversity aspects of sustainability.

3.4 SOCIAL INFRASTRUCTURE

3.4.1 Methodology

The approach of VicUrban to determining what social infrastructure will be required for Aurora and where it will be located has been guided by the following key influences.

- The *Aurora Epping North Guiding Principles and Objectives* (Urban and Regional Land Corporation, August 2002).
- Maximising access to community, commercial and public transport services and facilities within walkable catchments.
- Whittlesea key strategic and policy documents including the ENLSP, Housing Strategy, Community Activity Centres Review and Quantitative Assessment of Social, Leisure and Open Space Requirements within Epping North Strategy Plan Area (the ASR report).
- Consultation with key service providers including the Department of Education and Training and Catholic Education Office.
- The post occupancy feedback from residents of other equivalent outer suburbs that highlights the social and economic costs to residents of not being offered a range of community, commercial and public transport facilities within feasible walking distance. These costs include social isolation, increased financial burden of additional vehicle ownership and lack of independent access for key groups within the community including youth, mothers at home with young children and older adults no longer able to drive a vehicle.
- The experience of community centres within VicUrban developments, such as at Westgrove, Roxburgh Park and Cairnlea.

3.4.2 Existing Planning Framework

(a) Epping North Local Structure Plan

The ENLSP outlines the objectives for the provision of social infrastructure, including the following:

- *"to promote links between Epping North and existing residential communities, especially Epping;*
- *to facilitate access to services and facilities available in Epping for the Epping North community;*
- *to provide for and respond to all groups within the community, including families with young children, youth, those from a non-English speaking background, aged and the disabled;*
- *to create a sense of place which recognises the natural and cultural characteristics of the LSP area and the community;*
- *to promote a sense of place through design and planning processes which incorporate and involve the local community;*
- *to promote co-location of services provide for persons in the same catchment where these are of mutual benefit for service users and providers;*
- *to provide the support necessary to help develop a community within Epping North"* (page 57).

The ENLSP does not propose any social infrastructure, other than open spaces, on Section A of Aurora. Such infrastructure has been planned in the vicinity but on neighbouring land in accordance with the ENSP and ENLSP.

(b) Community Activity Centres Review

In February 2001, Whittlesea completed a review of its Community Activity Centres (CAC). The

purpose of the review was to assess the success of existing CAC and determine their future role and function in both new and established communities.

With regard to the performance of the three multi purpose CAC in operation within the Municipality in 2000 - 2001, the key findings from the review were as follows.

- The three CAC were operating well in terms of being financially healthy and with strong committees of management.
- Future CAC should have the following components / attributes:
 - located in prominent and attractive neighbourhood settings;
 - ample storage areas;
 - consulting rooms for visiting services;
 - a welcoming foyer space;
 - small meeting rooms;
 - a large hall;
 - sufficient office and administration space.
- Emphasis should be on community development, using the CAC as a vehicle for generating resident interaction and community activity.
- CAC have been successful in the following areas:
 - meeting community demand for low cost, reasonable quality and accessible social venues;
 - encouraging service integration through co-location of family services programs;
 - building community through the interaction of committee members, users, service providers and Whittlesea staff.

- CAC have been unsuccessful in the following areas:
 - becoming a focal point for community life;
 - being able to encourage the informal 'drop in' type use and social interaction this would generate;
 - being accessible to and establishing relationships with other community service / facility providers;
 - facilitating the delivery of visiting community service programs through the provision of office space and consulting rooms.
- The institutional type design of CAC, combined with only part time human presence, does not promote broad community use.

3.4.3 Education

VicUrban has confirmed with the Department of Education and Training a requirement for three primary schools and one secondary school at Aurora.

The ENLSP provides for a government primary school approximately 150 metres to the east of Section A of Aurora. The concept plan for ADP: Part 2 also provides for a government primary school approximately 650 metres to the west of the subject land. A government primary school is not required therefore on the subject land.

VicUrban has confirmed with the Catholic Education Office the requirement for two primary schools at Aurora, including one on the subject land.

3.4.4 Public Open Space - Active / Structured Recreation

The ASR report contains a detailed list of the public open space - active / structured recreational facilities required in the ENSP area.

VicUrban has completed an initial assessment of the proportion of these spaces required for the expected population of Aurora, which can be summarised as follows.

- Five cricket ovals
- Four football ovals
- Two miscellaneous sports field, for example for baseball or softball
- Eight tennis courts
- Five soccer fields
- Two bocce rinks
- One lawn bowls facility

The ENLSP contains an assessment of the active / structured recreational facilities expected to be required by the population of the ENLSP area, which includes Section A of Aurora. The ENLSP concludes that "*there will not be a need to specifically provide land for active sporting facilities within the Local Structure Plan area*" (page 53).

3.4.5 Public Open Space - Passive / Unstructured Recreation

The ENLSP identifies five public open spaces within Section A of Aurora - a total of 1.75 hectares. The ENLSP states that these spaces "*have been designated to provide for informal recreation and play opportunities*" (page 54). As noted earlier, these spaces have been located to incorporate stony rises and remnant vegetation while meeting the intended recreation function.

3.4.6 Community Uses and Indoor Recreation

VicUrban has determined in consultation with Whittlesea a requirement for five kindergartens and three to four CAC at Aurora.

Discussions with Whittlesea, the Department of Education and Training and the Catholic Education Office have confirmed the benefits of community use of schools outside school hours and

requirements. These discussions have also confirmed the merit of integrating some facilities, such as kindergartens, within schools.

The ENLSP provides for a CAC approximately 150 metres to the east of Section A of Aurora. The concept plan for ADP: Part 2 also provides for a CAC approximately 850 metres to the west of the subject land. Whittlesea has confirmed that no CAC should be provided on the subject land. VicUrban recognises that an interim community facility may be appropriate to support the population of Section A, until the CAC to the east and west of the subject land are provided. VicUrban is considering this opportunity in its Sales and Information Centre.

The ASR report contains a detailed list of the indoor recreation facilities required in the ENSP area.

VicUrban has completed an initial assessment of the proportion of these spaces required for the expected population of Aurora, which can be summarised as follows.

- Five basketball courts
- Four netball courts
- One fitness / aquatic centre

As noted earlier, the ENLSP concludes that *"there will not be a need to specifically provide land for active sporting facilities within the Local Structure Plan area"* (page 53).

3.4.7 Walking and Cycling Network

The subject land forms part of Aurora, the ENLSP and the ENSP. A comprehensive walking and cycling network linking all of the facilities and services in these areas is required to facilitate accessibility and choice for residents. The network should be designed to promote walking and cycling as equally important and attractive modes of transport to the private car and should meet therefore the actual and perceived safety needs of all potential users.

3.4.8 Community Development

VicUrban recognises the requirement for a community development strategy as an important complement to the provision of community services and facilities. Such a strategy would facilitate new residents meeting each other and slowly, over time, developing the new social support networks that are important to general well being.

3.5 RETAIL AND COMMERCIAL

A variety of retail and commercial facilities will be required to serve the residents of Aurora (including Section A).

JHD Advisors Pty Ltd anticipates that the full development of Aurora will support the following hierarchy of retail and commercial facilities.

- A number of small neighbourhood centres of approximately 300 square metres of retail and commercial floorspace. These centres are likely to include a convenience shop / newsagent, take-away food premises, a pharmacy and perhaps a hairdresser.
- A central town centre of approximately 6000 square metres of retail and commercial floorspace. This centre is likely to include a supermarket and additional speciality shops. It is anticipated that within seven to nine years, the population level will be sufficient to support the central town centre.
- A southern town centre of approximately 14,000 square metres of retail and commercial floorspace. This centre is likely to include a discount department store, a full scale supermarket, a smaller format supermarket and additional speciality shops. It is anticipated that within ten to fifteen years, the population level will support the establishment of the southern town centre. It may be as long as fifteen to twenty years before the population level will sustain a discount department store.

3.6 TRANSPORTATION

3.6.1 Existing Road Network and Traffic Volumes

Section A of Aurora is on the south side of Harvest Home Road, approximately 1200 metres west of Epping Road. The subject land has a 410 metres frontage to Harvest Home Road to the north. The intersection of Harvest Home Road and Epping Road is a cross intersection with vehicle movements on Epping Road having priority.

(a) Harvest Home Road

Harvest Home Road is of rural standard with a reservation width of 20.12 metres. A single, two-lane, two-way carriageway occupies the reservation. A sealed pavement is constructed between Epping Road and a point approximately 1100 metres west of Epping Road. TTM Consulting Pty Ltd estimates that the existing traffic volume on Harvest Home Road between Epping Road and the Epping RSL Club is less than 1000 vehicle movements per day and that the volume west of the Epping RSL Club is less than 200 vehicle movements per day.

(b) Epping Road

Epping Road is a declared main road with a reservation width of between 20 (north of electricity transmission easement) and 40 metres (south of electricity transmission easement). It has a single, two-lane, two-way carriageway. VicRoads traffic counts in 1998 for Epping Road between Harvest Home Road and Craigieburn Road East / Lehmanns Road to the north, indicate a total peak daily traffic volume of 8492 vehicle movements. These counts also indicate a morning peak of 663 (423 southbound, 240 northbound) and an afternoon peak of 815 (315 southbound, 500 northbound) vehicle movements per hour.



3.6.2 Existing Planning Framework

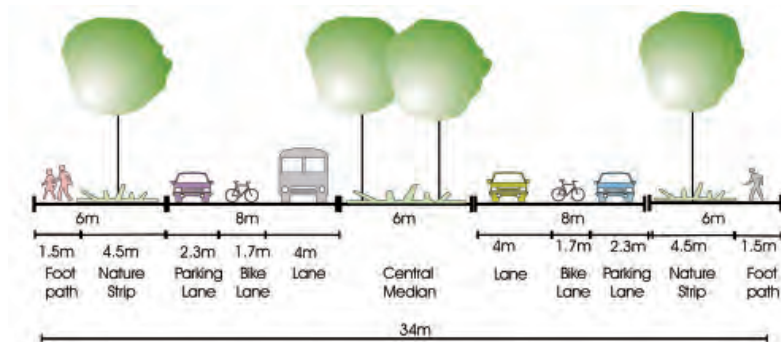
(a) Harvest Home Road

The ENLSP states the following in relation to Harvest Home Road.

"Harvest Home Road will act as the key internal east west link within the Strategic Plan area. Harvest Home Road will link the town centre with the active recreation precinct proposed to the north of the Soccer Stadium, as well as residential areas to the north and south and as such is the most important internal road within the Strategic Plan area."

The cross section proposed for Harvest Home Road has been designed to:

- *allow for extensive landscaping within a central median and along nature strips;*
- *accommodate bicycle movements through the inclusion of a bicycle lane. Bicycle lanes are to be clearly line marked and sign posted;*
- *slow traffic down in this area by increasing the importance of other elements within the road reserve and creating a low speed environment; and,*
- *allow for direct frontage and access from properties onto Harvest Home Road. Unlike other major roads within the Strategic Plan area direct access is to occur. Direct access has been allowed for in the cross section, to minimise the overall width of the road reserve and associated service road treatment, and to create a different feel for Harvest Home Road.*



Harvest Home Road currently has a 20m road reserve, widening to a 34m reserve will be necessary. As discussed previously road widening is to occur on the northern side of the road in order to protect stony knolls and other areas of fauna habitat on the southern side . . .

It is anticipated that forms of traffic management (eg roundabouts) will be required at a number of points along Harvest Home Road, for instance at Edgars Road and the soccer stadium. These points will also act to slow down traffic, create a low speed environment and mark the entrance

into the town centre area. The exact form of treatment is to be detailed at the Development Plan stage" (pages 72 and 73).

(b) Epping Road

The ENLSP states the following in relation to Epping Road.

"To support the population and traffic movements within the LSP area and the Strategic Plan area, Epping Road will be required to be upgraded from a 2 lane undivided road to a 4 lane divided road, requiring an additional 16 metres of road reserve in some parts to achieve the preferred width of 36 metres.

Based on the widening that has happened to date and the current alignment, provision for widening the reserve to the eastern side of Epping Road should be allowed. Provision has therefore not been made through this LSP for road widening along the western side of Epping Road. A service road treatment or some other form of access control will be required along Epping Road. Development adjacent to Epping Road is required to front onto Epping Road" (page 70).

3.6.3 Traffic Modelling

(a) Assumptions

The Aurora guiding principles and objectives strongly support reduced car dependency and reduced vehicle trip generation in comparison with typically observed outer suburban conditions. For the purposes of assessment of traffic facilities, needs and operation, a vehicle trip generation rate of ten vehicle movements per day per dwelling has been used together with the peak hourly rates shown in the following table. These peak period rates are in excess of typically measured generation rates and will lead to a conservative approach to intersection design and impact assessment. Based on the estimate of 650 lots for Section A of Aurora the traffic generation will be as shown opposite.

TRIP TYPE	VEHICLE TRAFFIC GENERATION RATE	VEHICLE MOVEMENTS
Total daily traffic generation	10 per day per dwelling (vpd)	6500 vpd
Outbound morning peak hour vehicle trips leaving area	0.6 vehicles per hour per dwelling (vph)	390 vph
Inbound morning peak hour vehicle trips entering area	0.2 vph	130 vph
Outbound afternoon peak hour vehicle trips leaving area	0.25 vph	163 vph
Inbound afternoon peak hour vehicle trips entering area	0.6 vph	390 vph

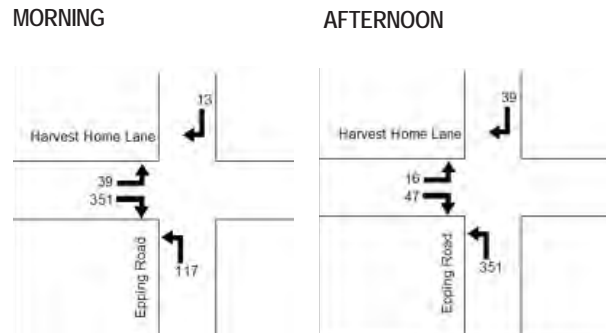
(b) Assignment of Generated Traffic

All movements to and from Section A of Aurora will be initially via Harvest Home Road and Epping Road. It is expected that future connections (north, west and south) will reduce the dependence of these lots on Harvest Home Road, although for the purpose of the assessment of traffic impacts associated with the ADP: Part 1 these future connections are assumed not to be available.

At the Harvest Home Road and Epping Road intersection it is estimated that during the morning and afternoon peak periods 90 per cent of movements will be to and from the south.

The diagrams opposite show the estimated morning and afternoon distribution of traffic at the intersection of Harvest Home Road and Epping Road generated by the subject land when 650 lots are occupied.

TRAFFIC DISTRIBUTION GENERATED BY SECTION A (650 LOTS)

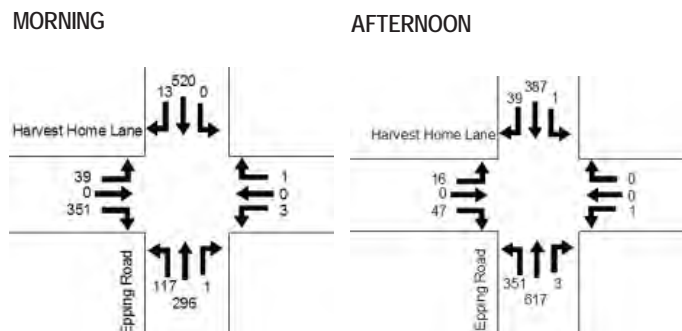


(c) Combined Traffic Volumes

The diagrams opposite show the estimated morning and afternoon traffic volumes at the intersection of Harvest Home Road and Epping Road generated by the subject land, combined with the estimated Epping Road volumes at the same periods.

The Epping Road volumes have been estimated by factoring up the counted flows by three per cent per annum compound for the period between the counts (1998) and the time when it is estimated that 650 lots will be occupied (2005) at Section A.

TRAFFIC DISTRIBUTION GENERATED BY SECTION A (650 LOTS) COMBINED WITH EPPING ROAD VOLUMES



(d) Intersection Capacity

Practical Absorption Capacities from AustRoads Guide to Traffic Engineering Practice Part 5, Section 4.5, Figure 4.2 is used to assess the capacity of unsignalised intersections.

During the morning peak, the right turn exit movement from Harvest Home Road is the critical movement. Based on the combined traffic volumes outlined above, when 650 lots are occupied in Section A of Aurora, Epping Road will have a combined morning peak flow of 816 vehicles per hour into which an estimated 351 vehicles per hour will need to turn from Harvest Home Road.

Practical Absorption Capacity for the right turn out of Harvest Home Road is approximately 425 vehicles per hour using a critical acceptance gap of five seconds with a follow up headway of three seconds). This is well in excess of the estimated 351 vehicles per hour turning right out of Harvest Home Road into Epping Road during the morning peak (when 650 lots are occupied on the subject land).

During the afternoon peak, the mid-block, estimated combined flow is 1004 vehicles per hour. Practical Absorption Capacity for the right turn out of Harvest Home Road is approximately 350 vehicles per hour using a critical acceptance gap of five seconds with a follow up headway of three seconds. This is well in excess of the estimated 147 vehicles per hour turning right out of Harvest Home Road into Epping Road during the afternoon peak hour when 650 lots are occupied on the subject land.

During the afternoon peak, the right turn movement from Epping Road into Harvest Home Road is estimated at 39 vehicles per hour. AustRoads Guide to Traffic Engineering Practice Part 5, Figure 5.23a, indicates a Type C treatment for this right turn movement.

The above analysis does not include an allowance for the Epping RSL Club and Epping Soccer Stadium as these land uses are off peak traffic generators. There is sufficient additional capacity at the intersection of Harvest Home Road and Epping Road to accommodate traffic generated by these land uses.

DCP01 includes an allowance for the full construction of Harvest Home Road to the standard described in section 3.6.2 above. This implies an appropriate intersection at Epping Road, which is a Type C treatment. This intersection will need to be signal controlled at some future time. An assessment of the performance and safety of the intersection should be made with successive applications for development that will place traffic loadings on the intersection.

The above analysis demonstrates satisfactory operational conditions at a Type C intersection for the estimated loadings imposed by Section A of Aurora.

3.7 ENGINEERING INFRASTRUCTURE

3.7.1 Water Supply

There is no reticulated water supply to Aurora, including Section A. It is understood that all of the existing dwellings rely either on rainwater or small diameter private main extensions for water supply.

3.7.2 Drainage

As noted previously, Edgars Creek is an ephemeral stream that flows through Aurora from north to south. It is ill defined in some sections and has been badly degraded. There are several natural minor tributaries, the most significant of which are the Edgars Creek Western Tributary and the Eastern Tributary. The Eastern Tributary runs through part of Section A of Aurora. Some of the tributaries have been modified over time by the land owners to suit specific requirements however none of these works will form part of the proposed drainage scheme.

3.7.3 Sewerage

The main constraint to the development of Epping North has been the lack of a sewerage system. The metropolitan sewerage system has been extended progressively outward from the Melbourne central activities district. These extensions, which were planned and designed about 50 years ago, did not anticipate that urban growth would extend as far as it has. As a result, the capacity of the systems at the fringes of urban growth is limited. The implication of continuing to add more development to the existing sewerage infrastructure is a higher potential for sewage spills to the environment.

3.7.4 Other Services

Telecommunications and electricity are available to the existing dwellings at Aurora but are of limited capacity. Mains gas is not available however there is a transmission gas main running north to south through Aurora that will be able to provide gas to a future reticulation system.

4 GUIDING PRINCIPLES AND OBJECTIVES

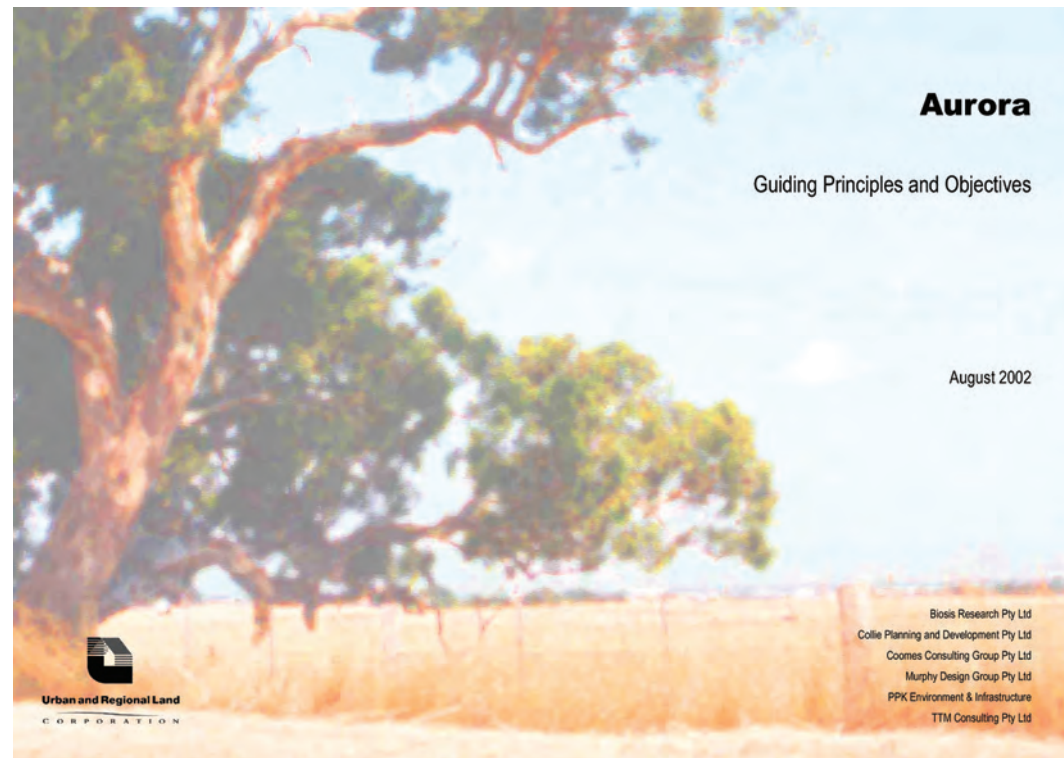
VicUrban and its project team have been studying Aurora (including Section A) for a lengthy period. One of the key initiatives in this process was a team development workshop conducted at the beginning of the design process (April 2001).

During and following the workshop, the participants established principles of sustainability to guide development at Aurora, promote innovation and creativity and generally raise the benchmark for the standard of development. The main principles are summarised below.

- Create an environmentally, socially and economically sustainable community.
- Optimise sustainable use of natural resources.
- Plan, implement and maintain Aurora in a manner that maximises energy efficiency, self-containment and minimises energy usage.
- Make Aurora an inclusive community where all types of people want to live.
- Provide a transport system that is environmentally, socially and economically sustainable.
- Give value to Nature's inherent worth by protecting, repairing and enhancing existing environmental and ecological assets and values and by encouraging community ownership and accountability.
- Achieve acceptance and ownership of project objectives by the community and other stakeholders.
- Respect, celebrate and build on cultural heritage associated with the land.
- Plan for, implement and maintain an innovative development project based on ecologically sustainable development (ESD) principles that provide leadership and create a model for the future.
- The project will be reviewed and measured to establish its performance, with reference to its objectives.
- The project will provide a choice in housing to meet the needs of all in the community.
- VicUrban will deliver an economically viable project that aims to meet all other guiding principles.

- The development will provide a diverse range of recreation and leisure opportunities for all members of the community.
- The Aurora urban form will be built in a manner that is supportive of sustainability and community.
- Create a physical and social environment that fosters a high standard of physical and mental well being for residents.
- Maximise community interaction with, and benefit from, the knowledge economy through information technology (IT).
- Foster a distinct, positive sense of place that is recognised and valued by the local community.

The guiding principles and objectives are presented in full in the separate report *Aurora Epping North Guiding Principles and Objectives*, Urban and Regional Land Corporation, August 2002.



5 DEVELOPMENT PLAN OBJECTIVES AND RESPONSES

5.1 SUBDIVISION DESIGN AND LANDSCAPE CHARACTER

5.1.1 Objectives

The primary urban design objective of Aurora is to create an innovative, sustainable urban form.

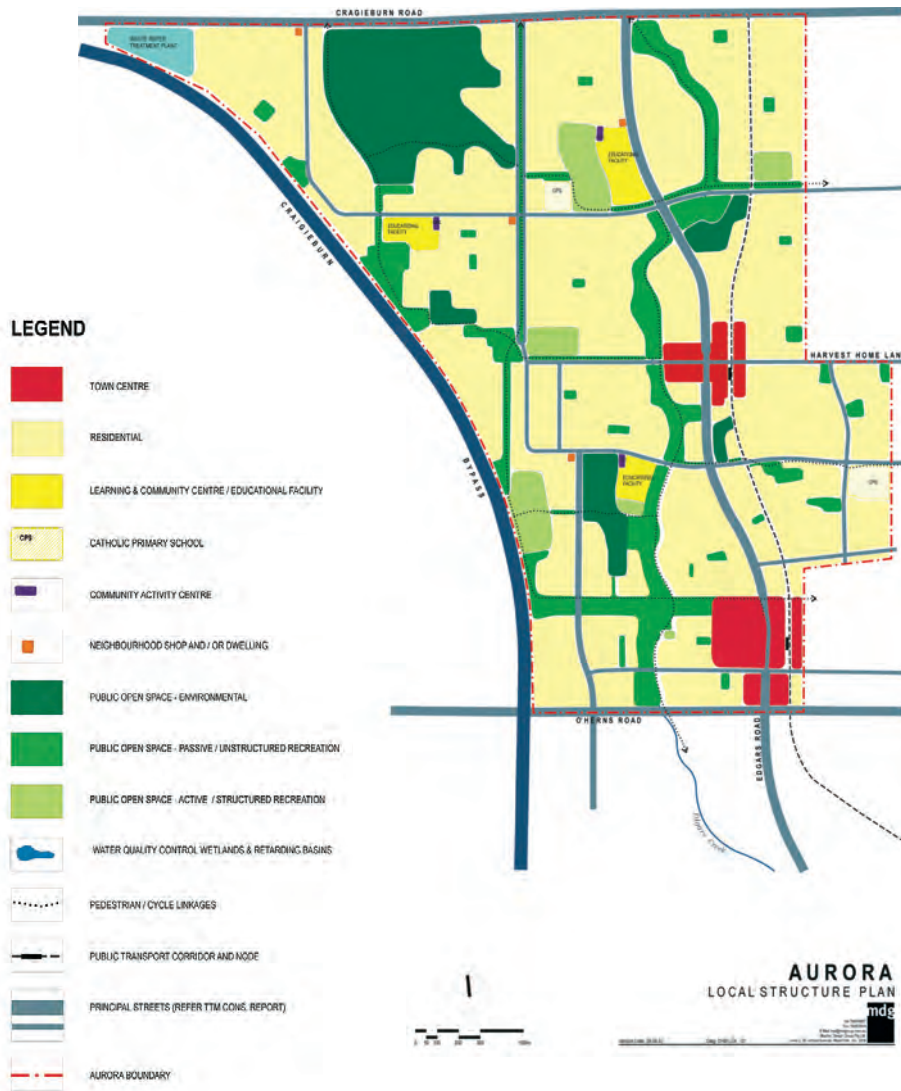
"Sustainable Urban Design is a process which draws together market, government and civil society values to create a system which reduces the ecological footprint of development (resource inputs and waste outputs) while improving livability (quality of life)" (Professor Peter Newman, Institute for Sustainability and Technology Policy, Murdoch University, 2001).

The fundamental principles of sustainable urban development are that it:

- is dense enough to promote mixed use and is walkable enough to support a good, reliable public transport system;
- provides a range of housing options;
- provides accessibility for all ages and abilities and promotes a healthy lifestyle through design which encourages walking and social interaction and allows for participation by all in the knowledge economy;
- provides locally based employment opportunities;
- is sensitive to the local environmental and cultural values from which it derives its sense of place;
- is solar oriented and uses both passive and active solar design principles;
- has high quality landscape treatments of the public realm including 'streets' not roads (Professor Peter Newman).

The general urban design response for Aurora, including Section A, to the above principles is as

follows. The detailed design of Aurora will provide more specific responses to these principles.

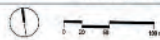


- The dwelling density in Aurora will be significantly higher than 'conventional' subdivisions in the outer areas of Melbourne. With research showing that the population density required to support high quality public transport is in the order of 50 people per hectare, the **dwelling** density in Aurora will be around 22 dwellings per hectare (excluding public open space) to facilitate opportunities for high quality and sustainable public transport.
- The urban form will support 'walkability' by providing higher density housing closer to transport and commercial amenities, as well as being extremely 'permeable' for pedestrian travel.
- The proposed lot size mix will range from approximately 220 to 500 square metres within Section A of Aurora, with encouragement for a range of housing options. It is intended to provide on Aurora (although not on the subject land) apartment style dwellings at a denser level than that noted above, as well as a small number of larger lots. This range of lots sizes and densities will reinforce the range of housing options throughout Aurora.
- High levels of accessibility will be provided throughout Aurora, with the permeability and density of the urban form promoting walking and cycling.
- Subject to detailed design and feasibility, it is intended to provide a fully connected and 'wired' Aurora, including its own community intranet.
- Employment opportunities will be available within the Cooper Street employment area to the south, as well as in the southern and central town centres proposed for Aurora.
- The environmental values of the subject land will be protected and reinforced. Existing elements such as vegetation and quality habitat areas (such as stony rises) will be



**AURORA DEVELOPMENT PLAN
PART 1**

DATE: 28 April 2003



midg

-  RESIDENTIAL
-  SCHOOL
-  PUBLIC OPEN SPACE

NOTE:
The lots and local streets shown are indicative of the development proposed and its density. The actual lot configuration, boundaries and local street alignments may be quite different based on continuing studies and refinement as a normal part of progressing to the later planning permit application stage.

retained and protected. Cultural heritage elements such as stone walls, historic buildings and homestead vegetation, will be integrated into the design as far as possible to reinforce the unique sense of place of the land.

- The north-south grid of streets will maximise the potential for solar access, while a commitment to minimum six-star energy ratings for housing will ensure active and passive solar technologies are fully adopted.
- The landscapes throughout the public realm of Aurora will be of high quality and incorporate a range of environmentally sensitive initiatives, including a high level of native species and WSUD techniques.

5.1.2 Subdivision Layout

(a) Street Orientation

The overall street orientation of Section A of Aurora is based on a loosely defined north-south grid across the subject land, with minor deviations to accommodate a range of natural and cultural features. This approach to the street orientation provides:

- strong interconnectedness to allow maximum choice of routes through the neighbourhood;
- highly integrated streets to distribute local traffic;
- neighbourhoods that are integrated with surrounding ones, creating the opportunity for strong neighbourhood social connections to occur;
- maximum solar access for the lots and dwellings;
- interesting highlights in the urban form where the street pattern deviates from the grid.

The grid proposed provides the framework for a broad range of lot sizes that will accommodate streetscapes with both front and rear vehicle access.

(b) **Secondary Arterial and Neighbourhood Connector Streets**

In the context of Aurora, Harvest Home Road is an important secondary arterial. It will connect Aurora and any development to the east to the proposed central town centre to the west of Section A. Harvest Home Road in its ultimate configuration will be a divided carriageway with one lane in each direction, as well as cycle and parking lanes on each side.

Two other east-west neighbourhood connector streets are proposed through the subject land.

The first is a central street that connects future development to the east of the subject land to the proposed catholic primary school on the subject land and the proposed government primary school to the west of Edgars Creek on later sections of Aurora.

The second is a street in the southern portion of the subject land that provides an important connection to the southern town centre of Aurora to the south west of the subject land. This street also links the commercial and community core of the proposed development to the east of the subject land to the southern town centre of Aurora. This creates easy access for residents and will help to reinforce the viability of the southern town centre.

An important through route extends from north to south through the subject land and parallel to Edgars Road to the west, which is the main north-south arterial through Aurora. This through route provides easy connectivity between the neighbourhoods at the north and south of the subject land.

(c) **Access Streets**

The finer grain of access streets throughout Section A of Aurora retains an overall north-south grid. Deviation from this grid occurs, as noted above, only to facilitate the retention of a number of natural features of the subject land, including:

- existing trees in the north;
- a stony rise in the north west;
- a number of dry stone walls in the south.

The access street network is generally comprised of 16 metres wide road reserves and is designed to:

- accommodate pedestrians, cyclists and vehicles;
- provide for on-street parking;
- control vehicle speed by street length, on-street parking intensity and variation in width and alignment.

All access streets within Section A of Aurora will provide footpaths on both sides of the street. WSUD measures, detailed below, are proposed within these streets.

(d) Access Lanes

In a number of locations it is desirable and proposed to provide housing forms with garages accessed from the rear of lots and consequently access lanes. The provision of access lanes creates the opportunity for higher order streets with streetscapes that are attractive and free of garage doors and driveway crossovers. This form of streetscape has the potential also for a higher level of passive surveillance due to the increased density and number of dwellings fronting each length of street.

While the density and urban design benefits of access lanes are clear, they will be carefully designed to ensure safety and security. The access lanes in Section A of Aurora are relatively short in length and provide no 'hiding places' that would compromise personal security. Careful attention to lighting will ensure clear views through the access lanes at night.

The creation of garage-top housing, in the form of small studio apartments, will be encouraged along the access lanes, particularly on corner lots where the dwelling can contribute to the surveillance of

the lane. These housing forms will also provide greater housing choice at Aurora.

(e) Lot Sizes

As noted earlier, dwelling density is a critical issue in relation to sustainability, particularly to achieve high quality public transport. While Aurora will provide high densities around the transport nodes and town centres, Section A is at the further reaches of the 'walkable catchment' of these facilities.

Consequently, Section A of Aurora will provide a significant percentage of lots at the larger end of the range. There will be some smaller lots adjacent to open space. The lots in these locations will range from approximately 220 to 350 square metres. This diversity of lot size is critical to providing choice and consequently an opportunity for a variety of dwelling and household types.

(f) Lot Orientation and Dimensions

The quality of solar access to lots is strongly determined by the lot shape and orientation. The orientation has already been noted as being generally north-south or east-west but the shape and proportion of the lots will also respond to solar access requirements.

The broad parameters that have been adopted in the creation of lots in Section A of Aurora are as shown opposite. The figures are indicative only and will be refined as part of the detailed design of each stage of subdivision.

LOT TYPE / ORIENTATION	INDICATIVE LOT WIDTH (metres)	INDICATIVE LOT DEPTH (metres)
East-west street - front access (garage at main street frontage)	10 - 14	25 + on north side 28 + on south side
East-west street - rear access (garage at rear on access lane)	6.5 - 10.5 (minimum of 10 on corners)	30 + on north side 32 + on south side
North-south street - front access (garage at main street frontage)	10.5 - 14 (minimum 10.5 with single garage)	25 - 30
North-south street - rear access (garage at rear on access lane)	Minimum 8.5 (minimum of 12 on corners)	30 - 34

5.1.3 Landscape Character

(a) Objectives

As with the urban character, the landscape character of Aurora will be quite different from other

developments in Whittlesea.

Local landscape character elements and materials have guided the principles of the landscape design in order to help develop a local sense of place. The local character of Aurora is greatly influenced by its natural and cultural landscape character elements. The overall landscape objective is to reinforce these elements by:

- protecting and integrating the existing remnant indigenous trees on Section A of Aurora;
- retaining a number of the stony rises as notable features within the subtlety of the local landform;
- retaining, where practicable, the existing built form elements of Creed's Farm including its remnant outbuildings and dry stone walls;
- retaining sections of the existing dry stone walls;
- building on the local plant material;
- retaining, where practicable, the existing stands of exotic windrow trees including Pine, and Peppercorns.

(b) Overall Landscape Response

The objectives above will be achieved by integrating the character elements in the landscape design as follows.

- The basalt plains vegetation will be used strongly in the public open spaces of Section A of Aurora. Indigenous plants such as River Red-gums, She-Oaks, shrubs, grasses and herbaceous species will form a major component of these spaces, not only reinforcing the visual character but providing useful habitat potential, particularly for avifauna. This suite of indigenous species will be augmented by other native species where particular functional considerations need to be met, as well as by the limited use of exotic species where particular needs, such as the provision of summer shade and winter sun, might emerge.

- A number of stony rises are incorporated into passive public open spaces in prominent areas of the subject land. These will provide clear visual links to the original character of the subject land, as well as protecting habitat for ground dwelling fauna, particularly reptiles. These stony rises will be revegetated and maintained for passive recreation uses, discouraging degradation through over use.
- Creed's Farm will be adapted for re use as part of the catholic primary school site, protecting the character of the existing plantings and reinforcing their landscape importance to the subject land.
- In some portions of the subject land, existing dry stone walls will be reconstructed (using as far as practicable concealed mortar jointing) to make them secure from further decline and vandalism. The walls will be incorporated into the development in a variety of ways, including the following.
 - Aligning a number of streets with the walls to allow their incorporation into a 'front fence' for the dwellings behind them, resulting in the need for only infrequent 'breaks' in the walls to allow pedestrian access to properties.
 - Incorporating sections of the walls into public open spaces in ways that become integral elements of the spaces.
- In a number of locations, deviations of street patterns will be the obvious result of the retention of existing individual tree specimens. Substantial street alignment deviations, or 'street wall' realignments, will be reinforced with indigenous revegetation around the base of the trees to ensure a good growing environment is retained for these old trees.
- In the vicinity of the Creed's Farm, some of the existing exotic windrows will be retained in public open spaces and street alignments. The windrows form a strong link to the earlier rural settlement of the district and contribute to the unique sense of place that will be created on the subject land.

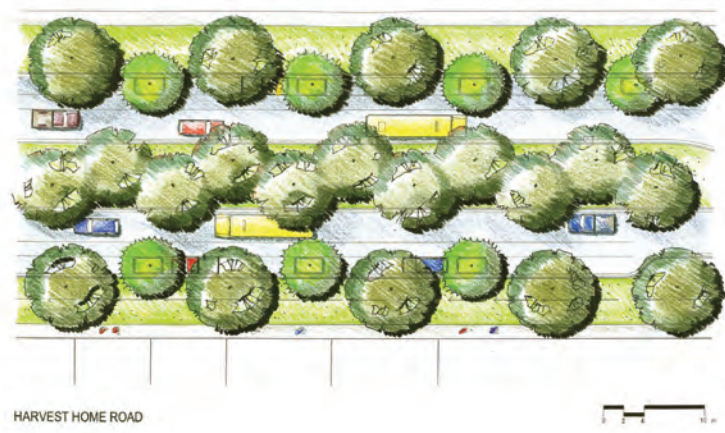
In addition to the specific items noted above, a number of other elements will contribute to a different

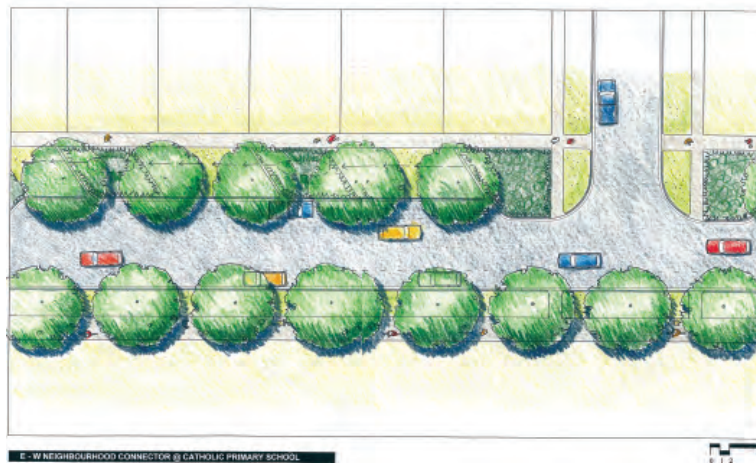
landscape character within Aurora. The commitment of VicUrban to sustainability generates new opportunities for the development of the public open space system and the public realm including the following.

- The requirement to provide shade, wind protection and areas of high landscape amenity will require public open spaces that fulfil these needs.
- Passive solar heating / cooling requires access for sunlight into rooms in winter and shade in summer. This requires the appropriate built form as well as the use of deciduous shade plants and trees, particularly on east-west streets.
- Some locally indigenous tree species such as River Red-gums are not appropriate for use as street trees due to their scale, form and tendency to drop limbs. Other species have not had a proven track record in streetscapes or have not been grown commercially in the numbers required for a development the size of Aurora. It may be necessary therefore to use non indigenous native trees and exotic trees in appropriate settings.

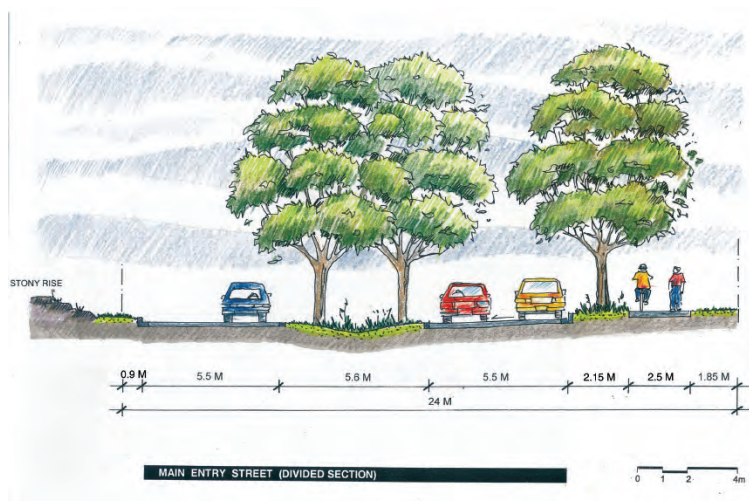
(c) **Harvest Home Road**

In its ultimate configuration, Harvest Home Road is intended to be a divided, secondary arterial street with verges 6.5 metres wide, containing footpaths 1.5 metres wide on the north side and 2.5 metres wide on the south side. This verge width will accommodate WSUD elements and substantial street trees such as Yellow Box or Spotted Gums. Within the verge, there will be opportunities at the base of the street trees for additional ground level plantings of colourful foliage or flowering plants to create additional interest. The median is 7 metres wide and contains two rows of large evergreen trees, such as Yellow Box or Spotted Gums.





E - W NEIGHBOURHOOD CONNECTOR @ CATHOLIC PRIMARY SCHOOL



MAIN ENTRY STREET (DIVIDED SECTION)

(d) Neighbourhood Connector Streets

The neighbourhood connector streets through Section A of Aurora will be broad, softly landscaped streets.

The northern, east-west neighbourhood connector street will provide wide verges on both sides of the carriageway. On the north side, this will accommodate the WSUD swale treatment as well as a pedestrian footpath. On the south side, adjacent to the proposed catholic primary school, will be a 2.5 metres wide shared walking and cycling path, separated from the kerbside drop off area by a 2.9 metres wide verge. Both sides of the street will be lined with medium sized evergreen trees, creating a sense of containment and continuity along the street.

West of the catholic primary school, the shared path will continue west into other Sections of Aurora, with the road reserve width allowing the shared path to be offset from the property line wherever required to ensure safety for cyclists.

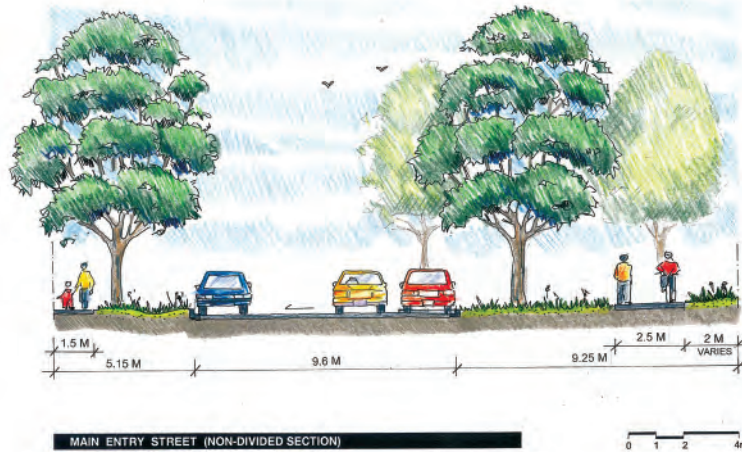
The southern, east-west neighbourhood connector will be treated in a manner similar to the northern one.

The north-south neighbourhood connector street is proposed to have a number of 'characters' along its length.

In the north, the street will incorporate a wide median that will contain WSUD elements, including a central swale. The road pavement will drain toward this central swale and provide a strong green character to the street. The verges will include medium to large evergreen trees that will create a sense of enclosure and reinforce the gentle curve of this section of street.

For the remainder of the length of the north-south neighbourhood connector street, there will be no median and the pavement will comprise two travel lanes and indented (but continuous) parking lanes. A wide verge is proposed on the east side of the street in the section between the end of the median and the catholic primary school. This verge will accommodate a 2.5 metres wide shared

walking and cycling path, as well as vegetated and grassed areas in bands across the verge. Reinforcing the informal character of this street will be small copses of evergreen native trees located in a number of planting beds in the verge at T-intersections.



(e) Access Streets

The majority of streets within Aurora, including Section A, will be access streets. The intent within these streetscapes is to create some diversity across Aurora to ensure that residents have a sense of neighbourhood identity and character. The number of streetscape treatments will increase as Aurora is developed.

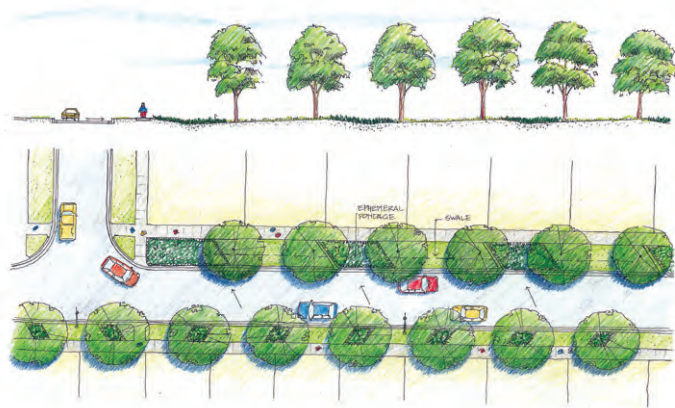
The incorporation of WSUD principles into the street will offer a range of opportunities to create a variety of streetscape characters. Access streets will be landscaped reasonably intensely. An offset road pavement will allow for a slightly wider verge width on one side to accommodate WSUD treatments, including bands of ephemeral wetland species at minor low points in the street. These tussock species will thrive in the swale areas and create a strongly vegetated character.

The choice of street trees in access and other streets is important to create the opportunity for energy savings in the dwellings on these streets. It is proposed to use evergreens of lighter canopies or deciduous trees on east-west streets to protect the winter solar access to dwellings on the south side of the street. Winter solar access is more even on north-south streets and consequently the choice of species will not be as critical, though shading to east or west facing windows in the morning and afternoon, respectively, is beneficial to the reduction of heat load.

(f) Access Lanes

Access lanes generally will be 6.4 metres wide, although in one location a 7 metres wide lane is planned to accommodate a different landscape approach.

The access lanes will be predominantly paved but in particular locations, designed to fit in with

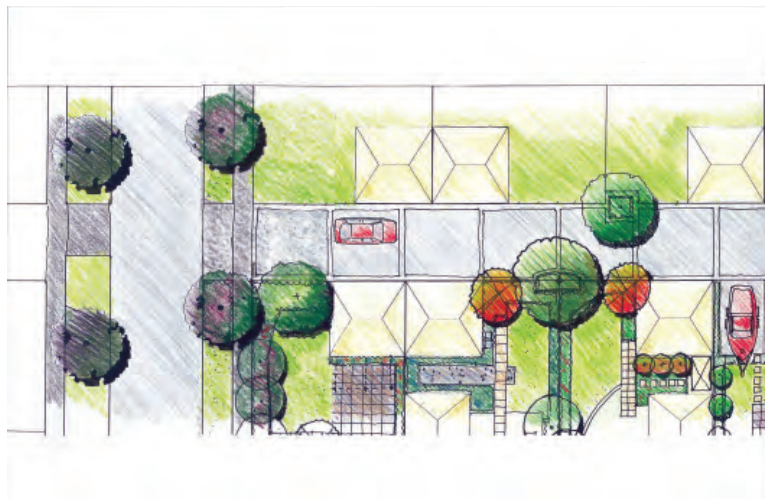


TYPICAL REAR ACCESS STREET
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garage openings and gateways, planting areas will be created to allow the introduction of small and medium sized trees to provide shade and visual softening. Species to be chosen will be particularly hardy and only robust ground covers or tufting plants will be used around the base of the trees. Visual openness will be maintained to ensure there are no 'hiding places' within the lane.

(g) Street Trees

The selection of particular street trees for each stage of subdivision will be further refined and reviewed with Whittlesea. It is intended to select trees from a range of hardy species that are known to do well in the conditions of Epping North. An indicative list of species is as follows.



STREET TYPE / INDICATIVE PLANT SPECIES	EVERGREEN (E) / DECIDUOUS (D)	HEIGHT (metres)
Harvest Home Road		
<i>Central median and side verges</i>		
Spotted Gum (<i>Corymbia maculata</i>)	E	15 +
Yellow Box (<i>Eucalyptus melliodora</i>)	E	12 - 15
Main entry street (north-south 24 - 25 metres wide road reserve)		
<i>Central median</i>		
Smooth-barked Apple (<i>Angophora costata</i>)	E	15 +
Spotted Gum (<i>Corymbia maculata</i>)	E	15 +
<i>Side verges</i>		
Rose She-Oak (<i>Allocasuarina torulosa</i>)	E	10 - 15
Warrigal White-gum (<i>Eucalyptus scoparia</i>)	E	10 - 15
White Peppermint (<i>Eucalyptus pulchella</i>)	E	10 - 15
<i>Copses in wide verge</i>		
Weeping Myall (<i>Acacia pendula</i>)	E	5 - 10
Bottlebrush (<i>Callistemon salignus</i>)	E	4 - 6
Narrow-leaved Sally (<i>Eucalyptus moorei</i>)	E	3 - 6
Access street (with main walking / cycling link)		
<i>Side verges</i>		
Warrigal White-gum (<i>Eucalyptus scoparia</i>)	E	10 - 15
Dwarf Yellow-gum (<i>Eucalyptus leucoxylon dwarf</i>)	E	6 - 10
Large-fruited Yellow-gum (<i>Eucalyptus leucocylon ssp. Megalocarpa</i>)	E	6 - 10
<i>Copses in wide verge</i>		
Long Flowered Marlock (<i>Eucalyptus macrandra</i>)	E	4 - 6
Yellow-top Mallee Ash (<i>Eucalyptus lehmanniana</i>)	E	5 - 6
Access street (east-west streets with minimal set back to dwellings)		
Rose She-Oak (<i>Allocasuarina torulosa</i>)	E	10 - 15
'Little Spotty' (<i>Eucalyptus mannifera - dwarf form</i>)	E	5 - 7
Pink Gum (<i>Eucalyptus fasciculosa</i>)	E	6 - 10
Dwarf Yellow-gum (<i>Eucalyptus leucoxylon dwarf</i>)	E	6 - 10
White Cedar (<i>Melia azadirach</i>)	D	6 - 10
Callery Pear (<i>Pyrus calleryana 'Arisocrat'</i>)	D	11
Pear (<i>Pyrus calleryana 'Glen's Form Chanticleer'</i>)	D	11
Japanese Zelkova (<i>Zelkova serrata 'Green Vase'</i>)	D	12 - 14

STREET TYPE / INDICATIVE PLANT SPECIES	EVERGREEN (E) / DECIDUOUS (D)	HEIGHT (metres)
Access street (north-south streets with minimal set back to dwellings)		
Lightwood (<i>Acacia implexa</i>)	E	6 - 10
Blackwood (<i>Acacia melanoxylon</i>)	E	6 - 10
Coastal Banksia (<i>Banksia integrifolia</i>)	E	10 - 15
Dawson River Bottlebrush (<i>Callistemon viminalis 'Dawson River'</i>)	E	6 - 10
Red Flowering-gum (<i>Corymbia ficifolia</i>)	E	6 - 10
Yellow Bloodwood (<i>Corymbia eximia</i>)	E	6 - 10
Silver Gum (<i>Eucalyptus crenulata</i>)	E	6 - 10
Large-fruited Yellow-gum (<i>Eucalyptus leucocylon ssp. Megalocarpa</i>)	E	6 - 10
Coral Gum (<i>Eucalyptus torquata</i>)	E	6 - 10
Kanooka (<i>Tristanopsis laurina</i>)	E	6 - 10
Access lanes		
<i>Small to medium sized deciduous trees</i>		
Bechtel Crab Apple (<i>Malus ioensis 'Plena'</i>)	D	4 - 6
Crepe Myrtle (<i>Lagerstroemia indica 'Natchez'</i>)	D	6 - 8
Crepe Myrtle (<i>Lagerstroemia indica x L.fauriei 'Zuni'</i>)	D	4
Pear (<i>Pyrus calleryana 'Capital'</i>)	D	8 - 11
Pear (<i>Pyrus betulaeifolia 'Southworth Dancer'</i>)	D	5 - 7
<i>Small evergreen trees</i>		
Bottlebrush (<i>Callistemon salignus</i>)	E	4 - 6
Bottlebrush (<i>Callistemon 'Eureka'</i>)	E	4 - 6
Lemon (<i>Citrus limon 'Eureka'</i>)	E	7
Pin Cushion Hakea (<i>Hakea laurina</i>)	E	4 - 6
Olive (<i>Olea europaea</i> (seedless))	E	5 - 7



5.2 HOUSING

5.2.1 Objectives

The objectives of housing at Aurora are to:

- provide a greater level of housing diversity in order to provide a wider range of dwelling types, styles and forms appropriate to the needs of the community and to maximise opportunities for entry into home ownership;
- provide a dwelling density to support more sustainable public transport and mixed use, walkable neighbourhoods;
- ensure that affordable rental housing is integrated into Aurora and is well located close to transport and other services;
- encourage architecture that reflects the overall sustainability objectives of Aurora while being flexible enough to evolve over time to incorporate future advances in technology;
- promote the delivery of well designed, energy efficient housing that has low maintenance requirements and is cost efficient through its lifecycle;
- ensure that dwellings are flexible enough to adapt to the changing lifestyle preferences of the community;
- explore a range of tenure options with the Office of Housing and community housing providers;
- ensure that dwelling siting and design is compatible with Aurora design controls and guidelines.

5.2.2 Built Form

The proposed more traditional 'inner urban' level of density means that the urban character of Aurora will be quite different from other developments in Whittlesea and on the fringe generally.

Another obvious difference in the urban character of Aurora will emerge from the philosophy that the overall 'look' must reinforce the commitment of VicUrban to sustainability. This will result in all built form expressing a contemporary aesthetic, eschewing reproduction or period design to reinforce the difference of Aurora from other, less sustainable development periods. Aspects of sustainable building design, such as solar boosted hot water panels, photovoltaic cells, rainwater tanks and the like, will not be 'hidden' from view but will become part of the architecture and overall aesthetic. This will be reinforced by the overt incorporation of other sustainability elements such as WSUD treatments in streets and photovoltaic cells on street lights.

An important component of the urban character will be the creation of sense of place and individual identity throughout Aurora. Aurora will not be built out by a single builder so the built form will be diverse and will ensure that neighbourhood identity can develop as the suburb matures and evolves. Within this variety, it is the intention of VicUrban to ensure high quality in the built form. A number of processes (refer section 7 below) will be put in place to ensure a quality outcome.

5.2.3 Housing Tenure and Affordability

VicUrban is not a direct provider of housing although it is well placed to facilitate awareness amongst builders and other investors of the market opportunities that will exist at Aurora for the supply of rental stock and affordable housing.

The draft Aurora Community Development Plan includes VicUrban facilitation of affordable rental and home ownership options through public / social housing initiatives and the facilitation of housing provision for key groups identified in the Whittlesea Housing Strategy, including singles, elderly and low wage earners. VicUrban actions include the following.

- Working with Whittlesea to establish demographic and market monitoring systems to identify the nature and extent of the demand for rental and affordable housing.
- Promotion of the findings of the market monitoring to facilitate private sector investment in rental stock.
- Promotion of opportunities for non-government social housing co-operatives to

become involved in joint venture projects with builders to augment the private sector housing market.

- Subdivision design that ensures all lots are easily accessible to community, commercial and public transport facilities and services.
- Provision of a variety of lot sizes to create the opportunity for a variety of dwelling products (size and price) to be constructed thus facilitating progressive entry into home ownership.
- Working with builders to provide energy efficient dwellings that are appropriate to the needs of residents and minimise costs over the lifecycle of the dwelling.

5.3 ENVIRONMENTAL CONSERVATION

5.3.1 Objectives

The objectives of environmental conservation at Aurora are to:

- comply with relevant State and Federal Government biodiversity legislation and policy;
- avoid or minimise adverse impacts on flora and fauna;
- incorporate biodiversity objectives into project planning and development outcomes.

5.3.2 Compliance with Biodiversity Legislation and Policy

(a) Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) applies to issues of significant impact on matters of national environmental significance on all land tenures, as well as applications that involve Commonwealth land or Commonwealth funding. Under the EPBC Act, actions (unless exempt) require approval from the Commonwealth Environment

Minister if they impact significantly on a 'matter of national environmental significance', including species and ecological communities listed under the EPBC Act.

No listed species or communities have been recorded on Section A of Aurora. The subject land is not considered likely to comprise important or limiting habitat for any listed species. In such situations the EPBC Act is not triggered.

(b) Flora and Fauna Guarantee Act 1988

Under the Victorian *Flora and Fauna Guarantee Act* 1988, a permit is required from the Department of Sustainability and Environment (DSE) in some circumstances to 'take' listed flora species; species that are members of listed communities or protected flora.

Stony Knoll Shrubland (Grassland) may be considered a listed community under the broad definition of Plains Grassland. Many of the species recorded on Section A are protected flora however no listed flora species (other than members of the specified community) were found. No listed fauna species were recorded on Section A. Most of the listed fauna species recorded from Aurora are not expected to use the subject land at all. Other species may occasionally visit the subject land in small numbers. A permit will be sought from DSE if required in accordance with the legislation.

(c) Native Vegetation Management Framework in Victoria

New biodiversity policy has recently been adopted by the Victorian Government. *Victoria's Native Vegetation Management Framework* (the Framework) provides a strategic framework for the protection, enhancement and revegetation of native vegetation across Victoria. In association with Draft Native Vegetation Plans, which have been prepared for each Catchment Management Authority and the Port Phillip Catchment and Land Protection Board, the Framework provides decision making tools for native vegetation management.

The policy and the draft regional Native Vegetation Plans have adopted the principle that there

should be a net gain in the extent / quality of native vegetation throughout Victoria. Under the new policy, any proposal to clear native vegetation must first demonstrate how vegetation clearance has been avoided and / or minimised and only then (where the clearing cannot be avoided or further minimised) will be expected to identify offset sites where gains in vegetation quality / extent can be achieved to more than balance the loss through clearing. Under the Framework, clearing of areas of high or very high conservation significance is strongly discouraged and would require an 'offset' area of at least twice the area to be cleared. Guidelines for assessing vegetation quality and net gain are presently under development by the DSE.

The ADP: Part 1 involves the loss of some identified areas of relatively low quality native vegetation but even so, does not identify offsets in compensation. Areas to be retained include the stony rise in the north east corner of the subject land and the remnant trees. Subject to further investigations, the stony rise may be a suitable offset site. In addition, the subject land forms part of the full Aurora and the net gain assessment will be completed for the whole of Aurora.

Section A does not contain the highest conservation value. Other parts of Aurora have been identified as the highest priority for retention and enhancement. While the vegetation loss for the subject land will be calculated in terms of vegetation quality and extent according to the 'habitat hectare' computation methods prepared by the DSE, Aurora as a whole will be assessed against the Framework principles and appropriate offsets will be identified.

Offsets to provide net increases in quality and quantity of native vegetation to compensate for unavoidable losses may be achieved through vegetation enhancement by weed control, grazing control, enrichment planting and similar conservation management activities and revegetation (less ecologically desirable). Proposals are being developed for Aurora as a whole.

Areas of native vegetation on the subject land are too small and too severely altered to be practicable to enhance and manage and are unlikely to be viable in the long term in the context of a change from rural to urban land uses. Where possible these areas have been retained in public open spaces and otherwise will be used as a seed source for indigenous planting.

(d) Epping North Strategic Plan

The ENLSP lists the following principles of the ENSP that are relevant to the ecological attributes of Aurora.

- *"Development of residential neighbourhoods to take into account the unique characteristics of Epping North, specifically:*
 - *Redgum grassy woodlands*
 - *Stony knolls*
 - *...*
 - *Stone walls*
 - *...*
- *Watercourses and Strategic Habitat Links will . . . establish a structure for the open space network.*
- *Areas of greater than local significance are to be reserved for conservation purposes during the rezoning process"* (ENLSP, page 4).

The proposals for native vegetation retention and enhancement within Aurora, including Section A, are consistent with the principles outlined above as follows.

- The highest quality examples of Plains Grassy Woodland and stony rises are protected within conservation reserves.
- Edgars Creek will be enhanced as a wildlife corridor and fauna habitat area. Links have been planned within and beyond Aurora where feasible, given encroaching urban / industrial land uses and the construction of the Craigieburn Bypass.
- The majority of areas of regional and high regional significance have been incorporated into public open space - environmental. Some areas of local and high local significance are also contained within public open space.

5.3.3 Minimising Impacts on Flora and Fauna

Aurora has been designed to protect the sites of greatest ecological value. The change from low intensity farming uses to high density urban uses will result however in a number of potential impacts on biodiversity during and after the construction phases. Many of the potential impacts can be mitigated. The mitigation measures to be adopted on Section A of Aurora are as follows.

- Native vegetation and habitat including degraded, small or isolated stony rises, isolated trees, tributaries of Edgars Creek and many of the rock walls will be retained and enhanced wherever possible within the public open space network to provide additional fauna habitat.
- Any trees (live or dead) removed during the construction phase will be retained as habitat features in created wetlands or provided as additional ground level habitat in retained River Red-gum stands. Fallen limbs and timber will be left undisturbed where in open spaces to be retained.
- To minimise impacts upon birds dependent upon hollows for breeding activity, any removal of hollow bearing trees (living or dead) will avoid the spring and early summer period.
- Where stone walls are to be removed, rocks may be returned to the retained, lower quality stony rises, thus offsetting the loss of shelter sites for ground dwelling fauna that the walls currently offer.
- Site indigenous plantings using material propagated from the subject land will be used in public open spaces and streets wherever possible to provide alternative / additional habitat. Streets and any other public open spaces will be replanted to provide 'stepping stone' plantings of indigenous trees and shrubs. The links proposed between public open spaces will be revegetated using site indigenous plantings.
- Collect propagating material from the subject land to use in revegetation / landscape plantings.
- Appropriate techniques to protect remnant native trees and retained native vegetation will be investigated and implemented. 'Protection zones' around individual trees or groups of trees will be used in accordance with the Whittlesea Red Gum Protection

Policy and accidental damage from mechanical damage, sedimentation, trampling and vehicle trafficking will be minimised to retained vegetation and individual trees during construction.

- Measures such as an 'environmental deposit / bond' system will be investigated to encourage contractors to avoid environmental damage.
- Subject to the necessary permits and protocols, salvage and relocation of threatened fauna will be completed as necessary.
- A qualified arborist will be used to assess the condition of retained trees and make recommendations for any remediation work that may be necessary for the long term health of the trees.

5.3.4 Incorporating Biodiversity Objectives

As noted earlier, the separate report, *Aurora Epping North Guiding Principles and Objectives*, Urban and Regional Land Corporation, August 2002, includes the following guiding principles and objectives relevant to biodiversity. The relatively low conservation value of Section A of Aurora limits the relevance of most of the objectives.

- Create an environmentally, socially and economically sustainable community by:
 - maximising the capacity for all elements of Aurora, its development, processes and maintenance, to be sustainable now and in the future;
 - recognising the need to sustain natural systems and biodiversity.
- Give value to Nature's inherent worth by protecting, repairing and enhancing existing environmental and ecological assets and values and by encouraging community ownership and accountability by:
 - using environmentally responsible physical planning, implementation and maintenance techniques;
 - maintaining and enhancing biodiversity;

- o identifying areas of ecological significance and developing ways to incorporate these into the development;
- o maintaining and enhancing indigenous flora and fauna species and communities and the habitats which support these species and communities by linking habitats within Aurora and making habitat connections beyond Aurora;
- o developing innovative and verifiable ways to manage natural heritage, with explicit monitoring of outcomes.

The ADP: Part 1 responds to the above principles and objectives as follows.

- A survey of Section A has been completed to investigate its values for biodiversity conservation and ensure that these are considered during project planning.
- Offsets will be identified in Aurora to compensate for any unavoidable loss of native vegetation on the subject land.
- Some stone walls on the subject land will be retained as fauna habitat.
- Habitat links have been identified at Aurora, including Edgars Creek and the powerline easement.
- Remnant indigenous trees will be retained on the subject land as far as possible.
- Mitigation measures for biodiversity conservation as listed in section 5.3.3 above will be adopted.

5.4 CULTURAL HERITAGE CONSERVATION

5.4.1 Objectives

The objectives of cultural heritage conservation at Aurora are to:

- comply with relevant State and Federal Government cultural heritage legislation and policy;

- avoid and minimise adverse impacts on Aboriginal and post contact places of cultural heritage significance;
- incorporate cultural heritage objectives into project planning and development outcomes.

5.4.2 Compliance with Cultural Heritage Legislation and Policy

(a) Aboriginal and Torres Strait Islander Heritage Protection Act 1984

The Commonwealth *Aboriginal and Torres Strait Islander Heritage Protection Act* 1984 (the ATSIHP Act) provides protection for Aboriginal cultural property in Victoria. The Commonwealth has delegated specific powers and responsibilities to the Victorian Minister responsible for Aboriginal affairs.

The schedule to the ATSIHP Act lists the local Victorian Aboriginal communities and defines in the Regulations the area of each community. As noted earlier, the relevant Aboriginal community for the area encompassing Section A of Aurora is the Wurundjeri Tribe Land Compensation and Cultural Heritage Council Incorporated.

(b) Archaeological and Aboriginal Relics Preservation Act 1972

The Victorian *Archaeological and Aboriginal Relics Preservation Act* 1972 (the AARP Act) provides protection for all material relating to the past Aboriginal occupation of Australia (excluding human remains interred after 1834). This includes individual artefacts, scatters of stone artefacts, rock art sites, ancient camp sites, human burials, scarred trees, ruins and archaeological deposits associated with Aboriginal missions or reserves. The AARP Act also establishes administrative procedures for archaeological investigations and the mandatory reporting of the discovery of Aboriginal sites. Aboriginal Affairs Victoria (AAV) administers the AARP Act.

VicUrban will enter into a protocol with the Wurundjeri to determine the appropriate measures for conservation, consents to disturb and mitigation work regarding Aboriginal archaeological sites at Aurora. This protocol will form an agreement for the issuing of consents to disturb sites that cannot be retained and for conservation and management of sites that will be retained.

There are three Aboriginal archaeological sites in Section A of Aurora. Two of these - Cauduro 1 IA and 3 SAS - will be disturbed as a result of the development of the subject land, as they fall within a potential residential lot and the catholic primary school site, respectively. A consent to disturb these sites will be sought from the Wurundjeri before any action is taken on these sites. The extreme edge of one site - Cauduro 2 SAS - will be partly disturbed due to the construction of an access street and a potential residential lot. A consent to disturb this site will also be sought from the Wurundjeri.

(c) Heritage Act 1995

Creed's Farm is listed on the Victorian Heritage Inventory. Under the *Heritage Act 1995*, a consent is required for any works which may impact on an historical archaeological site. The appropriate permits and consents will be obtained for works in relation to Creed's Farm.

(d) Epping North Local Structure Plan

The ENLSP identifies a number of heritage places in the ENLSP area, including dry stone walls and farm buildings. It does not name Creed's Farm.

The ENLSP requires archaeological and heritage assessments to be completed as part of the preparation of a DP. This requirement has been and will continue to be met by VicUrban at Aurora.

5.4.3 Minimising Impacts on Places of Cultural Heritage Significance

(a) Aboriginal Sites

The Aboriginal archaeological investigation demonstrates that the most significant sites are located on the stony rises near water courses. Very few artefacts were located outside these areas. The management objectives for Aboriginal sites will be to conserve and retain as much as possible of the evidence of Aboriginal occupation of Aurora and to conserve sites which demonstrate this presence. These sites will be retained therefore in public open space with primarily environmental conservation or passive recreation use.

Where erosion may be an issue, the Aboriginal sites will be revegetated with indigenous species. If artefacts are exposed, top-soiling will occur. This will be best achieved by using relocated turf from areas of native grasslands that may otherwise be destroyed. Construction of paths through the Aboriginal sites will be either avoided or they will only be constructed by building up the path on top of the natural surface - as opposed to excavating into the surface. Introduced materials such as scoria, crushed bluestone or granitic sand will be used to raise the paths above the natural surface.

(b) Creed's Farm

Creed's Farm is the most significant of the historical sites at Aurora and is one of the most intact. As it has the potential to provide a direct and tangible link to the past history of Aurora, it is essential that Creed's Farm is conserved and managed to a high level. A number of conservation works are required.

A heritage assessment of Creed's Farm is being prepared for VicUrban. The following tasks form part of that work.

- Assessment of the condition of the buildings and structures.
- Determination of the nature and extent of risks to the significant values of Creed's Farm.
- Development of conservation objectives / policies for Creed's Farm and each of its component parts.
- Preparation of priorities and a costed program of actions, including itemised repair and restoration works for future conservation.
- Provision of recommendations for other actions or specifications necessary for future conservation.

Further archaeological investigation is required to determine the extent of any archaeological deposits, for example, refuse heaps, cisterns, cesspits and footings of former buildings. Monitoring and recording of any clean up work also will be carried out by a qualified archaeologist with the contractors for this work taking instruction from the archaeologists and being prepared to halt work in a particular area if significant archaeological remains are uncovered. Following further survey and monitoring, a strategy for the management of archaeological resources will be developed in conjunction with the conservation policies for Creed's Farm.

5.4.4 Incorporating Cultural Heritage Objectives

(a) Aboriginal Sites

Creation of conservation reserves or other low impact open space reserves is the preferred means to conserve Aboriginal sites.

Interpretation of the cultural history of the area will be carried out, although this will be carefully managed so as not to identify the locations of Aboriginal artefacts, in order to prevent possible removal or disturbance. Appropriate interpretation would identify the general area as a place of cultural importance and describe the way that Aboriginal people used and protected the land.

Both site restoration and interpretation programs will be completed in close consultation with Aboriginal communities.

As noted earlier, a consent to disturb sites Cauduro 1 IA and 3 SAS will be sought from the Wurundjeri before any action is taken on these sites. A representative of the Wurundjeri Tribe Land Compensation and Cultural Heritage Council Incorporated and a qualified archaeologist will be present during the disturbance of these sites. Any cultural material will be recorded, salvaged and returned to the Wurundjeri for deposit in a location chosen by their elders. A permanent record of the sites will be prepared in the form of an illustrated report.

A consent to disturb site Cauduro 2 SAS will be sought also from the Wurundjeri. The part of this site that is not disturbed will be protected and conserved within public open space - environmental. This land surrounding the site will be stabilised and revegetated using local indigenous species in consultation with the Aboriginal community. Interpretation of the site will be completed in accordance with the Wurundjeri Cultural Heritage Agreement.

(b) Creed's Farm

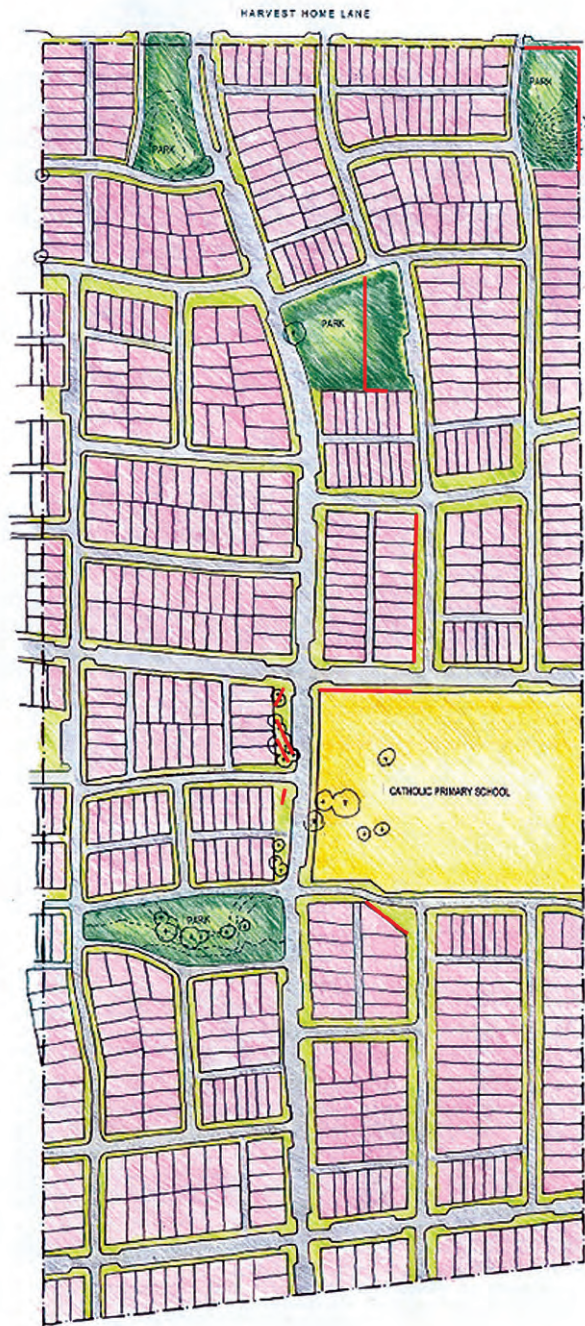
The main buildings of Creed's Farm will be restored for use by the catholic primary school. This work will be completed under the supervision of an archaeologist and heritage architect and in accordance with the conservation policies that will be prepared.

(c) Farming Features

A number of dry stone walls have been identified at Aurora, including in Section A. The approach to the integration of these walls in the development of Aurora can be summarised as follows.

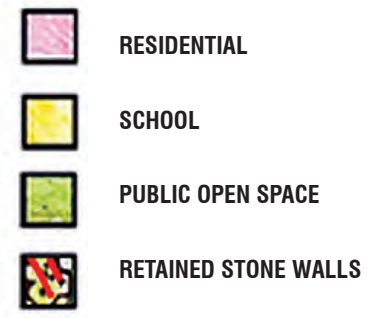
- The retention and reconstruction of dry stone walls in their current location. These walls will be fully grouted on concrete footings and will be finished with deep, raked





joints to maintain their visual quality. The map opposite shows the location of these dry stone walls.

- Dry some walls that cannot be retained in their current location will be salvaged. The rocks from these walls may be returned to the lower quality stony rises or used in the construction of new retaining walls.
- Where dry stone walls occur in large environmental public open spaces, the walls will be retained in their current construction style. Access to these spaces will be controlled and will not therefore endanger the longevity of the walls.



NOTE:
 The lots and local streets shown are indicative of the development proposed and its density. The actual lot configuration, boundaries and local street alignments may be quite different based on continuing studies and refinement as a normal part of progressing to the later planning permit application stage.

(d) Evidence of Quarrying

Small quarry holes are a feature of most of the stony rises in Section A of Aurora. They are most common on the larger stony rises closest to the sites of former bluestone buildings, for example, 100 metres east of Creed's Farm. As the sources of building stone for the homesteads and barns of the earliest farms in the 1850s and 1860s, they assist in interpreting the land use history of the subject land and the character of the buildings and the people who lived in them. Quarry holes in areas retained as undeveloped public open space will be left undisturbed, apart from the removal of any accumulated rubbish. This material will be removed under monitoring and supervision by a suitable qualified historical archaeologist.

5.5 OPEN SPACE AND RECREATION

5.5.1 Objectives

The Open Space Policy (clause 22.01) of the Scheme states the following.

"It is local policy that the following matters will be considered when planning open space:

- *The protection and enhancement of natural and cultural features, including areas of flora and fauna significance, waterways and floodplains.*
- *Providing where applicable both local and regional linear open space linkages, walking and cycling trails.*
- *The aim of a balance between local, district and regional open space, consistent with the open space hierarchy outlined in the Open Space Strategy.*
- *Providing a balance between informal recreation and active sporting areas.*
- *Providing open space that is accessible to the community.*
- *The opportunity to link open space with community facilities and public services, for instance via trail networks and open space linkages.*

- *Opportunities for shared public and school use of sports grounds and open space.*
- *The adoption of a promotion role to increase the range of outdoor recreation opportunities to the community.*
- *The encouragement of a diverse range of recreation opportunities for different age groups.*
- *Provision for the safe use of open space through appropriate facility and urban design features which ensure a degree of security in the use of open space, and make open space attractive for use.*
- *Development of a planning and management approach that incorporates the conservation of historic places in areas of open space.*
- *The provision of open space along waterways with development fronting not backing onto open space.*
- *The need to ensure design of open space is responsive to the characteristics and conditions of the site.*
- *Strategies for management and enhancement of conservation open space areas.*
- *The need to ensure that all areas reserved for open space is on unencumbered land".*

The objective of the provision of open space and recreation at Aurora is to create a public open space system that:

- provides a diversity of recreation opportunities within the context of Epping North;
- protects areas of high environmental value;
- provides a wide range of public open spaces, ranging from small local to neighbourhood and district.

The public open space strategy for Aurora responds directly to the above Open Space Policy. An open space system is proposed that protects and enhances natural and cultural features within a series of highly accessible open spaces that provide a diverse range of recreation opportunities for both passive / unstructured and active / structured recreation. Within Section A of Aurora, the Open Space Policy is addressed in the detailed configuration of the public open spaces, as well as in the urban design response to these spaces. Section A forms part of and supports the overall public open space system at Aurora.

5.5.2 Epping North Local Structure Plan

The ENLSP identifies a number of locations for public open space within Section A. Appendix A of the ENLSP designates the subject land as 'Property 4' and proposes a total of 1.75 hectares of public open space. Based on environmental and cultural heritage conservation studies, the proposed Section A plan includes a total of 1.85 hectares of public open space on the subject land. In addition, the parts of open space shown on the ENLSP midway along the east boundary and along the southern portion of the east boundary of the subject land, will form part of the playing areas of the catholic primary school.



5.5.3 Public Open Space - Active / Structured Recreation

There are no formalised active / structured recreation or sporting spaces proposed within Section A of Aurora, in accordance with the ENSP and ENLSP. These spaces are provided elsewhere in Aurora and on other land in relation to the distribution of dwellings, schools, town centres and natural features.

5.5.4 Public Open Space - Passive / Unstructured Recreation

A number of passive / unstructured recreation spaces are proposed within Section A of Aurora.

A small, urban public open space of approximately 4000 square metres is proposed in the northern portion of the subject land, abutting Harvest Home Road and to the west of the entrance street. This public open space will be a passive recreation space containing a sculptural element, as well as incorporating a substantial stony rise complex at its southern end. A small bosque of evergreen native trees will define a square paved area in which the sculpture will sit.

In consultation with Whittlesea, it is intended to commission an artist to create the sculptural element that will highlight the commitment of VicUrban and Aurora to sustainable urban development. It is

also proposed to include some obvious WSUD treatments that will connect to other such treatments proposed in the north-south neighbourhood connector street.

Another public open space of approximately 5800 square metres is proposed in the northern portion of the subject land. While not yet designed, this space will contain simple, grassed, open areas, which will provide the opportunity to protect and restore some long sections of dry stone walls.

In the southern portion of the subject land, another public open space of approximately 5200 square metres is proposed around a stony rise. This space creates the opportunity to provide environmental protection to the stony rise and its habitat potential, while providing for passive / unstructured recreation needs on the flatter areas adjacent to the stony rise. Simple tree planting with seats beneath will be used to provide shaded resting places. There may be potential to include some picnic and / or barbecue facilities in this space.

The public open spaces described above incorporate the areas of some conservation value identified in the ENLSP.



5.5.5 Public Open Space - Environmental

There is only one environmental public open space (approximately 3500 square metres) in Section A of Aurora - surrounding the north east stony rise. There are substantial environmental spaces elsewhere in Aurora.

The north east stony rise will be protected from urban development and will serve as a simple, passive recreation space that will not encourage excessive use. In consultation with Biosis Research Pty Ltd, the excess material from the dry stone walls on the subject land may be rescattered over portions of this stony rise to return the complex to a more original form. Simple, indigenous revegetation works will occur around the stony rise, together with the installation of limited seating adjacent to but not on the rise.

The detailed design of this and all other public open spaces at Aurora will be provided to Whittlesea as the surrounding residential interface is resolved. The detailed design will show the type of landscape treatment proposed for each space, the facilities to be provided and where relevant, the approach to restoration and revegetation.

An indicative list of species suitable for the revegetation of the north stony rise is opposite.

INDICATIVE TALL SHRUBS / TREES	INDICATIVE GRASSES	INDICATIVE HERBS, LILIES, SMALL SHRUBS
Lightwood (<i>Acacia implexa</i>)	Common Wallaby-grass (<i>Austrodanthonia caespitosa</i>)	Bulbine Lily (<i>Bulbine bulbosa</i>)
Drooping Sheoak (<i>Allocasuarina verticillata</i>)	Copper-awned Wallaby-grass (<i>Austrodanthonia fulva</i>)	Common Everlasting (<i>Chrysocephalum apiculatum s.l.</i>)
Sweet Bursaria (<i>Bursaria spinosasp. Spinosa</i>)	Kneed Wallaby-grass (<i>Austrodanthonia geniculata</i>)	Pink Bindweed (<i>Convolvulus erubescens</i>)
Tree Violet (<i>Hymenanthera dentatas.l.</i>)	Stiped Wallaby-grass (<i>Austrodanthonia racemosa</i>)	Matted Flax-lily (<i>Dianella amoena</i>)
	Rough Spear-grass (<i>Austrostipascabra ssp. falcata</i>)	Grassland Cranesbill (<i>Geranium retrorsum s.s.</i>)
	Fibrous Spear-grass (<i>Austrostipa semibarbata</i>)	Common Raspwort (<i>Gonocarpus tetragynus</i>)
	Velvet Tussock-grass (<i>Poa rodwayi</i>)	Running Postman (<i>Kennedia prostrate</i>)
	Kangaroo Grass (<i>Themeda triandra</i>)	Scaly Buttons (<i>Leptorhynchos squamatus s.l.</i>)
		Wattle Mat-rush (<i>Lomandra filiformis</i>)
		Curved Rice-flower (<i>Pimelea curvifloras.s.</i>)
		Common Rice-flower (<i>Pimelea humilis</i>)
		Yellow Rush-lily (<i>Tricoryne elatior</i>)
		Slender Speedwell (<i>Veronica gracilis</i>)
		Yellowish Bluebell (<i>Wahlenbergia luteola</i>)

5.5.6 Public Open Space Links

No specific public open space links are proposed in Section A of Aurora. There are extensive north-south and east-west open space links elsewhere in Aurora.

The creation of very wide street reservations in a number of locations however, provides links between the public open spaces. These wider reservations accommodate wide footpaths and a greater density of adjacent vegetation to increase their attractiveness and utility. These links are proposed as follows.

- From the 5800 square metres public open space in the northern portion of the subject land west to the central town centre.
- From Harvest Home Road south along the neighbourhood collector street to the 5800 square metres public open space in the northern portion of the subject land.
- From the 5800 square metres public open space in the northern portion of the subject land south to the catholic primary school.
- From the catholic primary school to the south boundary of the subject land.

5.5.7 Public Open Space Planting

The planting at Aurora and trees in particular, will be predominantly native with substantial use of indigenous trees where appropriate. This includes the planting in the public open spaces, although exotic trees may be used for specific purposes, such as creating visual highlights within a public open space. An indicative list of species for the public open spaces (excluding environmental open public space) is as follows.

INDICATIVE PLANT SPECIES	EVERGREEN (E) / DECIDUOUS (D)	HEIGHT (metres)
Weeping Myall (<i>Acacia pendula</i>)	E	5 - 10
Black She-Oak (<i>Allocasuarina littoralis</i>)	E	6 - 10
Rose She-Oak (<i>Allocasuarina torulosa</i>)	E	10 - 15
Bottlebrush (<i>Callistemon 'Harkness'</i>)	E	3 - 6
Bottlebrush (<i>Callistemon salignus</i>)	E	4 - 6
Lemon-scented Gum (<i>Corymbia citriodora</i>)	E	15 +
Spotted Gum (<i>Corymbia maculata</i>)	E	15 +
River Red-gum (<i>Eucalyptus camaldulensis</i>)	E	12 - 15
Yellow-top Mallee Ash (<i>Eucalyptus leuhmanniana</i>)	E	5 - 6
Whipstick Mallee Ash (<i>Eucalyptus multicaulis</i>)	E	6 - 10
Brittle Gum (<i>Eucalyptus mannifera</i> ssp <i>praecox</i>)	E	10 - 15
Yellow Box (<i>Eucalyptus melliodora</i>)	E	12 - 15
Narrow-leaved Sally (<i>Eucalyptus moorei</i>)	E	3 - 6
Snow Gum (<i>Eucalyptus pauciflora</i>)	E	10 - 15
Red Box (<i>Eucalyptus polyanthemos</i>)	E	10 - 15
Red Ironbark (<i>Eucalyptus sideroxylon</i>)	E	15 +
Pin Cushion Hakea (<i>Hakea laurina</i>)	E	4 - 6
Lilly Pilly (<i>Syzygium paniculatum</i>)	E	10 - 15

5.6 COMMUNITY PLANNING

5.6.1 Objectives and Community Development Strategy

VicUrban has been working and will continue to work with Whittlesea to develop a Community Development Strategy (CDS). The following elements of the draft CDS are the objectives of community planning at Aurora.

- Coordinated urban planning.
- Social and cultural diversity.
- Housing diversity and choice.
- Co-location.
- Multi purpose.
- Maximising access for people of all levels of ability.
- Minimising trips.
- Safety, including public and traffic safety and informal surveillance of the public domain.
- Sense of place.
- Timely provision of social infrastructure and services.
- Housing affordability.
- Creating a sense of connectedness and belonging amongst residents.
- Generating 'signs of life'.
- Activity centres as social nodes.
- Urban design to support social functions.
- Sustainable behaviour patterns.
- Foster community health and sense of well being.

The draft CDS includes detailed action plans for a range of activities to achieve the objectives of community planning at Aurora. The CDS will influence the content of marketing material, new resident welcome kits and follow up contact by a community development worker.

As part of the CDS, VicUrban will carry out formal post occupancy evaluation of the experience of new residents, including responses to dwelling design, access to services and walking and cycling activity.

5.6.2 Population

Aurora will provide the highest dwelling densities around the transport nodes and town centres. Section A of Aurora, as noted earlier, is at the furthest reach of the 'walkable catchment' of these facilities and consequently will provide a significant percentage of lots at the larger end of the range.

5.6.3 Education

One catholic primary school is proposed on Section A of Aurora, on the east boundary of the subject land, approximately halfway between Harvest Home Road and the south boundary of the land.

The Catholic Education Office (CEO) has confirmed the feasibility of this school commencing operation at the start of 2005. It is anticipated that a CEO kindergarten will be incorporated in the school and that the school hall, library, oval and sporting facilities will be available for community use out of school hours.

Site planning for the catholic primary school is in progress with the following arrangements now agreed between the CEO and VicUrban.

- Retention and restoration of the main buildings of Creed's Farm.
- Location of drainage and easements.
- Provision on site for 40 car parking spaces for school employees.
- Provision of approximately 60 on street car parking spaces (between trees set into the parking lane) on the neighbourhood connector streets that border the school to the north and west.

The Department of Education and Training has confirmed that forward planning has commenced for the government primary schools proposed to the east and west of Section A of Aurora. Subject to the confirmation of population growth and potential school enrolment, it is anticipated that one of these schools will commence operation by 2006. The school to the west of the subject land is expected to incorporate a kindergarten.

5.6.4 Community Activity Centres

As noted, Whittlesea has confirmed that no CAC should be provided on Section A of Aurora due the close proximity of the proposed CAC to the east and west of the subject land.

An interim community facility is proposed within the VicUrban Sales and Information Centre in Stage 1 to ensure that the residents of Section A of Aurora obtain the required social support. The interim community facility may include provision for a community meeting / consulting room.

5.7 RETAIL AND COMMERCIAL

5.7.1 Objectives

The retail and commercial objectives of Aurora are to:

- provide a mix of retail and commercial opportunities for residents;
- provide community functions within the town centres that are complementary to the retail and commercial uses;
- create an energy within the town centres that supports the viability of retail and commercial uses;
- design retail and commercial buildings to encourage active street frontages and pedestrian activity;
- provide town centres that are destination places with their own distinct identity;

- provide a staged delivery of retail and commercial uses with emphasis on the earliest possible provision.

5.7.2 Retail and Commercial Facilities

As noted earlier, a variety of retail and commercial facilities will be required to serve the residents of Aurora. JHD Advisors Pty Ltd anticipates that the full development of Aurora will support a three-tier hierarchy of retail and commercial facilities.

It is not anticipated that any stand alone retail or commercial facilities will be provided in Section A of Aurora. A café is proposed in the VicUrban Sales and Information Centre in Stage 1 to ensure that some interim minor needs of the residents of Section A of Aurora are met.

In the medium to long term, the ENLSP neighbourhood centre to the east of Section A and the central and southern town centres of Aurora will service the residents of Section A.

5.8 TRANSPORTATION SYSTEM

5.8.1 Objectives

The transportation objectives for Aurora are as follows.

- Extend the transport corridor from Lalor railway station to provide a public transport linkage between Aurora and the Melbourne central activities district, passing close to Epping Plaza and the Northern Hospital.
- Provide a street based transport interchange in the eastern portion of the southern town centre.
- Construct a highly inter-connected street network, with many direct neighbourhood connector streets that can be used as bus routes in an efficient way, with strong accessibility to the central and southern town centres and transport nodes.
- Develop a broad mix of land uses that locates dwellings, retail, educational employment and community facilities close together for a high proportion of future residents of Aurora, enabling many people to choose to walk or ride between these activities.
- Encourage multi-purpose trips.
- Concentrate housing within walking distance of the public transport nodes and the non-residential activities that are conveniently accessed by non-motorised transport.
- Limit larger educational and recreational facilities within the walkable catchments of the transport nodes to maximise the potential support for public transport.
- Promote the health and environmental benefits of non-motorised transport.
- Create safe and comfortable recreational use of streets for all potential users.
- Spread traffic to a range of streets to provide drivers with a multiple choice of routes for the same trip and create an environment where it is appropriate for cyclists and vehicular traffic to share the street carriageway.

5.8.2 Principles of Street Design

Street types for specific locations are chosen in consideration of future traffic volumes, parking demands, streetscape and legibility considerations, use by large vehicles, access by pedestrians and cyclists and the need to use mid block design solutions for vehicular speed control.

Generally the network of streets at Aurora will distribute traffic so that volumes on most sections of the streets will be under 1000 vehicle movements per day. At these levels of traffic, the choice of street type is very flexible. The street network design is based upon a clear objective to maintain high levels of traffic related safety and amenity for all street users, not just vehicle drivers, so that non motorised travel and the use of the street for social purposes are encouraged.

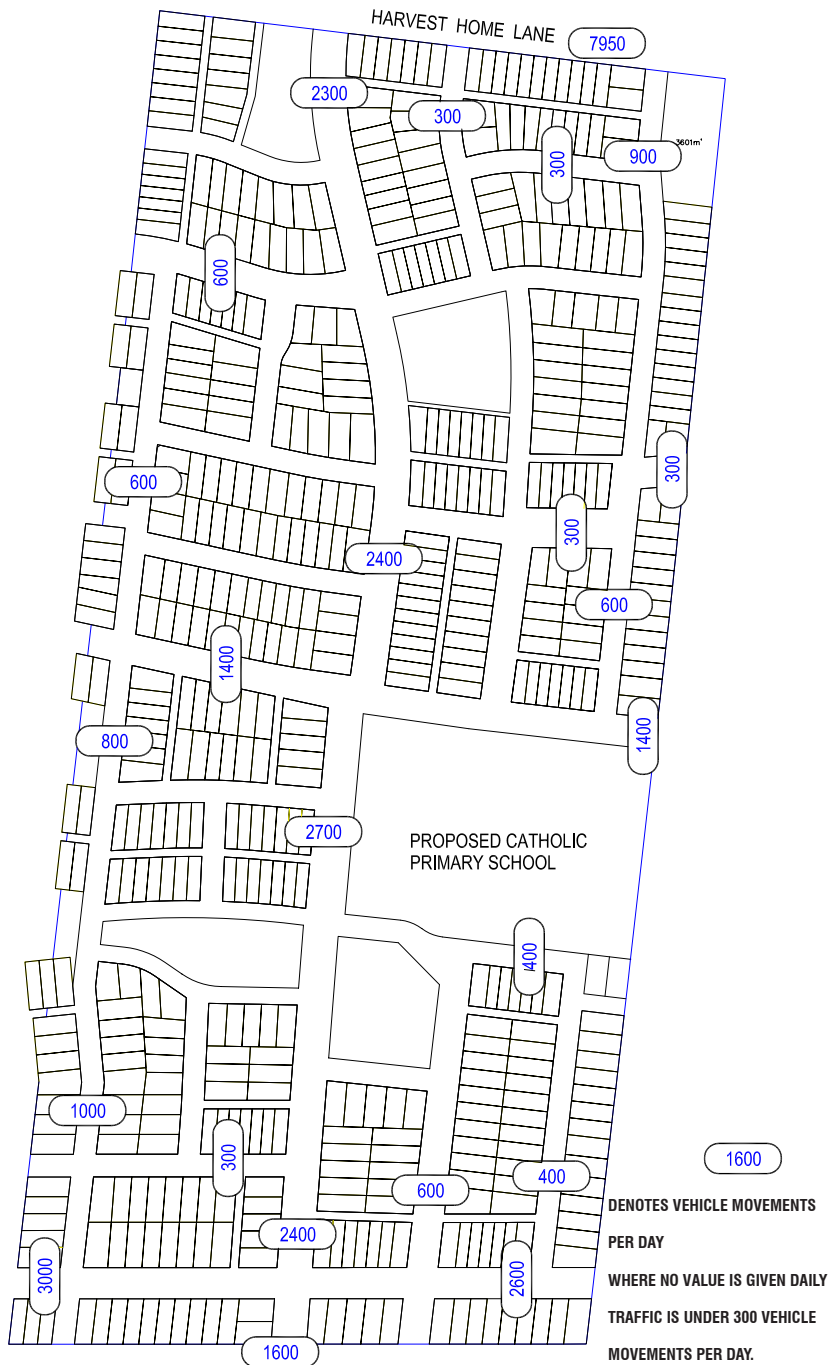
As a general guide, a street pavement width of 7.2 metres can accommodate adequately up to 2000 vehicle movements per day in conjunction with moderate on street parking demands. This form of street is the most commonly proposed throughout Aurora, including in Section A.

On the more major 'neighbourhood connector' streets, where traffic volumes may be greater or where parking may be more intensive than typically encountered in residential streets, such as where terrace housing is proposed or a school is present, two lanes clear for travel is preferred.

No pavement widening for on street cycle lanes is proposed other than in Harvest Home Road. All other streets within Section A have ultimate traffic volumes of less than 3000 vehicle movements per day. The approach is in accordance with the principles provided in AustRoads Guide to Traffic Management Practice Part 14.

5.8.3 Future Vehicle Traffic Volumes

An estimate of future traffic volumes has been calculated for each element of the street network of Section A of Aurora to guide the choice of street design. The principles behind the estimate of traffic demands are described in section 3.6.3 above with an allowance for travel demand



generated by the catholic primary school. The catholic primary school is likely to generate around 700 vehicle movements per day if it has 400 students as expected, although some of these vehicle trips would have been occurring on the street network regardless of the presence of the school.

The estimated daily traffic volumes on all streets are shown in the previous diagram (page 91). It should be made clear that these estimates are based upon each dwelling generating ten vehicle movements per day, which is probably conservatively high by at least twenty per cent.



5.8.4 Public Transport

(a) Rail

Portions of Section A of Aurora fall within the walkable catchments (800 metres) of the proposed railway stations at Harvest Home Road and in the southern town centre of Aurora. Consequently it is both proposed and desirable that the street network design in the south west and north west portions of Section A provide excellent connectivity to the railway stations.

(b) Bus

As part of the strategic planning for Aurora and the wider Epping North area, a bus network plan for the area bounded by Craigieburn Road East, the future E6 Freeway Reservation, Findon Road / O'Herns Road and the Craigieburn Bypass has been developed in consultation with Whittlesea.

The principles behind this network include the following.

- All activity centres are linked with bus routes.
- Bus routes serve secondary education centres.
- Bus routes have close to 90 per cent of all residences within 400 metres or about five



minutes walking time. It is necessary to consider the proposed dwelling densities in the overall Aurora to fully appreciate this principle.

- Bus routes serve railway stations.
- Bus routes have a logical origin and destination, wherever practicable.

As development occurs within Epping North, it is expected that local opportunities and constraints will impact on these bus routes, dictating the benefits of local variations in response. Development staging will also be an influence on the streets that are to be used for bus routes.

As can be seen from the bus network plan on page 92, there are no streets in Section A of Aurora that will be used for bus routes, other than the southern, east-west neighbourhood connector street.

It is important to note the need for a reasonably continuous street linkage parallel with and 600 metres south of Craigieburn Road East for future service of the northern part of Epping North by efficient bus routes.

5.8.5 Street Network Design

The diagram opposite shows the typical mid block street form chosen for each street in Section A of Aurora after consideration of the objectives and principles described in sections 5.8.1 and 5.8.2 above, the future traffic volumes described in section 5.8.3 above and the considerations for public transport described in section 5.8.4 above. There will be local variations from these 'standard' design forms for various reasons including the following.

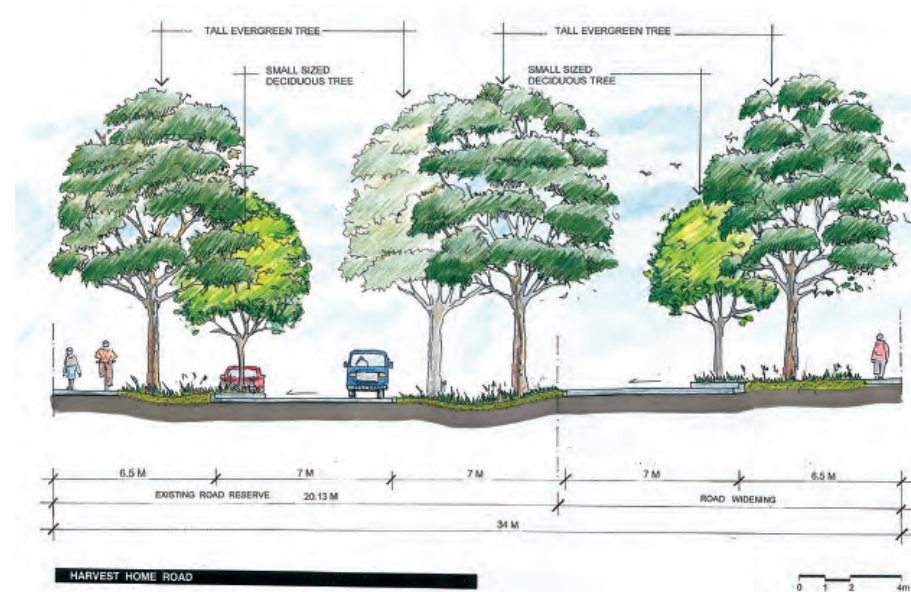
- On approaches to intersections street carriageways may be narrowed to assist with vehicle speed control through the intersection or widened to create street capacity.
- Where parking is not needed, for example on approaches to intersections or where property abuttal will be primarily the sides of lots rather than frontage, the parking provisions within the carriageway may be reduced.

- WSUD requirements may lead to variations in verge dimensions.

(a) Harvest Home Road

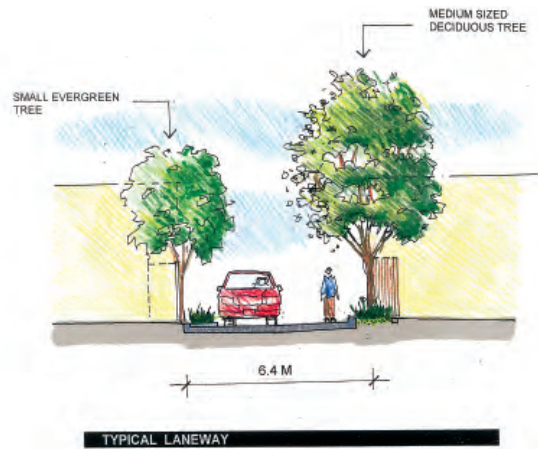
Harvest Home Road is an important internal east-west route in Epping North. The forecast traffic volume for Harvest Home Road from Scanlon Drive to Epping Road is between 5000 and 10,000 vehicle movements per day, dependent on location. Abutting Section A of Aurora, the forecast traffic volume is 7950 vehicle movements per day, calculated from the modelling of the overall Aurora and surrounds completed by TTM Consulting Pty Ltd in 2002. The appropriate street type includes a clear travel lane for each direction, a wide central median, on street parking and cycling lanes adjacent to the parking lanes.

The design of Harvest Home Road is in principle the same as that presented in the ENLSP (refer section 3.6.2 above) with only the component dimensions varying slightly in consideration of the anticipated future traffic volumes. The total reservation width is the same as that presented in the ENLSP.



(b) Rear Access Lanes

The typical rear 'access lane' is 6.4 metres wide although there are occasional local variations proposed. This allows for garages with 4.8 metres wide doors and internal depth of 6 metres to be constructed on the property boundary at the lane. A carriageway width of 3 metres is proposed where there will be no garages requiring turning space for vehicular access. Concrete pavements with a central invert drain will be used generally without kerbs.



(c) Park Edge Streets

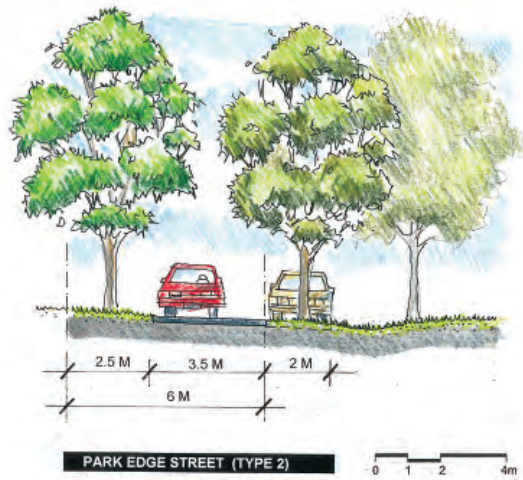
There are two basic forms of park edge streets proposed in Section A of Aurora.

The first (park edge street type 1) is a variation on the 'access street type 2' (described below) that has a 5.5 metres wide carriageway. As a park edge street it will have housing on only one side of the carriageway and consequently lower parking loads than would be expected in an equivalent 'two sided' condition. This form of street is proposed where traffic volumes will include a little more than just locally generated traffic - up to around 300 vehicle movements per day.

Parked cars can generate a traffic management benefit, with passing vehicles potentially needing to pause for on-coming vehicles and also to move laterally when cars are parked on opposite sides of the street. Parking can occur on either side of the street without the need for controlling signs.

The other form of park edge street (type 2) is an 'access place' in accordance with clause 56 of the Scheme, where the pavement acts as a zone to be shared by both pedestrians and vehicles. Parking will be available in the sections of the carriageway where it is widened to 5.5 metres but in other places the total paved width will be 3.5 metres. If a car is parked in the wider section the whole roadway becomes a one lane, two way section of street. This means that if a vehicle is using the narrow part and another intends to travel in the opposite direction, one will need to pause to allow passage to the other.

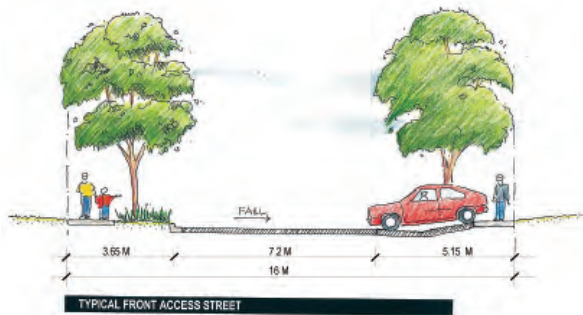




This form of park edge street treatment is proposed only where there will be minimal traffic that will be locally generated. In each location proposed for this treatment there is rear access and off-street car parking for the dwellings that will be served by the street and these streets will carry less than 50 vehicle movements per day.

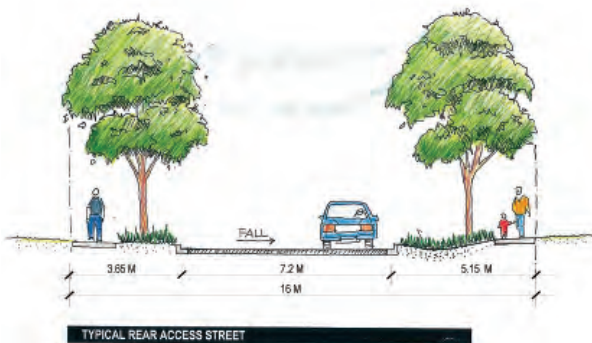
(d) Access Street Type 1

An 'access street type 1' has a 7.2 metres wide carriageway between kerbs in a reservation 16 metres wide. This allows for parallel parking on both sides of the street plus clear passage for a single lane of traffic in one direction at a time or for opposing traffic to pass a single parked car. This street type is the most common throughout Section A of Aurora, giving a good balance between the needs of kerbside parking and moving traffic.



This street type is typically adequate in areas of traffic volume up to 2000 to 3000 vehicle movements per day and moderate kerbside parking demands usually associated with the densities proposed on the subject land. There is no situation however, in the ADP: Part 1 where this street type is proposed when the traffic volume will exceed 1000 vehicle movements per day.

(e) Access Street Type 2



An 'access street type 2' has a 5.5 metres wide carriageway between kerbs in reservation 16 metres wide. This allows for parallel parking on one side of the street plus clear passage for a single lane of traffic in one direction at a time or for opposing traffic to pass where there is no parked car.

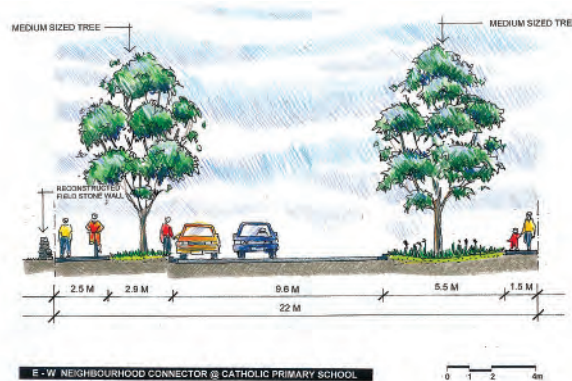
This street type is proposed where parking loads will be low and where there will be little traffic. It is proposed only in one location in Section A and should always be used with care because the narrow carriageway is rarely advantageous in a truly urban condition.

(f) Neighbourhood Connector Street Type 3

The 'neighbourhood connector street type 3' has an undivided carriageway width of 9.6 metres between kerb faces and a reservation width of 22 metres. This allows for parallel parking on both sides of the street, between trees that will be set into the parking lane or between kerb outstands that will contain trees. The parking lane will be marked at 2 metres from each kerb face, leaving 5.6 metres of clear trafficable pavement. This reasonably tight configuration is aimed at keeping vehicle speeds appropriately low while still providing for the legal passage of all vehicles.

This street type is proposed where small lots predominate. It will accommodate the higher parking intensities generated and traffic volumes in the range of 1000 to 3000 vehicle movements per day.

Whittlesea officers have suggested a variation on this street form where the street will most likely be used as a bus route as, for example, in part of the southern, east-west neighbourhood connector street in Section A of Aurora. This would lead to a wider clear carriageway, with around 6 metres being suggested rather than 5.6 metres, as is the general case. The additional carriageway width would be taken from the verge on one side, depending upon local WSUD considerations.

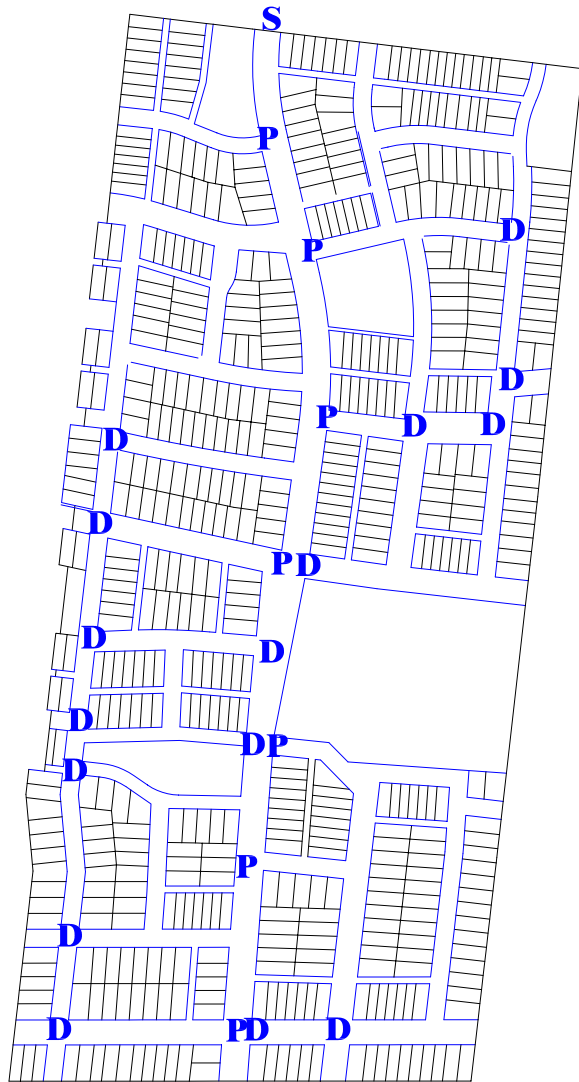


5.8.6 Intersection Management

(a) Design Principles

The design of intersections in Section A of Aurora is generally based upon the following three fundamental objectives.

- Safe entry and exit to / from the major street to / from the minor street.
- The capacity to accommodate expected vehicles. In this case the design vehicle is an 11 metres long rigid truck throughout the subject land and a 17 metres long semi trailer along the main access streets and potential bus routes.



D DENOTES DEFLECTED T-INTERSECTIONS OR SIMILAR
P DENOTES PAVEMENT SURFACE AND RAMPING
S DENOTES ALLOWANCE FOR FUTURE TRAFFIC SIGNALS

- The intersection treatment is used as a traffic management device to achieve an appropriate traffic speed environment where practicable.

Kerb radii are kept to a minimum in consideration of these objectives and also to shorten walk distances for pedestrians crossing street intersections.

(b) Standard Designs

The majority of intersections in Section A of Aurora will be T-intersections between streets with 7.2 metres wide carriageways, mostly intersecting at an angle close to 90 degrees. Kerb radii at these intersections should not exceed 6 metres.

A general design objective is to avoid signage. It is generally assumed therefore that parking can / will occur in all places except within 10 metres of intersecting kerb alignments and across driveways and intersections. This assumption establishes the kerb return radius at each intersection.

(c) Traffic Speed Control

Traffic speed control is proposed through a combination of slow points, which may be either at or between intersections and the general design and use of each street type.

Parked cars will add to traffic management by providing a relatively tight street section that must be negotiated carefully and slowly. Having adequate but not excessive carriageway width will further add to the level of control over traffic speeds where necessary.

Typically the aim of the proposed street network is to have a 'leg length' of no greater than 200 metres. Leg length is the distance between points where traffic will need to slow to around fifteen kilometres per hour to negotiate a particular section of street.

Clause 56.03-4 of the Scheme effectively sets out spacings or separations for speed control 'devices'. Strict adherence to the Scheme would result in new residential developments being inundated with speed control devices that cannot all be located at intersections and therefore will reduce significantly accessibility and streetscape values.

In response to clause 56.06-4 and the design principles for traffic speed control, a suite of intersection treatments that will effectively operate as slowing points has been developed for Section A of Aurora.

A further traffic management effect will be provided by the use of contrasting pavement surfaces and ramped edgings at some of the intersections along the main neighbourhood connector streets. The diagram on page 98 shows the locations of these slowing treatments at or through intersections.



5.8.7 Non Motorised Transport

(a) Footpaths in Streets

All streets in Section A of Aurora are designed to have 1.5 metres wide footpaths along sides fronted by residential development. Near the catholic primary school and other areas where pedestrian activity levels will be higher, 2.5 metres wide footpaths are proposed.

(b) Off Street Paths

A network of shared paths through open space and on major roads will link community facilities and provide for walking and cycling at Aurora. These paths will be typically 2.5 metres wide. The off-street network includes a path on the northern, east-west neighbourhood collector street through the subject land, which is adjacent to the catholic primary school.

5.9 ENGINEERING INFRASTRUCTURE

5.9.1 Objectives

The engineering objectives of Aurora are to:

- provide high quality, low maintenance infrastructure to the community;
- develop infrastructure that is economically sustainable;
- provide infrastructure that minimises the impact on the environment using techniques such as:
 - using lower embodied energy products and materials;
 - employing construction techniques that reduce earthworks;
 - reducing the volume of waste material;
 - recycling and reusing materials derived from the subject land;
 - using offsite recycled materials;
 - using environmentally sustainable materials;
 - using WSUD to improve stormwater quality;
 - using on site sewage treatment and recycled water reticulation to reduce demand on potable supplies.

5.9.2 Overall Engineering Infrastructure Response

In accordance with State Government policy, VicUrban has adopted a sustainable development approach to the planning of Aurora. As a result, the remote location of services becomes less of a constraint and will result in innovative but sustainable approaches being adopted to service the new community. The innovative and sustainable approach of VicUrban to the provision of the necessary infrastructure can only be achieved with a significant development of the scale of Aurora.

The conversion of rural to urban uses results in a significant change to the landscape, adds to

the consumption of potable water, generates surface water flows and increases the discharge of wastewater. A sustainable approach to development mitigates these changes through appropriate management of water resources.

A number of alternative integrated water management systems have been investigated and assessed for their application to Aurora. Estate wide approaches to wastewater management and demand management have the ability to reduce potable water demand, maintain water quality standards and be more economical in the long term.

The sustainable practices being investigated in detail at Aurora include water conservation and demand management measures at the household level, harvesting of rainwater, WSUD, wastewater recycling, higher density housing to support public transport, energy efficient dwelling design incorporating solar energy for hot water and electrical energy and the reduction in private vehicle use through efficient urban design.

The implementation of the water management initiatives will require the consent and cooperation of a number of government agencies. These agencies have been closely engaged and are participating in development of innovative and more sustainable servicing options for the land.

VicUrban has initiated a significant research and investigation program to address all of the issues associated with adopting a sustainable development approach at Aurora. The investigations in relation to the water cycle have identified that the impact on the environment can be reduced significantly if a number of initiatives are introduced. The initiatives being investigated for Aurora include the following.

- The compulsory use of low flow water fittings in showers and basins.
- The compulsory use of water efficient appliances (five-star rated washing machines and dishwashers).
- Compulsory use of rainwater tanks to capture roof water for hot water, bathroom and laundry use, subject to satisfactory field testing in the early stages of Aurora.
- Treating sewage locally to tertiary standard and reticulating the recycled water back to

- lots for toilet flushing and private and public open space irrigation.
- Providing the community with a local intranet and real time metering of water and energy use to support conservation habits.

The combined effect of these measures is to reduce potable water consumption by approximately 70 per cent (or 55 per cent without the rain water tanks) when compared with conventional servicing arrangements.

Other measures within the public realm include WSUD, the capture and treatment of stormwater and the retention of large areas of open space.

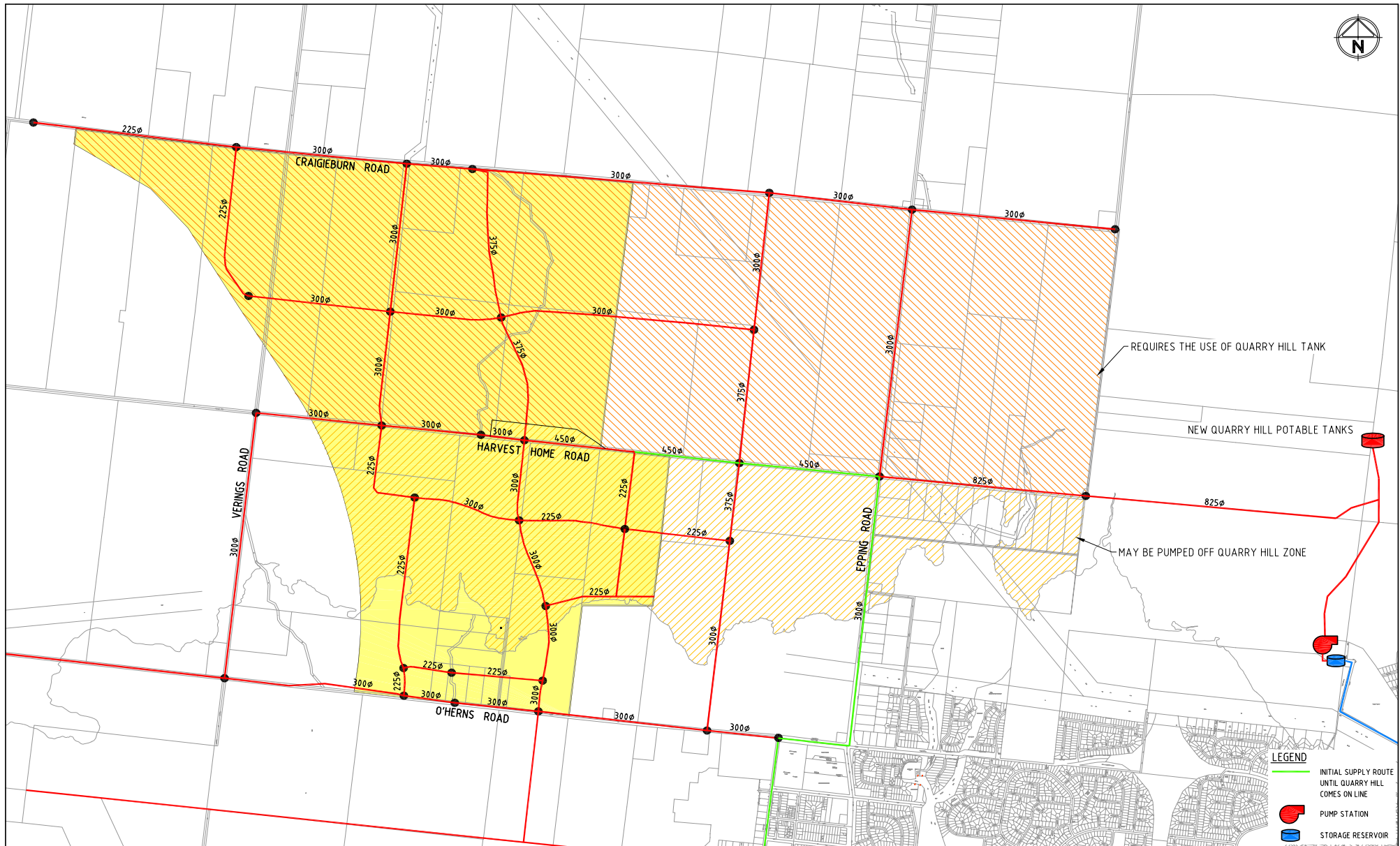
These approaches to introducing integrated water management have been discussed and tested with Yarra Valley Water (YVW) and Melbourne Water Corporation (MWC) at officer level.

In addition, VicUrban, in concert with YVW and MWC, has appointed an independent expert panel to review the technical aspects of the water management systems proposed at Aurora. The panel has praised and supported the initiatives. As a result, the development of Aurora can be commenced immediately and serviced by the innovative and sustainable servicing arrangements described above.

5.9.3 Water Supply

The agency responsible for the provision of water at Aurora is YVW. Water supply is provided from supply reservoirs on Quarry Hill, five kilometres to the east of Aurora. The water supply catchments of MWC are located immediately to the north and east of Aurora and there is sufficient capacity within these networks to meet the expected demand.

The recently completed strategy for the water supply of Melbourne identifies that alternative sources are available to augment existing supplies, sufficient to meet expected demand until 2050. The strategy does promote the use of alternative water sources however for uses other than drinking and advocates innovative approaches to managing water use within residential developments.



LEGEND

- INITIAL SUPPLY ROUTE UNTIL QUARRY HILL COMES ON LINE
- PUMP STATION
- STORAGE RESERVOIR

REV.	AMENDMENTS	APP'D	DATE

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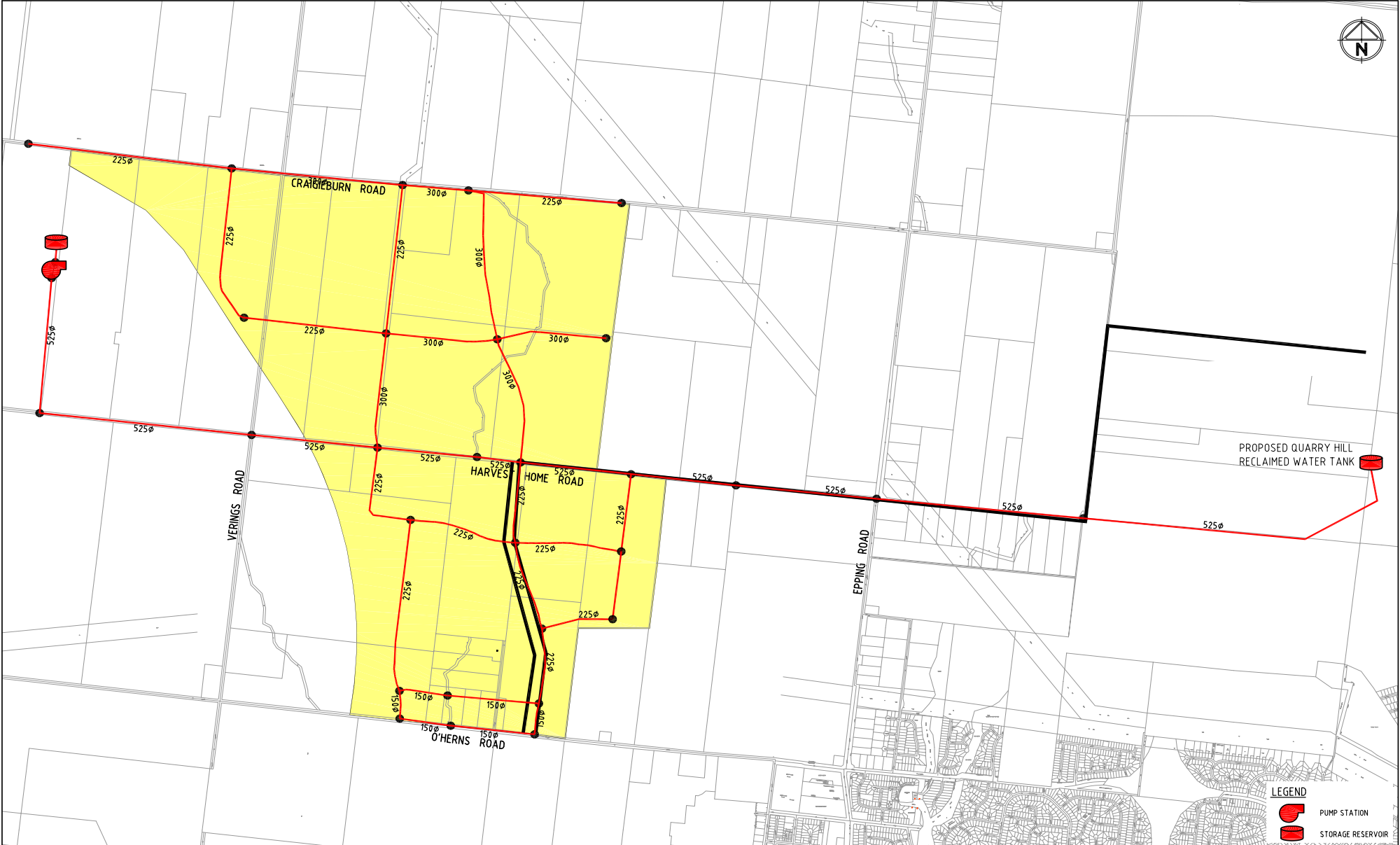
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AURORA
CITY OF EPPING
POTABLE SYSTEM

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REV.



PROPOSED QUARRY HILL
RECLAIMED WATER TANK

LEGEND

PUMP STATION

STORAGE RESERVOIR

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REV.

Aurora will incorporate a reclaimed water supply system as well as a potable water supply system.

Water will be supplied to Section A of Aurora via a water main extension along Epping Road from O'Herns Road to Harvest Home Road and then west along Harvest Home Road to Section A. Until such time as the new Quarry Hill high level tanks are installed, a water supply booster pump will be required which will be capable of servicing up to the 162 metres contour level.

5.9.4 Drainage

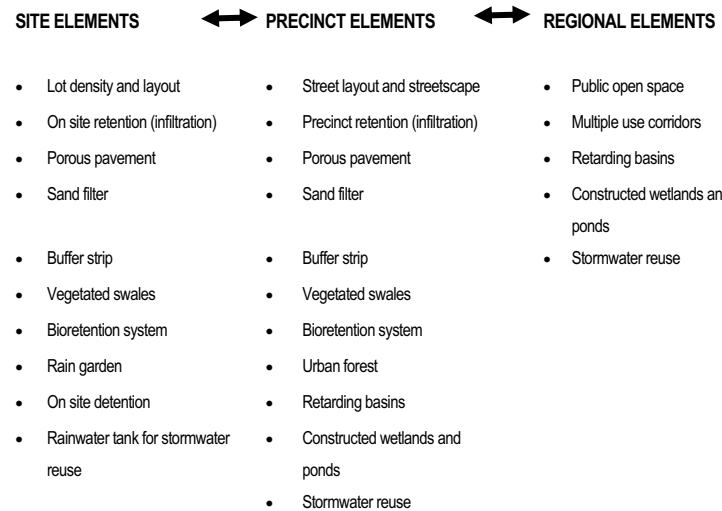
The agency responsible for drainage facilities at Aurora is MWC, which has an approved drainage strategy for Edgars Creek. The Edgars Creek Drainage Strategy will form the basic framework for stormwater management at Aurora. In addition, WSUD principles will be incorporated as part of the development to manage and treat stormwater in a sustainable and innovative way.

Edgars Creek is an ephemeral stream that flows through Aurora. It is ill defined in some sections and has been badly degraded. Water quality improvement will be completed throughout Aurora as part of the approach to WSUD.

WSUD provides an alternative to the traditional conveyance approach to water, stormwater and wastewater management. WSUD focuses on the integration of urban planning and development with the management, protection and conservation of the water cycle. The design philosophy recognises that it is impracticable to replicate the natural system however it is possible to mitigate changes to the existing water balance.

The interrelationship between site, precinct and regional stormwater management measures is shown opposite (Ecological Engineering).

A hierarchy of water sources has been developed for Aurora to avoid the possibility of having competing supply sources for the same end use. Based on this water hierarchy, stormwater has the potential to provide the following.



- Supply to a rainwater tank for hot water use within the dwelling.
- Irrigation at the streetscape level as a by product of stormwater treatment with, for example, the use of bioretention systems.
- Environmental flows to Edgars Creek.

VicUrban pioneered WSUD at Lynbrook in the City of Casey. Many of the key components used at Lynbrook will be enhanced and modified to suit the site specific conditions of Aurora. The exact treatments and standards to be used at Aurora are being determined in consultation with Whittlesea.

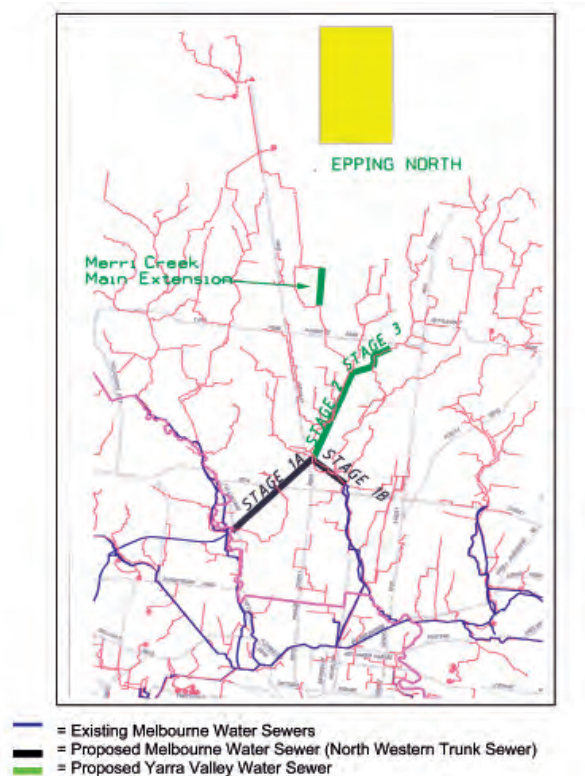
5.9.5 Sewerage

Epping North, including Section A of Aurora, is located at the upstream end of the major trunk sewer infrastructure servicing the northern suburbs of Melbourne. YVW advises that the Edgars Creek Branch Sewer and Merri Creek Branch Sewer are at capacity during peak flows. Consequently, the increased flows that will be generated by the development of Epping North cannot be accommodated by the existing infrastructure.

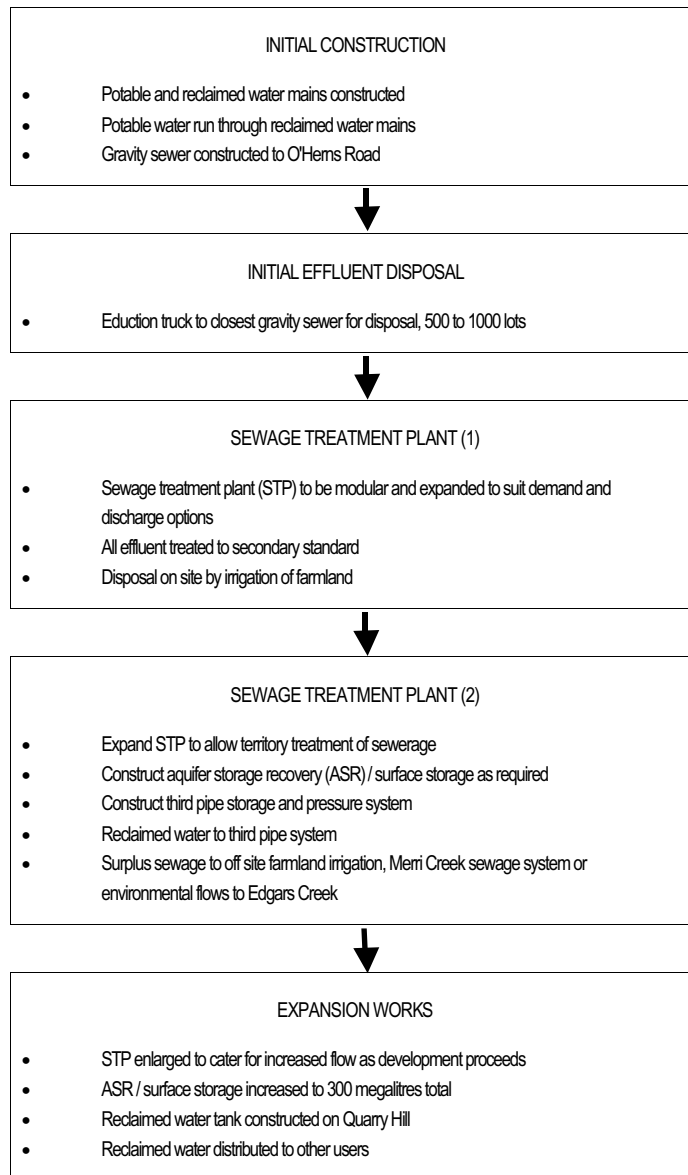
YVW and MWC will be extending the North Western Trunk Sewer and Merri Creek Main Sewer to relieve the existing sewer system regardless of the development of Epping North. This sewerage service will be available to Epping North in approximately 2010.

Existing sewers in the vicinity of Epping North and the proposed North Western Trunk Sewer extension are shown opposite.

A local sewerage treatment plant will be constructed that will treat the sewage generated from Section A of Aurora to Class A standard (Environment Protection Authority - Reclaimed Water Use Guidelines). The design of the sewerage treatment plant is underway and will commence construction as soon as all necessary approvals have been obtained.



SEQUENCE AND PHASING OF SEWERAGE INFRASTRUCTURE AT AURORA



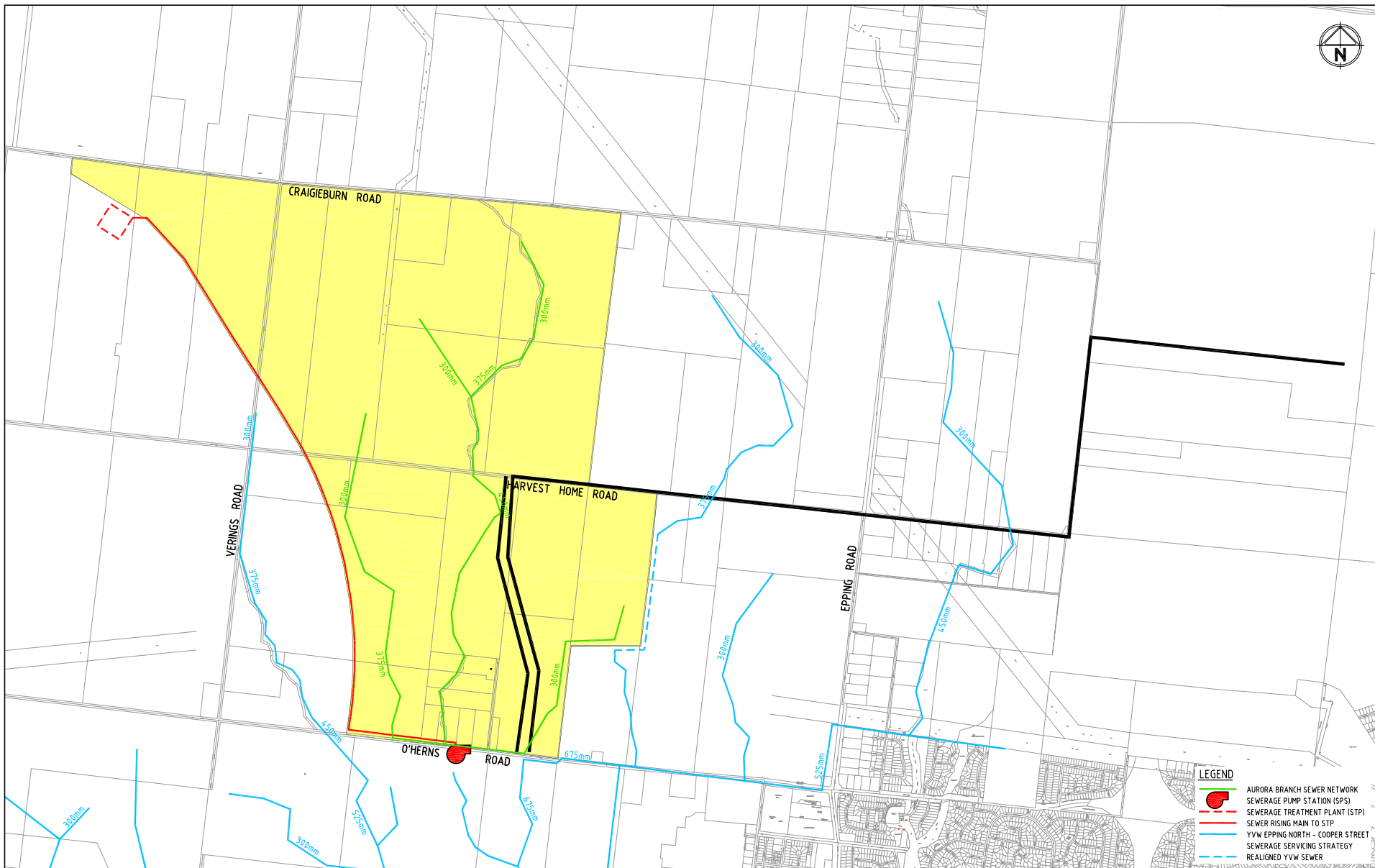
The treated water will be used for pasture irrigation until such time as it can be reticulated within a reclaimed water system. The reclaimed water will be used for irrigating public and private open space, toilet flushing and general outdoor use. All infrastructure required to support a reclaimed water system, including treatment, storage and reticulation will be installed to appropriate standards. All advice and information indicates that a reclaimed water system will be appropriate for Aurora and will be a significant step in demonstrating sustainable development principles.

Investigations have indicated that in some years the volume of reclaimed water generated from sewage flows will be less than the demand for reclaimed water, for example during dry years. In other years, for example wet years, a surplus of reclaimed water will be generated. In dry years, the potable water supply system will be used to supplement the reclaimed water supply. In wet years, the surplus reclaimed water would be available to external users. If the demand from external users is insufficient, the surplus water will be discharged to Edgars Creek or to the Merri Creek sewer system (subject to approvals).

The sewerage strategy for Aurora and Epping North is shown following. It is consistent generally with the YVW strategy except that Aurora is isolated from the rest of the system. A normal gravity sewer system will be constructed within Aurora with all flows being concentrated at the junction of Edgars Creek and O'Herns Road. From this location the sewage will be pumped via a rising main to the sewerage treatment plant to be located on land west of the Craigieburn Bypass between Harvest Home Road and Craigieburn Road East.

The flow chart opposite sets out the sequence and phasing of the sewerage infrastructure works from the initial construction and effluent disposal method through to construction of the full sewerage treatment plant and storage alternatives for Aurora.

As noted earlier, there will be at times a surplus of sewage generated from Aurora, which will require disposal. The diagram on page 109 sets out the various options for the treatment, storage and disposal of any such flows and provides alternative disposal options depending on discharge approvals and available infrastructure.



- LEGEND**
- AURORA BRANCH SEWER NETWORK
 - SEWERAGE PUMP STATION (SPS)
 - SEWERAGE TREATMENT PLANT (STP)
 - SEWER RISING MAIN TO STP
 - YVW EPPING NORTH - COOPER STREET SEWERAGE SERVICING STRATEGY
 - REALIGNED YVW SEWER

REV.	AMENDMENTS	APPD	DATE

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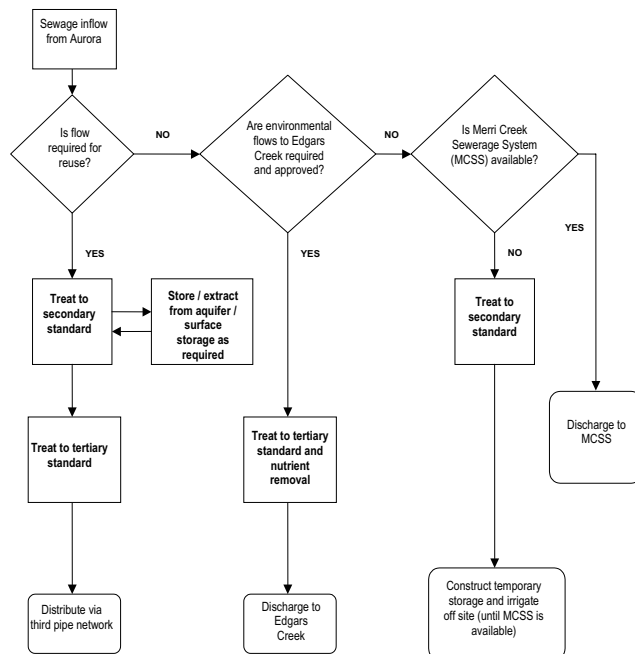
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5.9.6 Other Services

Aurora is well serviced with access to high voltage electrical power along most of the surrounding roads and a major transmission gas main to the west of Section A of Aurora, which can be tapped for supply to Aurora.

All lots at Aurora will have available electricity, gas, telephone and broadband technology.

TREATMENT, STORAGE AND DISPOSAL OF SURPLUS SEWAGE FLOWS FROM AURORA



5.10 LINKAGES AND COMPATIBILITY WITH ADJOINING PROPERTIES

5.10.1 OBJECTIVES

The objectives for the treatment of Section A of Aurora in relation to the adjoining properties are to:

- ensure compatibility and logical linkages between different land ownerships and developments;
- provide strong vehicle, walking and cycling connections;
- accommodate the integration of services and drainage.

5.10.2 AURORA DEVELOPMENT PLAN: PART 2

The Aurora Development Plan: Part 2 will be similar to the ADP: Part 1 but will deal with the remainder (and majority) of Aurora to the west of Section A.

Harvest Home Road and the two east-west neighbourhood connector streets on the subject land will provide direct links to the central and southern town centres of Aurora, as well as connecting to the various facilities to the west including schools, public open space and community activity

centres. A series of access streets also provide lower order connections.

5.10.3 OTHER ADJOINING PROPERTIES

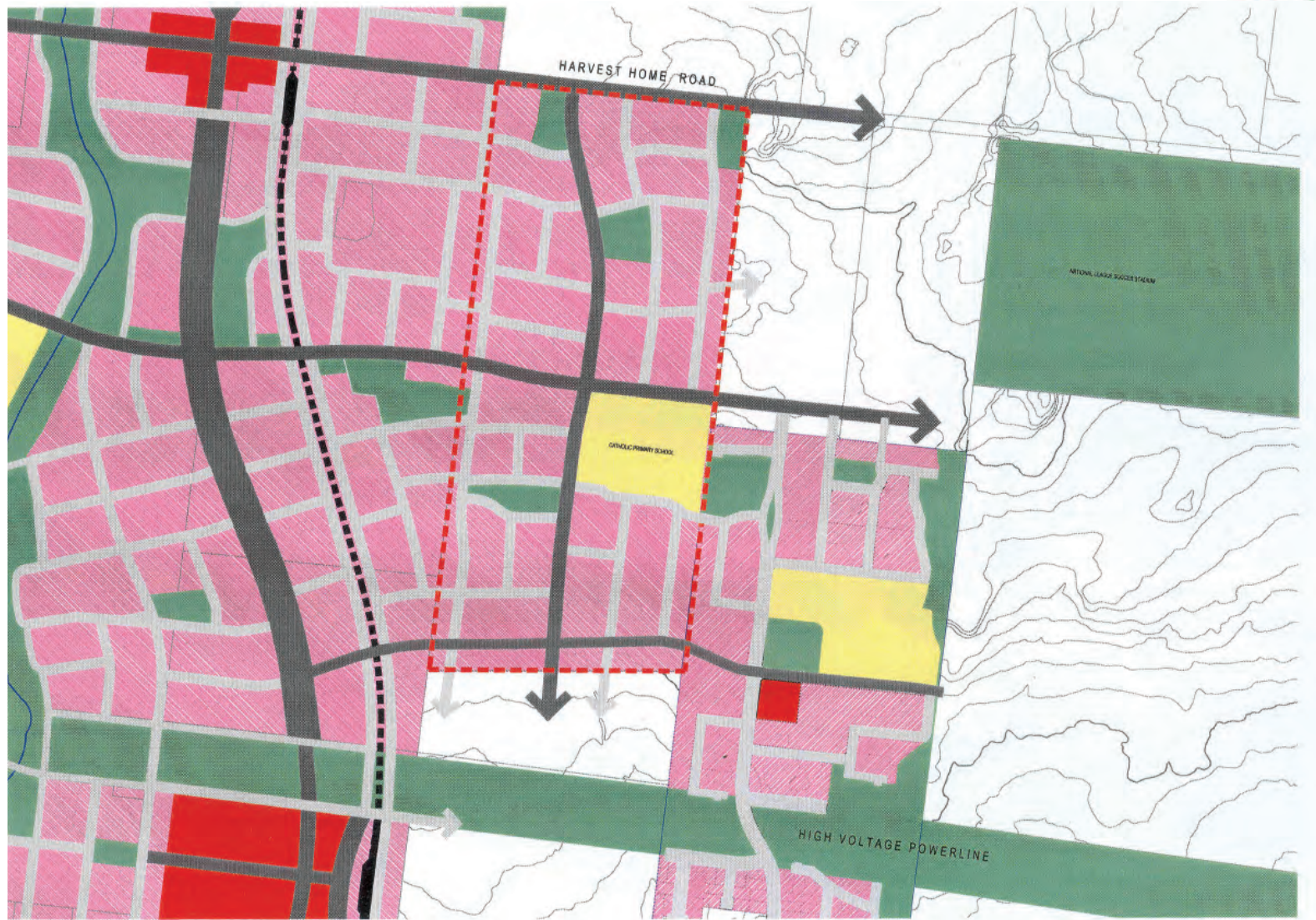
VicUrban does not control the properties adjoining Section A of Aurora on the north side of Harvest Home Road or to the east and south.








Harvest Home Road forms the north boundary of Section A. The north-south neighbourhood connector street and two, north-south access streets provide opportunities for future connections from the subject land to the property north of Harvest Home Road.

At this time there is no known development planned for the property that adjoins the northern portion of the subject land to the east. The northern, east-west neighbourhood connector street and one east-west access street provide connections to this property. The rear boundaries of lots on the subject land will abut the common boundary.

Section A of Aurora has been designed to complement the current layout of the proposed Brentwood Estate that adjoins the southern portion of the subject land to the east. The southern, east-west neighbourhood connector street and one east-west street provide connections to this property. The neighbourhood connector street provides an important link between the southern town centre of Aurora and the government primary school and community activity centre on the Brentwood Estate. The rear boundaries of lots on the subject land will abut the common boundary, with the exception of the catholic primary school, which abuts public open space on the adjoining property.

At this time there is no known development planned for the property that adjoins the subject land to the south. The north-south neighbourhood connector street and two, north-south access streets provide connections to this property. The north-south neighbourhood connector street is likely to connect to O'Herns Road to the south. The rear boundaries of lots on the subject land will abut the common boundary.



-  RECREATION/OPEN SPACE
-  PROPOSED AND EXISTING COMMERCIAL AREA
-  EDUCATION
-  RESIDENTIAL
-  COMMUNITY ACTIVITY CENTRE
-  AURORA PART 1
-  PUBLIC TRANSPORT CORRIDOR AND NODE



LOCAL CONTEXT
AURORA PART 1

Date: February 2003

Doc: 0140 SA 29





6 DEVELOPMENT CONTRIBUTIONS

6.1 DEVELOPMENT CONTRIBUTION REQUIREMENTS

The Scheme includes Section A of Aurora within DCP01. DCP01 covers the land within the ENLSP area, including the subject land. In summary, the contributions required equate to the per hectare contribution referred to in DCP01.

In accordance with DCP01, the development contribution requirements for Section A are calculated as shown opposite and are based on the following figures.

- The total gross developable land area in the subject land is 37.264 hectares.
- The total gross developable land area in the ENLSP is 206.8 hectares.
- The subject land represents 18.0193 per cent (rounded) of total developable land within the ENLSP.

6.2 DEVELOPMENT CONTRIBUTIONS AND WORKS PROPOSED

The following table details development contributions being provided for Section A of Aurora and takes into account those actual works planned to be completed by VicUrban.

Development Contribution Item	Cost per hectare in the ENLSP area	Actual contribution attributable to development in the ENLSP(\$) ¹	Actual contribution attributable to Aurora Section A development (\$) ¹
Total Road Network	17,345.00	3,586,946.00	646,344.08
<i>Roads as a component of Total Road Network</i>			
<i>Craigieburn Road</i>	<i>2,354.00</i>	<i>486,807.20</i>	<i>87,719.46</i>
<i>Lehmans Road</i>	<i>807.00</i>	<i>166,887.60</i>	<i>30,072.05</i>
<i>O'Herns Road</i>	<i>2,774.00</i>	<i>573,663.20</i>	<i>103,370.34</i>
<i>Edgars Road</i>	<i>4,161.00</i>	<i>860,494.80</i>	<i>155,055.50</i>
<i>Epping Road</i>	<i>957.00</i>	<i>197,907.60</i>	<i>35,661.65</i>
<i>E6 Extension</i>	<i>1,375.00</i>	<i>284,350.00</i>	<i>51,238.00</i>
<i>Harvest Home Road</i>	<i>4,917.00</i>	<i>1,016,835.60</i>	<i>183,227.09</i>
Core Conservation Area	1,765.00	365,000.00	65,770.96
Open Space	13,250.00	2,740,000.00	493,748.00
Land for Regional Recreation Facilities	2,481.00	513,071.00	92,451.98
Land for Local Recreation Facilities	3,404.00	704,000.00	126,846.66
Community Infrastructure	4,500.00	930,000.00	167,688.00
Bicycle Network	1,015.00	210,000.00	37,822.96
Transport Corridor	997.00	206,179.00	37,152.21
TOTAL²	62,102.00	9,255,196.00	1,667,824.85

Note

¹ DCP01

² Total equates to the per hectare contribution referred to in DCP01

DEVELOPMENT CONTRIBUTION ITEM	ACTUAL VICURBAN PROVISION	COST OF VICURBAN WORKS OR INFRASTRUCTURE PROVISION	CONTRIBUTION ATTRIBUTABLE TO AURORA SECTION A	NET CONTRIBUTION OWING
1 Streets				
Harvest Home Road	Construction of Harvest Home Road (including partial duplication)	1,265,420.00	183,227.09	-1,082,192.91
Craigieburn Road	-	-	87,719.46	87,719.46
Lehmans Road	-	-	30,072.05	30,072.05
O'Herns Road	-	-	103,370.34	103,370.34
Edgars Road	-	-	155,055.50	155,055.50
Epping Road	-	-	35,661.65	35,661.65
E6 Extension	-	-	51,238.00	51,238.00
Streets Total		1,265,420.00	646,344.09	-619,075.91
2 Open Space				
Core Conservation Area	-	-	65,770.96	65,770.96
Open Space	Provision of 1.75 ha of open space	350,000.00	493,748.00	143,748.00
Land for Regional Recreation Facilities	-	-	92,451.98	92,451.98
Land for Local Recreation Facilities	-	-	126,846.66	126,846.66
Open Space Total		350,000.00	778,817.60	428,817.60
3 Community Infrastructure				
Community Infrastructure Total		-	167,688.00	167,688.00
4 Bicycle Network				
Bicycle Network Total		-	37,822.96	37,822.96
5 Transport Corridor				
Transport Corridor Total		-	37,152.21	37,152.21

Note

- Amount claimed represents Section A of Aurora as a portion of total development land in ENLSP (approximately 18 per cent).
- Net Contribution Owing represents development contributions attributable to Section A of Aurora.
- Negative figures indicate over provision; credit due. The credit due for Harvest Home Road over provision is to be off set against other road works (Craigieburn Road, Lehmans Road, O'Herns Road, Edgars Road, Epping Road and E6 Extension) listed above and any further credit due against development infrastructure works (but not community infrastructure) in Part 2 of Aurora.
- Contributions owing in respect of core conservation area, open space, land for regional recreation facilities, land for local recreation facilities and community infrastructure, will be provided by VicUrban to Whittlesea at the time that the funding is required to put the relevant infrastructure in to place, to the satisfaction of the responsible authority.
- Contributions owing in respect of bicycle network and transport corridor will be offset against the Net Contribution Owing for Harvest Home Road.

7 IMPLEMENTATION

7.1 PROPOSED DEVELOPMENT STAGING

Section A of Aurora is proposed to commence at the northern end of the subject land, entering from Harvest Home Road.

The first stage will consist of approximately 120 lots surrounding the northern section of the north-south neighbourhood collector street and will include lots around the public open space 200 metres south of Harvest Home Road.

Development will then proceed in a southerly direction with the east and west sides of the first stage being constructed.

7.2 CLAUSES 54, 55 AND BUILDING REGULATIONS

In the review of design outcomes sought by VicUrban for Aurora, various standards in clauses 54 and 55 of the Scheme and in the Building (Single Dwellings) Regulations 2001, have been reviewed. The review has resulted in some specific alternative design parameters to tailor outcomes specifically for Section A of Aurora.

In accordance with the Scheme and Building Regulations, the varied approaches will be implemented via planning permits for subdivision and shown as a restriction on a plan of subdivision certified under the *Subdivision Act 1988*.

These varied approaches are anticipated to include the following.

- Reduced minimum front and side street setbacks of dwellings.
- Increased maximum site coverage of dwellings.
- Increased maximum length and height of new boundary walls.

- Increased minimum setback of north-facing, habitable room windows from the north boundary of lots.
- Reduced minimum amount of private open space for a single dwelling on a lot to equate with the minimum amount of private open space for two or more dwellings on a lot.
- Specification of the amount of secluded private open space in relation to solar access to private open space.

7.3 DEVELOPMENT APPROVALS PROCESS

VicUrban will apply to Whittlesea for planning permits for subdivision and all other development and use requiring a permit under the Residential 1 Zone and schedule 2 to the Vegetation Protection Overlay. Generally, subdivision and development will need to be in accordance with the approved ADP: Part 1, as required by schedule 12 to the Development Plan Overlay.

VicUrban will submit subdivision applications with lot numbers and boundaries appropriate to be reviewed as relatively independent units. For example, a subdivision 'section' may contain say 300 lots, be bounded by main streets, large open space areas or property boundaries / other significant geographic features and be relatively self contained. Each 'section' will then be divided into a series of stages of a smaller number of lots.

It is anticipated that the initial planning permit application for the subdivision of lots on the subject land will comprise one section (Section A).

Following an extensive design process (refer section 7.4 below), VicUrban will also submit applications for the construction of one dwelling on each lot less than 300 square metres and any applications for the construction of two or more dwellings on a lot.

7.4 DESIGN CONTROLS

VicUrban has prepared and will distribute Design Controls that will affect all lots in each stage of subdivision of Section A of Aurora. The Design Controls provide detail on the approach to and implementation of dwelling siting and design, fencing, energy efficiency, waste management, building materials and landscape design. The Design Controls will be incorporated in covenants that are conveyed with the title of a lot. The Design Controls will not require any consent or control input from Whittlesea.

A Design Co-ordinator will be appointed by VicUrban to review dwelling designs prior to planning / building approval being sought. The main aim of the Design Co-ordinator is to provide an understanding of the Design Controls and to assist builders / lot owners in preparing dwelling plans that comply with the Design Controls. The decision of the Design Co-ordinator will be given prior to any planning / building approval and is not in lieu of those requirements.

In Section A of Aurora, VicUrban will work intensively with builders to develop an integrated dwelling and land product on lots less than 400 square metres (representing up to 75 per cent of the lots on the subject land). This process will be in addition to the Design Controls and the role of the Design Co-ordinator.

A core group of builders for Stage 1 of Section A of Aurora has been selected by VicUrban in an Expressions of Interest process. VicUrban will allocate lots to the builders and then work with them to prepare plans in response to the Design Controls, the Scheme, the subdivision permits and the varied approaches to design and siting noted above. Stage 1 will be fully constructed before it is opened to potential purchasers and will include the VicUrban Sales and Information Centre, a display village and some speculative builder product.

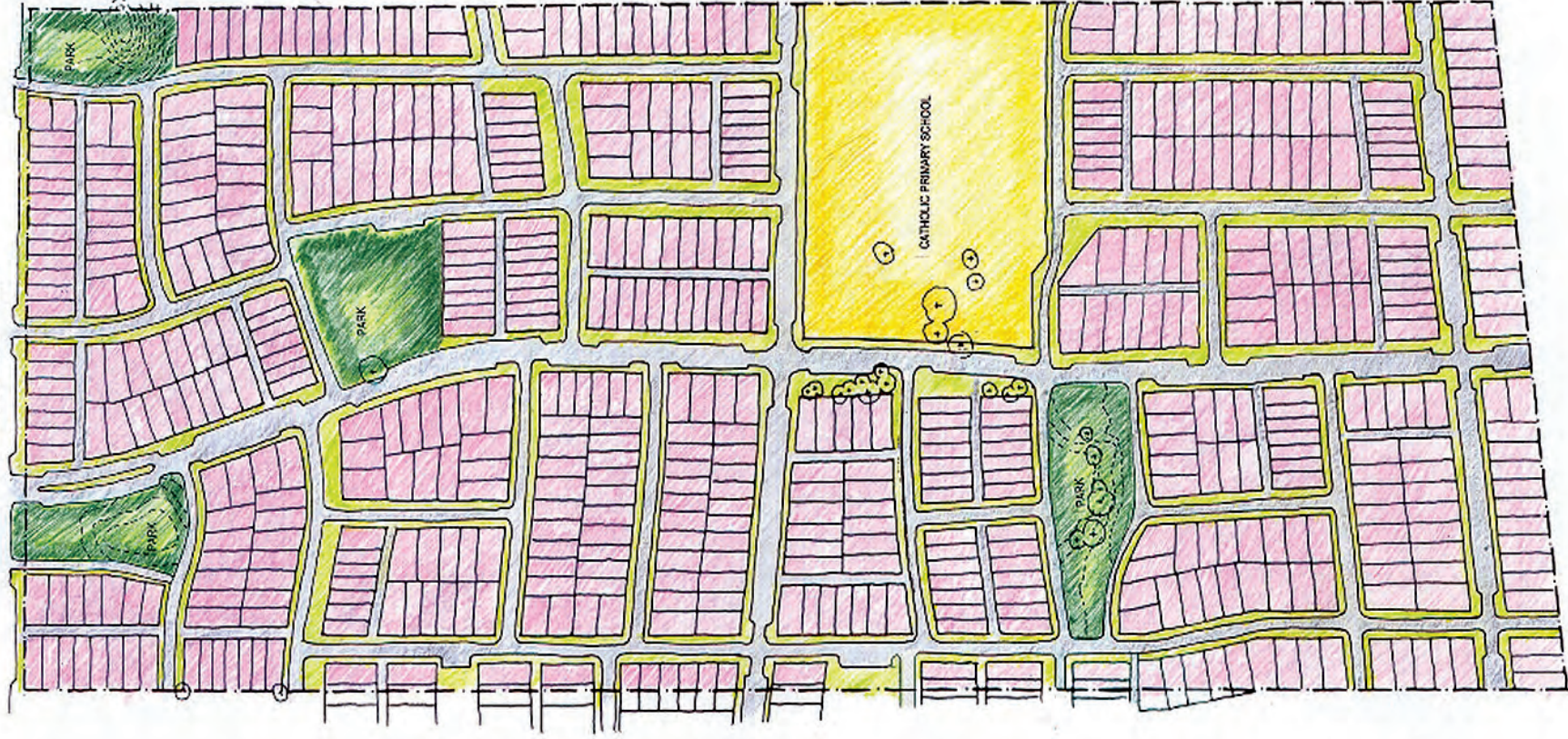
The remainder of lots less than 400 square metres in Section A will also be allocated to builders. Potential purchasers will be able to choose a dwelling from a builder in the display village however, the chosen dwelling will only be able to be constructed on a lot allocated to the particular builder. A greater degree of control of and certainty in the built form outcome therefore will be facilitated.

The 25 per cent of lots in Section A that will be greater than 400 square metres will be available for purchase by the general public (that is, they will not be allocated to builders). All dwelling designs will respond to the Design Controls and the plans of subdivision, including the varied approaches to design and siting noted above.


APPENDIX A


AURORA DEVELOPMENT PLAN: PART 1


HARVEST HOME LANE



LEGEND

 Residential

 School

 Public Open Space

NOTE:
The lots and local streets shown are indicative of the development proposed and its density. The actual lot configuration, boundaries and local street alignments may be quite different based on continuing studies and refinement as a normal part of progressing to the later planning permit application stage.

**AURORA DEVELOPMENT PLAN
PART 1**

DATE: 28 April 2003



APPENDIX B

PROJECT TEAM

The project team that completed the discussions and studies leading to the preparation of the ADP: Part 1 included the following.

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Anne Jolic

Biosis Research Pty Ltd

Catherine Costello

Taryn Debney

Chris Timewell

Gary Vines

Collie Planning and Development Pty Ltd

Michael Collie

Fiona Munn

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David Hunter

Terry Mawson

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Maurice Leone

JHD Advisors Pty Ltd

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Barry Murphy

Parsons Brinckerhoff Australia

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Damien Hancox

Jim Higgs



APPENDIX C

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