

KEY ISSUES BACKGROUND REPORT

Knox Central Structure Plan

FOR PUBLIC EXHIBITION (FOR COUNCIL CONSIDERATION 13 SEPTEMBER 2016)

'Knox Central – Capital of the East'



Document Register		
Revision	Purpose	Date of Issue
1	Draft for Public Exhibition for consideration by Council on 13 September 2016	13 September 2016

CONTENTS

1.	PURPOSE OF THIS REPORT	4
2.	KNOX CENTRAL URBAN DESIGN FRAMEWORK 2005	5
3.	THE ROLE AND CONTEXT OF THE ACTIVITY CENTRE	6
4.	COMMUNITY PROFILE	10
5.	EXISTING PLANNING FRAMEWORK	13
6.	LAND USE MIX	22
7.	ACCESS, MOVEMENT AND TRANSPORT	28
8.	OPEN SPACE AND RECREATION	42
9.	SOCIAL AND COMMUNITY INFRASTRUCTURE	46
10.	COMMUNITY SAFETY	48
11.	BUSINESS MIX AND EMPLOYMENT	49
12.	NATURAL ENVIRONMENT AND LANDSCAPE	52
13.	LAND USE DEMAND AND SUPPLY CONSIDERATIONS	56
14.	BUILT ENVIRONMENT	60
15.	RESIDENTIAL DEVELOPMENT	67
16.	OTHER OPPORTUNITY SITES	74
17.	FUTURE PLANNING FRAMEWORK	76
18.	REFERENCES	77

1. PURPOSE OF THIS REPORT

Knox City Council has decided to develop a new structure plan for Knox Central in order to provide a contemporary planning framework for the Activity Centre. The purpose of this document is to identify key issues (opportunities and considerations) that need to be addressed through the development of a new structure plan.

The report also provides an analysis of the objectives and directions of the Knox Central Urban Design Framework 2005 (KCUDF), which is the launching pad for the development of the new Structure Plan.

The following sources have been used to collate these issues:

- Knox Central Urban Design Framework 2005 (KCUDF)
- Knox Planning Scheme
- Various research studies commissioned by Council
- Adopted Council strategies and plans
- Consultation with Council staff

This report does not provide a conclusive review of all work undertaken, but seeks to synthesise data that is pertinent to the current conditions at Knox Central.



2. KNOX CENTRAL URBAN DESIGN FRAMEWORK 2005

The 2005 KCUDF articulated Council's vision for Knox Central as: 'a modern mixed-use activity centre, bringing about a shift in the role and form by focusing on the highest quality urban design and the broadest possible range of activities in a physically, economically, socially and culturally cohesive vital and vibrant place'.

The KCUDF states that the overall vision in relation to Knox Central is:

- a. To establish Burwood Highway, Knox, (to be known simply as 'Knox') as the premier address and the most well known and popular activity centre destination in the middle / outer eastern suburbs of Melbourne.
- b. To establish Knox as the commercial, community, entertainment, leisure and employment focal point and as the heart of the municipality.
- c. To use natural and environmental features to distinguish Knox Central from other suburban activity centres.
- d. To establish the study area as the most accessible place in the municipality and in the outer eastern suburbs of Melbourne by public transport, by pedestrians, bicycles, and also by cars.
- e. To achieve a high intensity of activity throughout the area that creates the critical mass needed to support the widest possible range of higher order commercial, community and other uses.
- f. To establish a beautiful and highly regarded urban environment in terms of both its landscape setting and its built form.
- g. To 'open up' road access to and throughout the precinct and make it easier to move through, understand and be more accessible.
- h. To pursue all realistic opportunities to incorporate principles of environmental sustainability in all development that occurs throughout the study area.

The key objectives of the Framework were to:

- Cause development opportunities in the precinct to be realised in a manner that will:
 - Achieve an integrated mix of uses via an agreed framework that avoids ad hoc development
 - Provide a focus for public life, with the creation of improved public and civic spaces
 - Introduce vital new uses, including the opportunities for more diverse housing types

- Deliver high quality urban design and development
- Deliver a strategy that improves vehicular and pedestrian connections
- Realise opportunities for the Blind Creek corridor to be a multi-functional space integrated with the precinct
- Fully integrate development with existing, planned or potential improvements to the movement network
- Allow development of the activity centre to proceed in stages, ensuring that each stage furthers the attainment of a fully integrated centre.

The objectives articulated in the Knox Central Urban Design Framework 2005 remain generally sound and continue to reflect the current 'lay of the land' of the Activity Centre.

Significant Changes Since 2005

An assessment of the main changes to the economic and demographic profile of Knox Central and its place in the metropolitan planning structure was commissioned by Council in 2015 (Geografia, 2015). The key findings of this assessment are referred to within this report. Part of this assessment also included a high level review of the directions of the KCUDF (see Chapter 6, Table 2 of this report).

There have been a number of significant infrastructure and property changes within and around Knox Central since the preparation of the UDF in 2005. These include:

- The construction of Eastlink, significantly increasing accessibility between Knox Central and other eastern and southeastern suburbs.
- The purchase of Knox Shopping Centre by Westfield in 2012. Stage 1 of a substantial expansion for the Centre was approved by Council in 2014.
- The development of new high-density residential, aged care and hotel accommodation.
- Existing and approved major investment at Ringwood and Glen Waverley activity centres.
- The closure of Myer at Dandenong Plaza.
- The recent declaration of state government land as surplus to needs (former Department of Environment and Primary Industries site).

3. THE ROLE AND CONTEXT OF THE ACTIVITY CENTRE

The Knox Central Activity Centre is shown in Figure 1, with the activity centre boundary shown in orange.



Figure 1 Knox Central Activity Centre Boundary

The Knox Planning Scheme (Clause 21.07) notes that Knox Central is “the principal activity centre for Knox serving as the civic, retail, commercial and entertainment focus for the municipality. The Centre performs a regional role for the outer east and will see significant investment and growth over the next 25 years as a retail centre of regional significance that is a thriving, lively focal point for the outer eastern suburbs.” Knox Central plays a significant role in the overall planning framework for the municipality (see Figure 2) and the *Knox Housing Strategy 2015* identifies the Activity Centre as being the focus for higher density residential development.

The former metropolitan plan for Melbourne, *Melbourne 2030*, designated Knox Central as a Principal Activity Centre. The current metropolitan framework, *Plan Melbourne*, designates it as an Activity Centre.

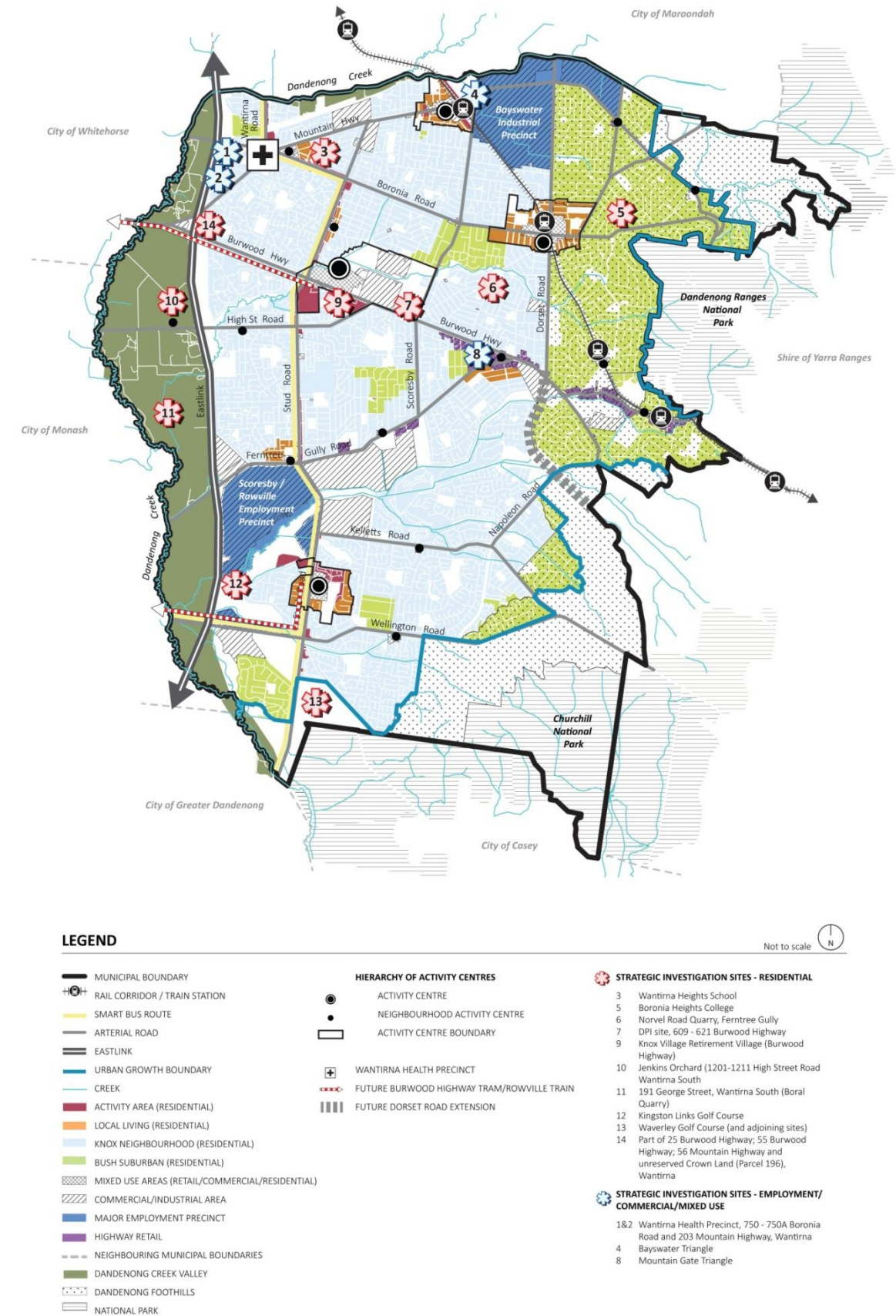


Figure 2 Strategic Framework Plan (Knox Planning Scheme, Amendment C150)

Knox Central has not traditionally played a major role in the provision of housing, despite long being identified as a preferred location in Knox for higher density residential development, through the Knox Housing Statement 2005 (updated 2007) and the Knox Housing Strategy 2015. However, in line with development trends across metropolitan Melbourne, there has been a notable shift within the last 5-10 years with a number of high density developments being approved and constructed. High density residential developments within the area include:

- Punt Hill Apartments (Stud Rd) – completed in 2007 (four storeys, 54 dwellings)
- Kubix apartments (corner Burwood Hwy and Stud Road) – under construction, Stage 1 complete (three buildings of 8-11 storeys, 236 dwellings) (approved in 2012)
- Knoxia (Burwood Hwy) – approved in 2014, construction pending (six storeys, 87 apartments and 7 townhouses)

This residential development activity is the most obvious embodiment of the ‘shift’ envisaged in the KCUDF.

Knox Central services a primarily local workforce. Figure 3 shows the place of residence of people who work within the Activity Centre. The scale of each dot shows the number of Knox Central workers that live in each census statistical area (SA1). It shows that the vast majority of workers live within Knox, especially the northern parts of the municipality. There are fewer dots in areas outside of Knox (e.g. in Maroondah or Monash LGAs), meaning workers do not generally come from these areas to the Activity Centre.



Figure 3 Place of Residence of Knox Central workers Source: ABS Census, Analysis: Geografia

An objective of the KCUDF is to retain the role of Knox City Shopping Centre as the pre-eminent shopping destination in outer eastern suburbs of Melbourne (emphasis added). It can be argued that Ringwood has surpassed Knox Central in being the dominant activity centre in the eastern region. Ringwood has the benefit of heavy rail as well as proximity to Eastlink and has seen significant State and Federal Government funding. Furthermore, significant development has occurred at Westfield Doncaster, which is the more relevant now that the Westfield operates at Knox. The role of Knox Central in the retail landscape should be considered in the context of surrounding shopping centres, most of which have overlapping catchments.

Figure 4 shows the primary retail catchment area. It generally encompasses most of Knox City Council, and some parts of the Yarra Ranges Shire Council. This catchment is generally consistent with the primary catchment indicated by Westfield in marketing materials.

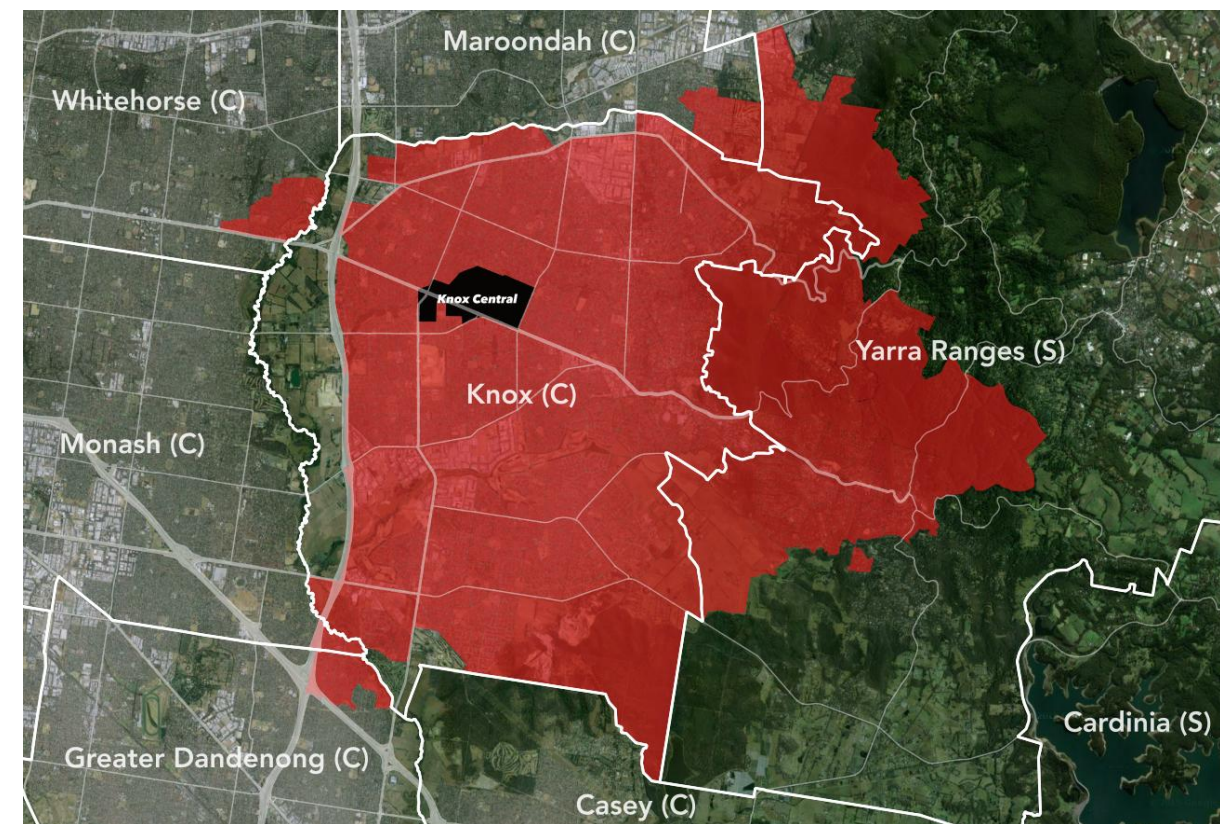


Figure 4 Primary Retail Catchment for Knox Central

Figure 5 shows the overlap of 20 minute off-peak drive time catchments for Knox Central, Fountain Gate, Ringwood and Chadstone. The accessibility for residents in the eastern region to all shopping centres has increased substantially with the development of Eastlink.

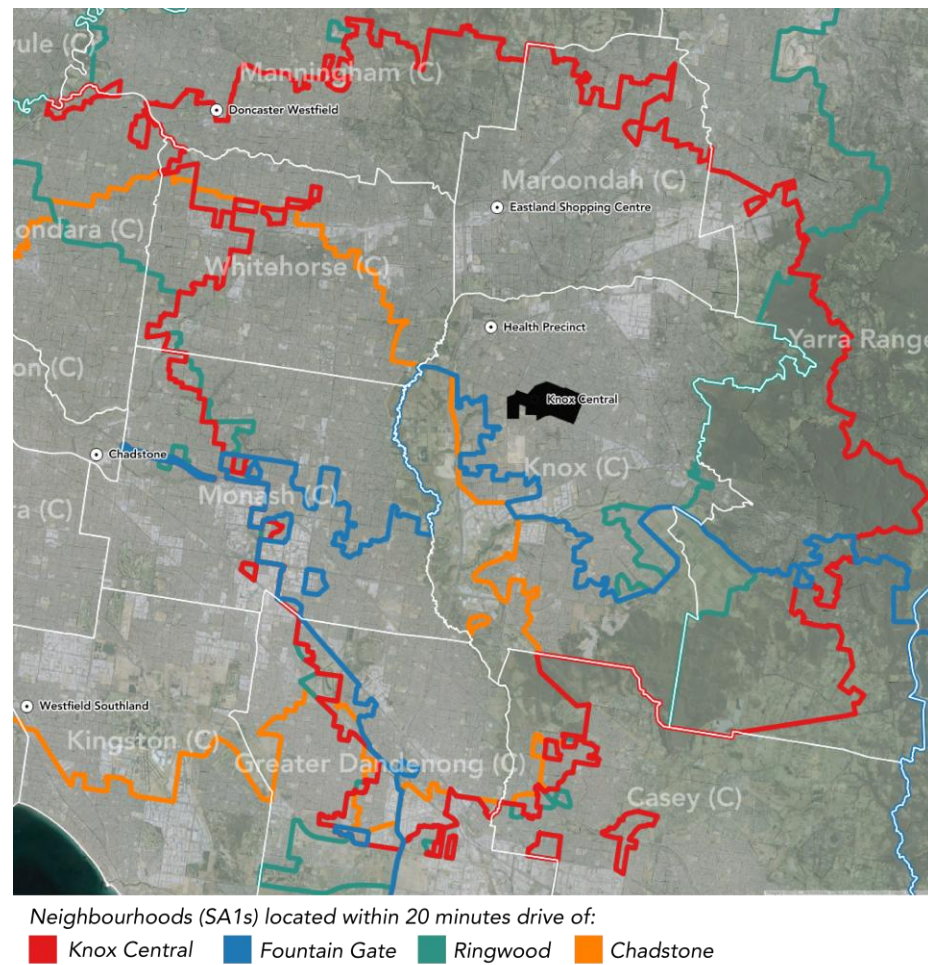


Figure 5 20 Minute off-peak drive time catchments

The Wantirna Health Precinct has been identified as a Health Precinct in Plan Melbourne. Being within a few kilometers of Wantirna, there is potential to establish a relationship between these centres.

4. COMMUNITY PROFILE

Given Knox Central's municipal and regional role, the demographic profile of the whole Knox community is considered relevant to the activity centre. The following data is sourced from Knox ID (<http://profile.id.com.au/knox>)

Population

The official population of the City of Knox as of the 30th June 2015, was 155,681 (estimated resident population). From 2006 to 2011, City of Knox's population increased by 2,582 people (1.8%). This represents an average annual population change of 0.35% per year over the period.

The Knox population is expected to increase by over 19,300 people to 174,008 by 2026, at an average annual growth rate of 0.79%. This is based on an increase of over 10,200 households during the period, with the average number of persons per household falling from 2.78 to 2.63 by 2026.

Age

Analysis of the five year age groups of the City of Knox in 2011 compared to Greater Melbourne shows that there was a similar proportion of people in the younger age groups (under 15) as well as a similar proportion of people in the older age groups (65+). Overall, 18.5% of the population was aged between 0 and 15, and 12.7% were aged 65 years and over, compared with 18.5% and 13.1% respectively for Greater Melbourne.

The major differences between the age structure of the City of Knox and Greater Melbourne were:

- A larger percentage of persons aged 55 to 59 (6.7% compared to 5.6%)
- A larger percentage of persons aged 50 to 54 (7.5% compared to 6.4%)
- A smaller percentage of persons aged 25 to 29 (6.2% compared to 7.9%)
- A smaller percentage of persons aged 30 to 34 (6.3% compared to 7.5%)

The largest changes in age structure in this area between 2006 and 2011 were in the age groups:

60 to 64 (+2,025 persons)
65 to 69 (+1,341 persons)
10 to 14 (-1,247 persons)
70 to 74 (+1,048 persons)

The largest increase in persons between 2011 and 2026 is forecast to be in ages 70 to 74, which is expected to increase by 3,247 and account for 4.5% of the total persons.

The largest 5 year age group in 2026 is 40 to 44 years, with a total of 12,155 persons.

Household Structure

Analysis of the household/family types in the City of Knox in 2011 compared to Greater Melbourne shows that there was a higher proportion of couple families with child(ren) as well as a higher proportion of one-parent families. Overall, 40.1% of total families were couple families with child(ren), and 11.4% were one-parent families, compared with 33.6% and 10.4% respectively for Greater Melbourne.

There were a lower proportion of lone person households and a higher proportion of couples without children. Overall, the proportion of lone person households was 18.9% compared to 22.3% in Greater Melbourne while the proportion of couples without children was 24.2% compared to 23.5% in Greater Melbourne.

The number of households in City of Knox increased by 1,877 between 2006 and 2011. The largest changes in family/household types in the City of Knox between 2006 and 2011 were:

- Couples without children (+1,065 households)
- Lone person (+650 households)
- One parent families (+208 households)
- Other families (+74 households)

Employment and Workforce

The size of the City of Knox's labour force in 2011 was 81,312, of which 26,501 were employed part-time and 49,449 were full time workers.

Analysis of the employment status (as a percentage of the labour force) in the City of Knox in 2011 compared to Greater Melbourne shows that there was a higher proportion in employment, and a lower proportion unemployed. Overall, 95.4% of the labour force was employed (63.8% of the population aged 15+), and 4.6% unemployed (3.1% of the population aged 15+), compared with 94.5% and 5.5% respectively for Greater Melbourne.

Travel to Work

In 2011, 45,197 (58.2%) of the City of Knox's working residents travelled outside of the area to work. In 2011, there were 5,901 people who caught public transport to work (train, bus, tram or ferry) in City of Knox, compared with 58,507 who drove in private vehicles (car – as driver, car – as passenger, motorbike, or truck).

Analysis of the method of travel to work of the residents in the City of Knox in 2011, compared to Greater Melbourne, shows that 7.7% used public transport, while 76.1% used a private vehicle, compared with 13.4% and 64.4% respectively in Greater Melbourne.

The major differences in persons between the method of travel to work of the City of

Knox and Greater Melbourne were:

- A larger percentage of persons who travelled by car (as driver) (70.3% compared to 59.1%)
- A smaller percentage of persons who travelled by train (6.3% compared to 9.7%)
- A smaller percentage of persons who travelled by tram or ferry (0.1% compared to 2.2%)
- A smaller percentage of persons who walked only (1.1% compared to 2.9%)

Income

The median weekly household income is \$1401 (compared to \$1333 for greater Melbourne).

Analysis of household income levels in the City of Knox in 2011 compared to Greater Melbourne shows that there was a smaller proportion of high income households (those earning \$2,500 per week or more) and a lower proportion of low income households (those earning less than \$600 per week).

Overall, 18.0% of the households earned a high income and 16.6% were low income households, compared with 19.4% and 19.2% respectively for Greater Melbourne.

The major differences between the household incomes of the City of Knox and Greater Melbourne were:

- A *larger* percentage of households who earned \$1500-\$1999 (13.5% compared to 11.7%)
- A *larger* percentage of households who earned \$2000-\$2499 (10.0% compared to 8.6%)

Education

Analysis of the qualifications of the population of Knox in 2011 compared to Greater Melbourne shows that there was a lower proportion of people holding formal qualifications (Bachelor or higher degree; Advanced Diploma or Diploma; or Vocational qualifications), and a higher proportion of people with no formal qualifications.

Overall, 46.7% of the population aged 15 and over held educational qualifications, and 45.2% had no qualifications, compared with 47.3% and 42.4% respectively for Greater Melbourne.

The major differences between qualifications held by the Knox population and Greater Melbourne were:

A *larger* percentage of persons with Vocational qualifications (19.5% compared to 15.0%)

A *larger* percentage of persons with No qualifications (45.2% compared to 42.4%)

A *smaller* percentage of persons with Bachelor or Higher degrees (17.9% compared

to 23.6%)

Religion

Analysis of the religious affiliation of the population of the City of Knox in 2011 compared to Greater Melbourne shows that there was a similar proportion of people who professed a religion and a higher proportion who stated they had no religion.

Overall, 67.4% of the population nominated a religion, and 25.1% said they had no religion, compared with 67.6% and 23.5% respectively for Greater Melbourne.

The largest single religion in the City of Knox was Western (Roman) Catholic, with 25.4% of the population or 37,897 people as adherents.

The major differences between the religious affiliation for the population of the City of Knox and Greater Melbourne were:

- A *larger* percentage who nominated Anglican (12.9% compared to 10.8%)
- A *smaller* percentage who nominated Islam (1.2% compared to 3.6%)
- A *smaller* percentage who nominated Greek Orthodox (2.2% compared to 4.0%)
- A *smaller* percentage who nominated Western (Roman) Catholic (25.4% compared to 27.1%)

The largest changes in the religious affiliation of the population in the City of Knox between 2006 and 2011 were for those who nominated:

- Christian,nfd (+1,402 persons)
- Buddhism (+1,170 persons)
- Anglican (-1,123 persons)
- Hinduism (+1,073 persons)

Cultural Background

Analysis of the country of birth of the population in the City of Knox in 2011 compared to Greater Melbourne shows that there was a smaller proportion of people born overseas, as well as a smaller proportion of people from a non-English speaking background. Overall, 27.8% of the population was born overseas, and 19.7% were from a non-English speaking background, compared with 31.4% and 24.2% respectively for Greater Melbourne. The largest non-English speaking country of birth in the City of Knox was India, where 2.0% of the population, or 3,033 people, were born.

The major difference between the countries of birth of the population in the City of Knox and Greater Melbourne was:

- A *larger* percentage of people born in United Kingdom (5.4% compared to 4.1%)
- The largest non-English speaking country of birth in the City of Knox was India,

where 2.0% of the population, or 3,033 people, were born.

The major difference between the countries of birth of the population in the City of Knox and Greater Melbourne was:

- A *larger* percentage of people born in United Kingdom (5.4% compared to 4.1%)
- Between 2006 and 2011, the number of people born overseas increased by 4,515 or 12.2%, and the number of people from a non-English speaking background increased by 4,981 or 20.4%.

The largest changes in birthplace countries of the population in this area between 2006 and 2011 were for those born in:

- China (+1,323 persons)
- India (+1,030 persons)
- Malaysia (+726 persons)
- Sri Lanka (+649 persons)

Opportunities and Considerations

- Workers in Knox are highly dependent on their cars to get to work
- The greatest change in household structure will be an increase in smaller households
- Knox's population is becoming more culturally diverse
- Knox Central will play a significant role in the provision of smaller dwellings
- There is an opportunity to provide greater transport choices for residents and workers

5. EXISTING PLANNING FRAMEWORK

State Government Policy

For a number of years, under the Melbourne 2030 framework, Knox Central has been referred to as a 'principal activity centre' which is reflected in existing planning policy (Clause 22.04 of the Knox Planning Scheme). The advent of Plan Melbourne in 2013 effectively 'downgraded' the metropolitan role of the activity centre.

Plan Melbourne refers to Knox Central as an 'activity centre'. By way of contrast, Dandenong, Box Hill and Ringwood are designated as Metropolitan Activity Centres and both Monash and Dandenong South are noted as National Employment Clusters.

Plan Melbourne was released in May 2014, by the then State Government. The document is Melbourne's metropolitan planning strategy for the next 40 years and will guide its development and growth, including matters such as infrastructure, housing, employment, transport and the environment.

Objectives relevant to Knox Central in *Plan Melbourne* include:

- **Delivering jobs and investment:** Create a city structure that drives productivity, supports investment through certainty and creates more jobs.
- **Housing choice and affordability:** Provide a diversity of housing in defined locations that caters for different households and is close to jobs and services.
- **A more connected Melbourne:** Provide an integrated transport system connecting people to jobs and services and goods to market.
- **Liveable communities and neighbourhoods:** Create healthy and active neighbourhoods and maintain Melbourne's identity as one of the world's most liveable cities.
- **Environment and energy:** Protect our natural assets and better plan our water, energy and waste management to create a sustainable city.

The current State Government has undertaken a *Plan Melbourne Refresh*. The refresh sought to address the important issues of housing supply, diversity and affordability and climate change, and to reflect current transport network priorities. It is expected that the refreshed *Plan Melbourne 2016* will be released and incorporated into planning schemes in late-2016.

The Structure Plan and the Knox Planning Scheme must be consistent with State Government strategies and policies such as Plan Melbourne and the State Planning Policy Framework.

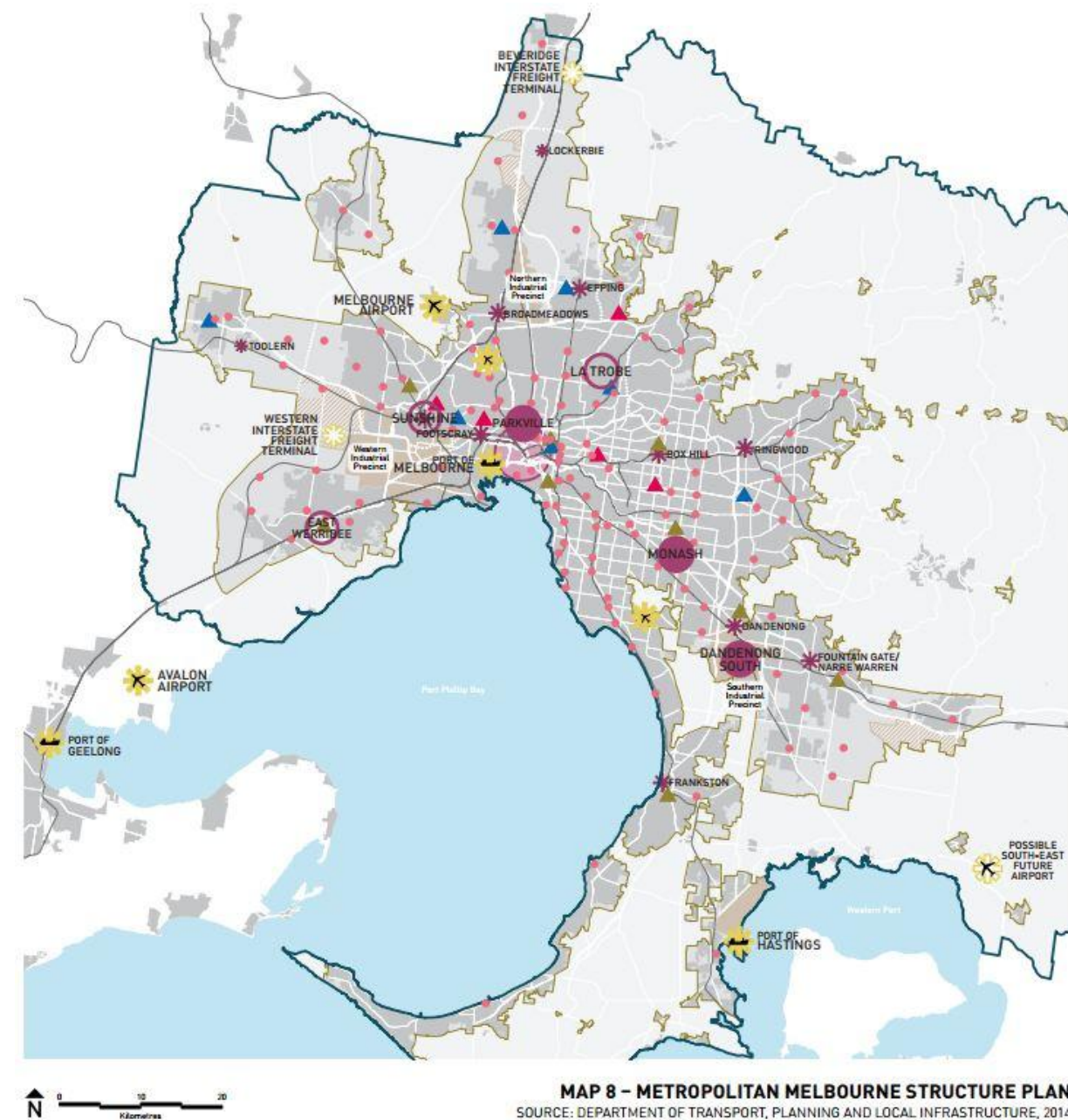


Figure 6 Plan Melbourne Metropolitan Melbourne Structure Plan (Map 8)

Knox Vision and City Plan

The Knox Vision provides a shared vision for the future of Knox that will deliver the lifestyle, jobs and industry, health and wellbeing desired by members of the Knox community. The vision is outlined under five themes, each containing a description of the ideal future, and identifying the features that will be in place when that future is achieved:

- Healthy, Connected Communities
- Prosperous, Advancing Economy
- Vibrant and Sustainable Built and Natural Environments
- Culturally Rich and Active Communities
- Democratic and Engaged Communities

These themes are used as indicators to monitor the community's wellbeing and achievement toward the broader Vision for Knox.

The Knox City Plan outlines the barriers, enablers and key strategies for achieving the aspirations for each theme outlined as part of the Knox Vision. These themes will provide a framework for the development of the Structure Plan and the vision and strategic objectives for Knox Central. The Structure Plan will seek to deliver the objectives and strategies contained in Knox Vision and City Plan, at a local level.

Healthy, Connected Communities

Aims to provide a safe community with strong community connections, where learning and volunteering are valued and supported, and the Knox community benefits from good health and wellbeing at all life stages.

Prosperous, Advancing Economy

Aims to provide a strong local economy that supports business growth, jobs and community wealth and improve local opportunities for people to live, work, learn and play in Knox.

Vibrant and Sustainable Built and Natural Environments

Aims to ensure the changing needs of a diverse community are supported through planned growth and change in housing and infrastructure that respects built form, natural systems and resource availability. It also aims to ensure biodiversity and places of natural significance, including waterways and open space, are highly valued, protected and enhanced, and infrastructure networks provide transport choice, affordability and connectivity.

Culturally Rich and Active Communities

Aims to improve the acceptance and valuing of diversity and difference in the Knox community and increase the use of public spaces and infrastructure for the purposes of cultural expression and physical activity.

Democratic and Engaged Communities

Aims to improve community leadership and participation in Knox and ensure Council is well governed and demonstrates effective leadership.

Opportunities and Considerations

- As Knox's largest activity centre, Knox Central is well-placed to contribute to the achievement of Council's overall vision and objectives
- The Structure Plan provides an opportunity to articulate the Knox Vision and City Plan objectives at the local level
- Consideration of Knox Central's future role in the metropolitan and regional context is an important factor in planning for the Activity Centre.

Knox Integrated City Strategy

The Knox Integrated City Strategy was developed to provide the strategic direction to achieve the *Knox Vision: Our City, Our Future* and the *Knox City Plan 2013-2017*. The following 'areas of focus' of the *Integrated City Strategy* are relevant to Knox Central:

- 1.1 - Improve the connections between existing shared paths and footpaths, especially to key places.
- 1.2 - Apply place-based approaches to planning, programs and implementation.
- 1.3 - Continue to invest in community and physical infrastructure.
- 1.4 - Strengthen and protect local character and landscape value in Knox.
- 2.1 - Partner with and improve connections between businesses, education providers and relevant learning services to deliver and enhance the knowledge and skills of the Knox community.
- 2.2 - Apply a place-based approach to planning and program delivery to improve and enable community access to lifelong learning.
- 3.1 - Facilitate and advocate housing diversity and choice in appropriate locations to achieve accessible, sustainable and more affordable housing options.
- 3.3 - Improve the quality of development and its design in Knox and encourage developers to increase the diversity of Knox's housing stock.
- 4.3 - Continue to manage, maintain, expand and join bush boulevards, waterways and sites of remnant vegetation or isolated species.
- 4.4 - Create a greener city with more trees and indigenous vegetation in public and private spaces, and thriving significant plant species.
- 4.5 - Increase awareness and appreciation of the value of local biodiversity and its community health and wellbeing benefits.
- 4.6 - Retain existing vegetation where it contributes to maintaining landscape amenity.
- 5.4 - Improve the community's access to nature, services, infrastructure and activities in Knox that contribute to health and wellbeing.
- 6.2 - Develop and apply principles in planning and infrastructure delivery to create and support healthy environments for all life stages.
- 6.3 - Research, plan, implement and/or advocate for the provision of and access to community services and/or infrastructure that enhances community connectedness.
- 6.4 - Improve access to services, infrastructure and activities across all life stages in Knox.
- 7.3 - Plan for Council's risks in relation to a changing climate.
- 8.1 - Integrate planning for the future provision of community infrastructure,

including investigation of new models for alternative funding and the development of multi-use facilities in co-located centres as appropriate.

8.2 - Increase the community's awareness of services and public infrastructure which support sporting, recreational and leisure activities and encourage greater participation.

9.1 - Improve the provision of integrated public transport options in Knox.

9.2 - Advocate for diverse transport choices, better access to public transport services and better utilisation of the existing road network to support the movement and connection of people and goods, in, through and out of Knox.

9.3 - Improve community awareness of the benefits of using sustainable transport options.

10.4 - Grow the local economy through strategic investment attraction and targeted advisory support and advocacy to assist business growth.

11.1 - Use new models for alternative infrastructure funding (e.g. development contributions and public/private partnerships).

11.2 - Apply a place-based approach to planning and programs, connecting the delivery of services, programs and activities with measurable outcomes in Scoresby/Rowville, Bayswater, Knox Central and Wantirna Health Precinct.

11.4 - Foster viable and accessible Activity Centres commensurate with their role and function to meet community needs.

12.3 Ensure a continued focus on creating a safe living environment and enviable lifestyle in Knox.

Opportunities and Considerations

- The Structure Plan provides an opportunities to progress a number of strategies in a cohesive and placed based manner
- The implementation plan for the Knox Central Structure Plan will provide a program of actions, which support the achievement of Council's higher order strategies.

Knox Planning Scheme

Policy direction for the activity centre is provided in the Knox Municipal Strategic Statement¹ in the following sections:

- Clause 21.04 Urban Design
- Clause 21.05 Housing
- Clause 21.06 Environment
- Clause 21.07 Economic Development

Of particularly relevance is Objective 6 of Clause 21.07:

Objective 6 (Activity Centres)

To ensure a hierarchy of viable, accessible activity centres with a greater range of complementary activities for domestic, business, leisure and social life with improved public transport services.

Strategies

- *Reinforce the role of the Knox Central Principal Activity Centre as a regional activity centre serving as the civic, retail, commercial, cultural and entertainment focus for the municipality and the region by using the Knox Central Principal Activity Centre local policy to ensure that development is consistent with the Knox Central Urban Design Framework.*

The planning framework in the Knox Planning Scheme for Knox Central also comprises a local policy, zones and overlays. The interim local policy at Clause 22.04 was a first step in implementing the objectives of the KCUDF. However, it should be noted that a wholesale planning scheme amendment was not undertaken in order to implement the KCUDF, following its adoption in 2005.

A review of the Knox Planning Scheme was completed in 2015. Recommendation 9 of the Planning Scheme Review Report is: *Development and Implementation of the Knox Central Structure Plan to provide updated strategic guidance for the City's largest activity centre. It is important that this implementation occurs prior to the expiry of interim controls on 30 July 2016.*

Advice from Council's statutory planners² is that the KCUDF, and therefore the Knox Planning Scheme, currently does not provide sufficient guidance regarding:

- Required setbacks
- Bush Boulevard outcomes/expectations - *this is supported by comments provided by the Office of the Victorian Government architect (see Chapter 13 of this report).*
- ESD outcomes/expectations

¹ The Knox Municipal Strategic Statement is currently under review, so the clause references will change.

² As advised at an internal staff workshop in early 2015.

Clause 22.04 KNOX CENTRAL PRINCIPAL ACTIVITY CENTRE

The purpose of this policy is to implement the *Knox Central Urban Design Framework*, (2005) as it applies to land use and development. The policy provides guidance for permit applications with regard to:

- Land use and Activity
- Built Form
- Transport and Movement
- Landscape and Environment

This policy, which was first incorporated in to the Knox Planning Scheme in 2008, expires on 30 July 2016.

In its review of Clause 22.04, the 2015 Planning Scheme Review Report (Glossop, 2014) states:

It is understood that this policy is subject to a broader review that guides the future development of Knox Central. This broader review of the policy context surrounding Knox Central is supported as part of this planning scheme review process as it is noted that Clause 22.04 is an interim policy only. Permanent controls therefore should be developed as a priority prior to the expiry of this clause (30 June 2016).

Consistent with DELWP's advice³ and other recommendations of this review, Council should investigate all options available to it within the planning toolkit to implement policies relating to Knox Central, and to streamline policy controls which apply across the centre.

³ As part of the Planning Scheme Review process, members of the project team met with members of the Planning Statutory Services team within the Department of Environment, Land, Water and Planning (DELWP) to seek its views on the operation and effectiveness of the Knox Planning Scheme. At this meeting, DELWP advised that it would be prudent for Council to consider using the full toolkit of the Victoria Planning Provisions available in rewriting its scheme. In this regard, it acknowledged that there *may* be benefit in applying an Activity Centre Zone to activity centres in order to rationalise Design and Development Overlays, Development Plan Overlays and local policies.

1.1.1 Zones



Figure 7 Current Planning Zones

The current zones affecting the Activity Centre are:

- Commercial 1 Zone
- Industrial 1 Zone
- Residential Growth Zone (Schedule 1)
- General Residential Zone (Schedule 2)
- Public Use Zone (Schedules 1, 2, 6 and 7)
- Priority Development Zone (Schedule 1)
- Urban Floodway Zone
- Special Use Zone
- Public Park and Recreation Zone
- Road Zone Category 1

Commercial 1 Zone

The Commercial 1 Zone applies to the Westfield site; and the land on the south side of Burwood Highway between Lynne Avenue and Stud Road.

The purpose of the zone is to:

- To create vibrant mixed use commercial centres for retail, office, business, entertainment and community uses; and
- To provide for residential uses at densities complementary to the role and scale of the commercial centre.

Industrial 1 Zone

The Industrial 1 Zone applies to the land industrial land to the east and west of Lewis Road. This area extends from the DELWP site and Community Gardens/vineyard site to the east, to Lewis Park and Council's civic centre and depot to the West.

The purpose of the zone is to provide for manufacturing industry, the storage and distribution of goods and associated uses in a manner which does not affect the safety and amenity of local communities.

Residential Growth Zone

The Residential Growth Zone applies to the residential area to the south of Burwood Highway, including White and Jackson Roads, and the southern side of Burwood Highway between Lynne Avenue and Tyner Road.

The purpose of the zone is to:

- To provide housing at increased densities in buildings up to and including four storey buildings.
- To encourage a diversity of housing types in locations offering good access to services and transport including activities areas.
- To encourage a scale of development that provides a transition between areas of more intensive use and development and areas of restricted housing growth.
- To allow educational, recreational, religious, community and a limited range of other nonresidential uses to serve local community needs in appropriate locations.

Mixed Use Zone

The Mixed Use Zone applies to the sites on Stud Road occupied by Villa Maria and the Cavalier Hotel. The purpose of the zone is:

- To provide for a range of residential, commercial, industrial and other uses which complement the mixed-use function of the locality.
- To provide for housing at higher densities.

- To encourage development that responds to the existing or preferred neighbourhood character of the area.
- To facilitate the use, development and redevelopment of land in accordance with the objectives specified in a schedule to this zone.

General Residential Zone (Schedule 2)

The purpose of the General Residential Zone is:

- To encourage development that respects the neighbourhood character of the area;
- To implement neighbourhood character policy and adopted neighbourhood character guidelines;
- To provide a diversity of housing types and moderate housing growth in locations offering good access to services and transport; and
- To allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs in appropriate locations.

Amendment C131 applies new zones to the three areas noted above (see below).

Public Use Zone

The Public Use Zone applies to the following areas within the Activity Centre:

- Lewis Park (Schedule 1 – Service and Utility)
- Council's Civic Centre and Depot (Schedule 6 – Local Government)
- Fairhills Secondary College (Schedule 2 - Education)
- Community Garden/Vineyard (Schedule 7 – Other public use)
- DELWP site (Schedule 7 – Other public use)

The purpose of the Public Use Zone is:

- To recognise public land use for public utility and community services and facilities; and
- To provide for associated uses that are consistent with the intent of the public land reservation or purpose.

Priority Development Zone Schedule 1

The Priority Development Zone applies to two 'precincts' within the Activity Centre known as 'Rembrandts Triangle' and 'Stud Road West'.

The purpose of the Priority Development Zone is:

- To recognise or provide for the use and development of land for projects and areas of regional or State significance.

- To provide for a range of uses and the development of land in accordance with a plan incorporated in this scheme.

This zone was introduced in 2013 as an interim measure until such time as an adopted Structure Plan and subsequent planning scheme changes were made for Knox Central. At the time of the introduction of this zone, these two precincts were experiencing considerable development pressure for a range of uses.

Urban Floodway Zone

The Urban Floodway Zone affects the Blind Creek, in two locations within the Activity Centre:

- The southwest corner of the Stud Road/Burwood Highway intersection
- Between Lewis Road and Scoresby Road

The purpose of the Urban Floodway Zone is:

- To identify waterways, major floodpaths, drainage depressions and high hazard areas within urban areas which have the greatest risk and frequency of being affected by flooding;
- To ensure that any development maintains the free passage and temporary storage of floodwater, minimises flood damage and is compatible with flood hazard, local drainage conditions and the minimisation of soil erosion, sedimentation and silting;
- To reflect any declarations under Division 4 of Part 10 of the Water Act, 1989; and
- To protect water quality and waterways as natural resources in accordance with the provisions of relevant State Environment Protection Policies, and particularly in accordance with Clauses 33 and 35 of the State Environment Protection Policy (Waters of Victoria).

This zone will not be changed through the amendment process.

Special Use Zone

This zone applies to 256-258 Scoresby Road and vacant land to the south which abuts Blind Creek.

The purpose of the zone is to recognise or provide for the use and development of land for specific purposes as identified in a schedule in this zone. The purpose of Schedule 1 to the Zone is:

- To recognise the use of private facilities including community, sporting leisure, recreation, education and religious facilities.
- To ensure that flood risk is taken into consideration for use or development of facilities on or near land subject to flooding.

It may be appropriate to review the application of this zone to these sites through the Structure Planning process.

Public Park and Recreation Zone

The Public Park and Recreation Zone applies to small reserves within the Activity Centre, as follows:

1. Gateshead Park (adjacent to northern boundary of the Westfield site)
2. Wadhurst Reserve

Road Zone Category 1

The purpose of the Road Zone is:

- To identify significant existing roads; and
- To identify land which has been acquired for a significant proposed road.

Category 1 roads are managed by VicRoads.

As well as main roads, the Road Zone Category 1 applies to Collier Reserve, on the north-west corner of Stud Road and Burwood Highway.

Overlays

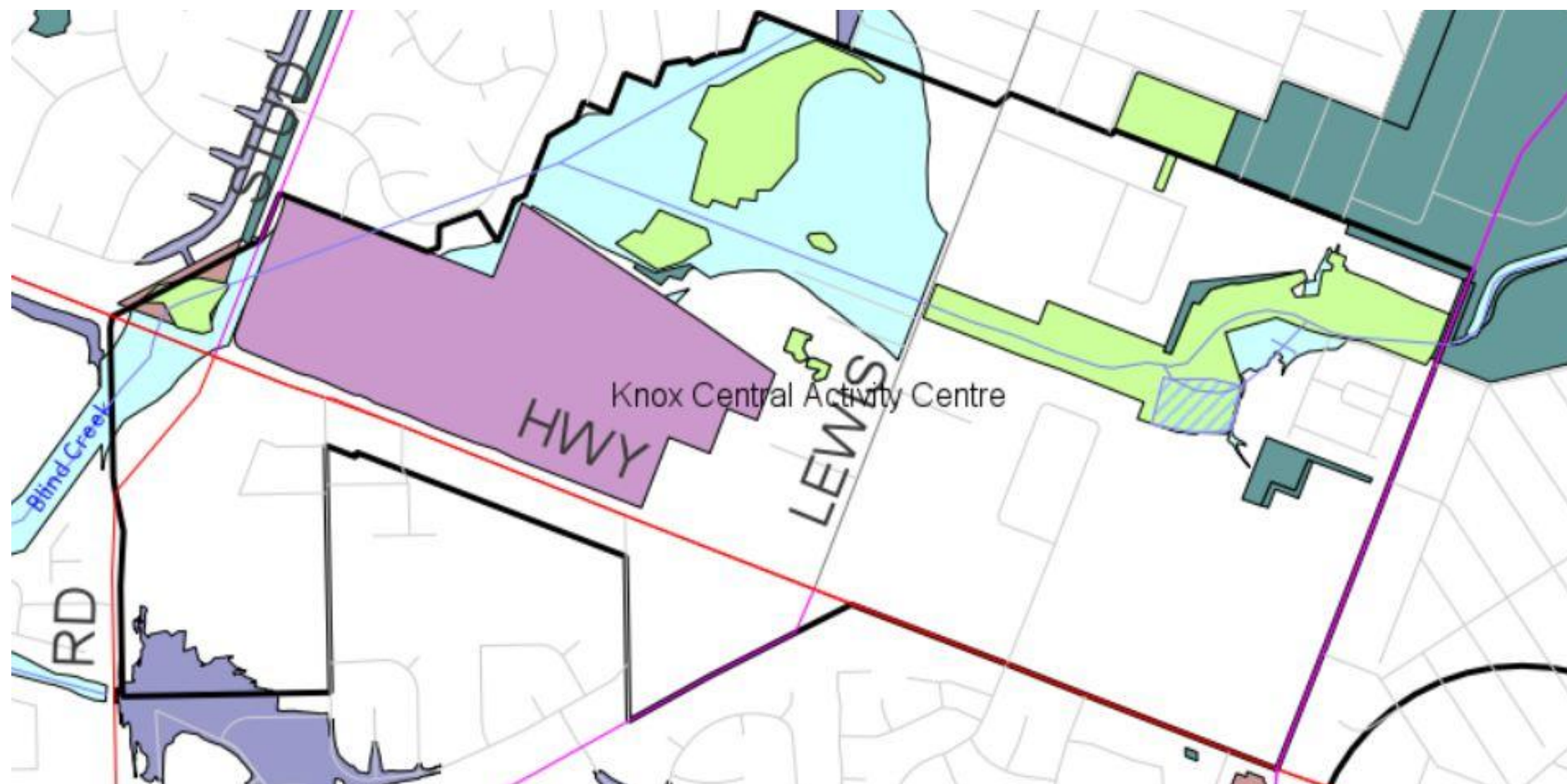


Figure 8 Current Planning Overlays

The current overlays affecting the Activity Centre are:

- Development Plan Overlay Schedule 2
- Land Subject to Inundation Overlay
- Special Building Overlay
- Environmental Significance Overlay
- Vegetation Protection Overlay

Development Plan Overlay

The Design and Development Overlay Schedule 2 applies to the Westfield Knox site.

The key elements of the schedule relate to:

- A cap on retail floor space
- Traffic and parking
- Ongoing management
- Landscaping
- Setbacks

Advice from Council's statutory planners suggests that the overlay adds little value to land use and development on the site⁴. However, the elements which are relevant and useful can be translated into new planning controls.

Heritage Overlay

Heritage Overlay Schedule 3 applies to Collier Reserve (the triangular section of land on the northwest corner of Stud Road and Burwood Highway), which forms part of the Blind Creek trail. This overlay is considered to have continued relevance to this site.

Collier Reserve is locally significant for the connection with the pioneering Collier brothers who were the first selectors in the area. ('Selection' referred to 'free selection before survey' of crown land in some Australian colonies under land legislation introduced in the 1860s). In 1867 Frank Collier selected land at the north west corner of Stud Road and Burwood Highway where he lived for 10 years (McInnes, 1993).

Environmental Significance Overlay Schedule 2

Applies to the Blind Creek corridor; large groups of trees within Lewis Park; the dam area at the DPI site; and Collier Reserve (see Chapter 13).

The Environmental Significance Overlay was applied to sites on the basis of the 'Sites of Biological Significance in Knox – 2nd Edition,' 2010 study, through Amendment C49 to the Knox Planning Scheme. This is considered to be contemporary research and the overlay schedule remains relevant to these sites.

Vegetation Protection Overlay Schedule 1

Applies to areas within Lewis Park, adjacent to ESO3 areas.

When adopting amendment C49 (24 April 2012), Council also resolved to 'maintain VPO1... in place... until such time as further strategic work is undertaken to determine whether this vegetation should continue to be protected [for] the contribution it makes to the landscape'.

⁴ As advised by City Planning Staff (KARP 20 January 2016)

Work is currently underway to review the VPO1 and will be undertaken in two stages: 1: Review of the objectives, requirements and permit triggers; 2: Review of its application (mapping changes).

This is unlikely to have a significant impact within the Activity Centre and does not need to be addressed in the Structure Plan.

Vegetation Protection Overlay Schedule 4

This overlay schedule applies to a group of trees just south of Wantirna Lea Estate, at Fairhills High School.

The Vegetation Protection Overlay Schedule 4 was applied to sites on the basis of the 'Sites of Biological Significance in Knox – 2nd Edition,' 2010 study.⁵ This is considered to be contemporary research and the overlay schedule remains relevant to this site.

Land Subject to Inundation Overlay

This overlay applies to the Blind Creek corridor; Lewis Park; the dam area at the DPI site; some industrial land just west of Lewis Road; the northwest boundary of Westfield Knox; and Collier Reserve.

The extent of this overlay may change as a result of future works to Blind Creek and the Lewis Park retarding basin (see Chapter 13).

Special Building Overlay

Within the Activity Centre, the overlay applies to the southern part of the Swinburne campus. The SBO also applies to areas adjacent to the activity centre boundary.

Special Building Overlays are based on flood modeling undertaken by both Melbourne Water and Council (based on the capacity of the infrastructure managed by the respective organisations). Background work has commenced to support a review of modelling and mapping for the SBO across Knox.

⁵ Amendment C49

6. LAND USE MIX

The Activity Centre currently has a number of distinct precincts, generally aligning with the zoning of the land:

- Retail office
- Commercial
- Residential
- Education
- Commercial
- Government/Civic
- Open space/recreation

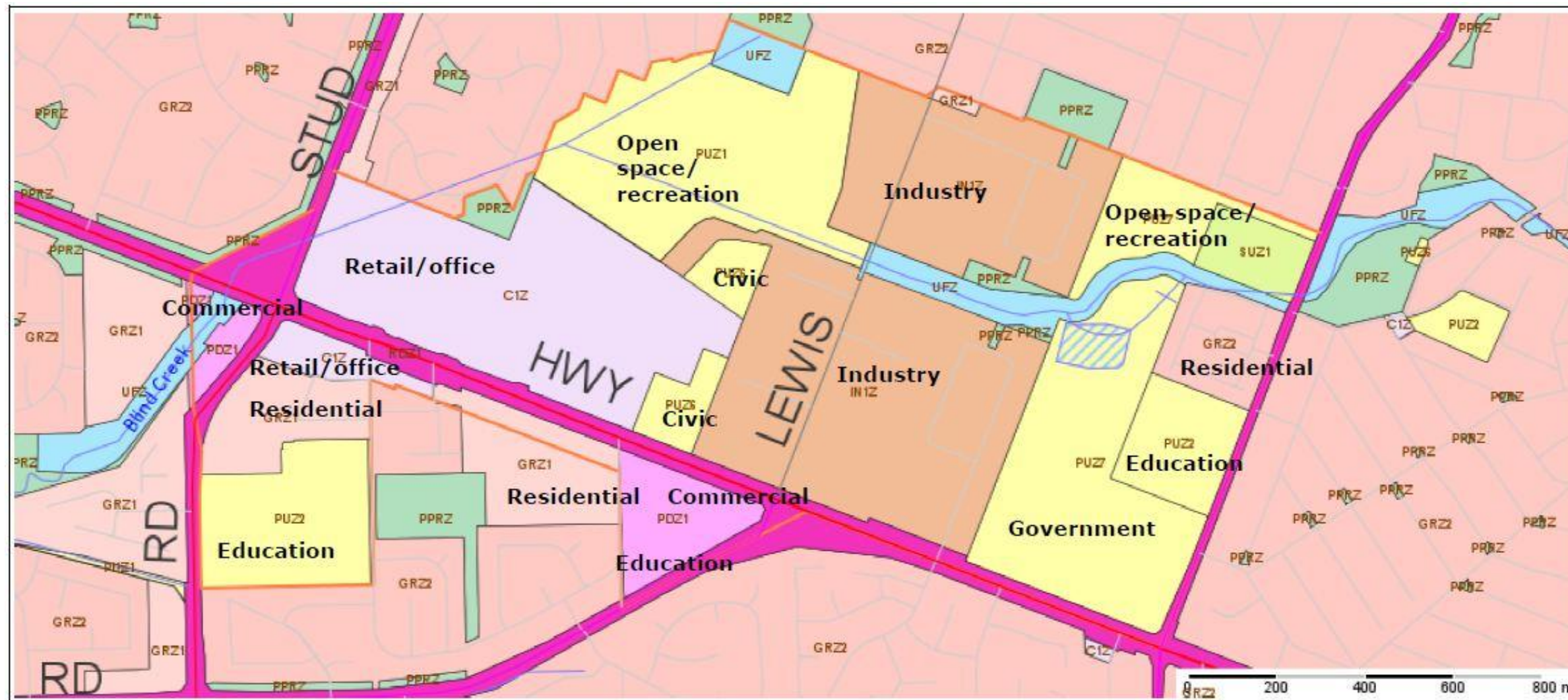


Figure 9 Existing Land Uses and Zones

The Knox Central Urban Design Framework identified the following constraints with regard to land use mix (in 2005):

- Existing land use zoning controls encourage two dimensional use outcomes with limited potential for mix,
- Considerable distances and physical barriers between existing land use precincts,
- Limited presence of convenient commercial, retail or service activity outside the core retail Knox City precinct,
- Potential for land use conflicts between residential, recreational and commercial uses,
- Inherent site coverage and drainage management limitations as a function of the existing retarding basin,
- Existing car based retail standards which require large areas of surface car parking to building frontages,
- Existing IHD agricultural uses the eastern precinct which are a clear underutilization of activity centre land, and
- Large contained industrial precinct to Lewis Road provides only limited capacity for mixed use integration.

Recent analysis commissioned by Council found that a number of these issues remain in 2015. This analysis also included a review of the proposed Activity Mix Framework in the KCUDF (see Figure 10).

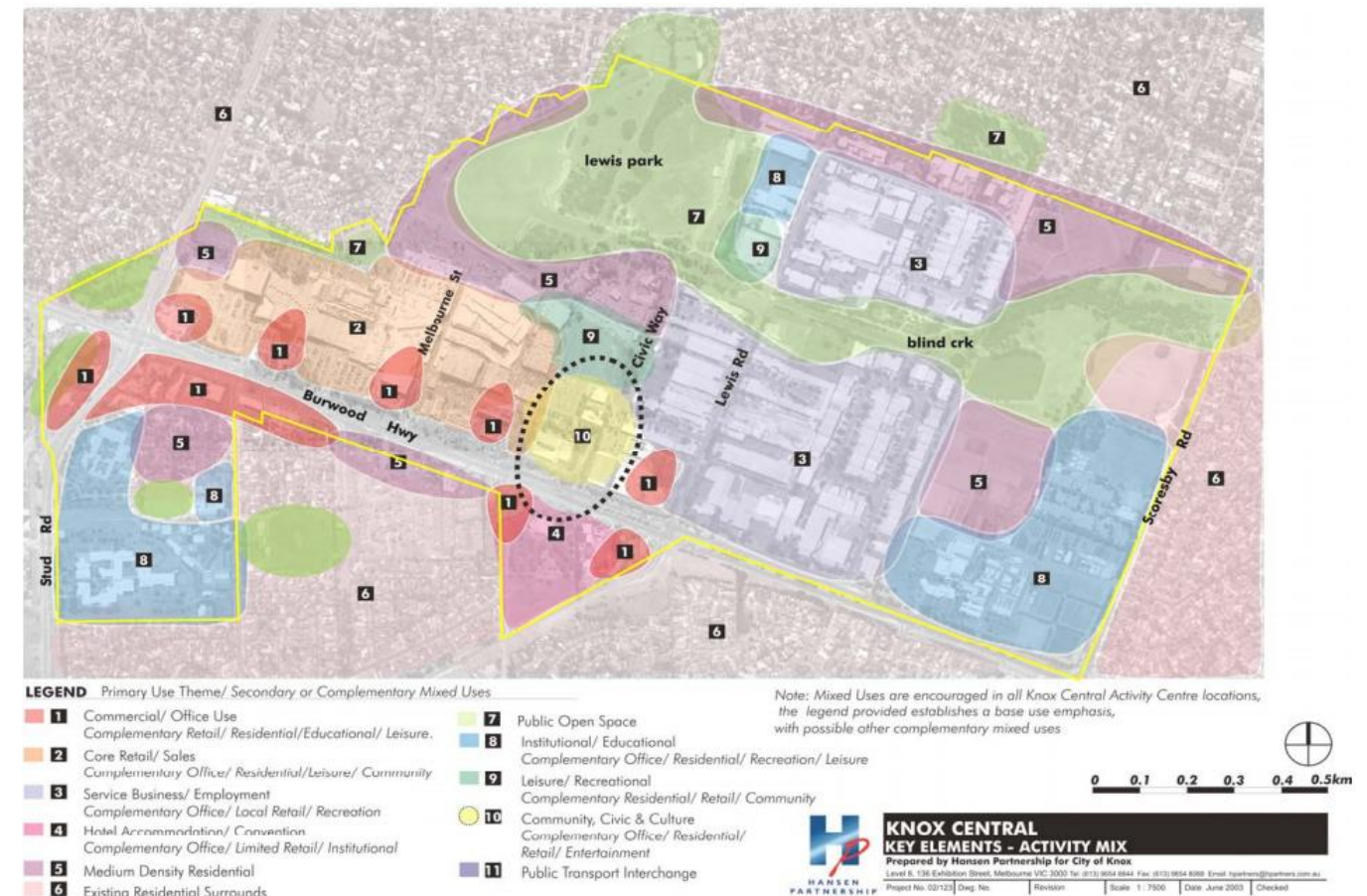


Figure 10 Knox Central Urban Design Framework Activity Mix (Figure 19)

Table 1 Review of the KCUDF Activity Mix Framework

2005 KCUDF	2015 Geografia Analysis	Geografia Recommendations	Officer comment on Geografia recommendations
Prescriptive land uses are included in Figure 19 of the KCUDF (for example, Item 4: hotel location).	The market has already shown it will develop land uses where suitable, available sites are located. Greater flexibility is required to account for market dynamics: limited availability of lots, prices, consolidation requirements.	Promote more flexible activity/land use mixes within the Activity Centre.	It is expected that a number of 'mixed use areas' will be applied across the activity centre, which will support greater flexibility.
Section 3.3 of KCUDF: Land use and activity targets require revision.	Market dynamics have changed significantly since the KCUDF – with significant changes to the demand for different land uses.	If including targets in the Structure Plan, update them based on demand and supply analysis for each land use contained within this document.	Noted. It is not proposed to provide 'targets' in the Structure Plan. However, the Structure Plan will have regard to contemporary land use demand projections.
Commercial office proposals along Burwood Highway (KCUDF Figure 19 Item 1).	Limited demand for office space within the centre compared to other uses (residential). Market has a demonstrated recent preference for residential development along Burwood Hwy.	Promote more flexible activity/land use mixes within Structure Plan, along Burwood Highway in particular.	The KCUDF shows locations for potential office buildings along Burwood Highway within the Knox Westfield site. As the 'commercial core' of the Activity Centre, this is the appropriate location should demand for office space increase over time. The Structure Plan and resultant planning controls for the Westfield site will need to be sufficiently flexible to respond to market demand.
Large area of land allocated to institutional/education uses at corner of Scoresby Rd & Burwood Hwy (KCUDF Figure 19).	Much of this site is surplus to institutional/educational requirements, and has been deemed surplus by the State Government. Other uses are more viable.	Promote townhouse residential, retail, office development on a greater portion of this site.	It is now known that 5 hectares are proposed to be retained for ongoing government use. Figure 19 in the KCUDF also acknowledges the location of Fairhills Secondary College. The Structure Plan will support the ongoing presence of the secondary college. The Knox Housing Strategy designates this site as a Strategic Investigation Site which is suitable for residential development with some complementary commercial land uses (see Chapters 16 and 17).
Northern edge of Burwood Hwy, between Lewis Road and DPI site is allocated as business/employment (KCUDF Figure 19).	There is expected to be a decline in demand for industrial space. Consideration should be given to where land might be transitioned to other uses. This area is one potential opportunity to do this. It is suited to retail, office and residential.	Consider if and how this land might be transitioned to other uses (e.g. residential, retail, office) in an orderly fashion.	The recommendation to change the land use nature of these sites is not supported. Consideration has been given to locations which are suitable to transition from industrial to 'mixed use' (see below).

2005 KCUDF	2015 Geografia Analysis	Geografia Recommendations	Officer comment on Geografia recommendations
Proposed residential development in public land along the northern edge of Knox Central and northern edge of Blind Creek. (Item 5 in KCUDF Figure 19).	Demand for housing can generally be met within alternate sites at Knox Central.	Retain these areas as public land and open space.	It is considered that other sites are suited to residential development. This land includes the Knox Community Garden/Vineyard site which is considered to be a significant community asset, which should be retained.
Western edge of Lewis Road, south of Blind Creek is allocated as business/employment. (See KCUDF Figure 19).	Some of these areas could be encouraged to transition to higher uses such as office/business park, or retail premises. This would be more complementary to developments to the west, and would respond to declines in demand for industrial space.	Consider how these areas might be encouraged to transition away from lower amenity industrial uses over the longer term.	This recommendation is supported. A shift away from industrial uses is considered to be compatible with the adjoining retail/entertainment uses and complimentary to future civic and community facilities on Council land.
Western edge of Lewis Road, north of Blind Creek allocated as educational, institutional, and community uses.	Unclear about the source of demand for educational, institutional uses in this area.	Clarify demand for community facility, education and recreation uses at Knox Central. Consider promoting the transition to higher amenity commercial uses over the longer term.	Preliminary analysis undertaken by Council staff shows that there is limited demand for additional education and institutional uses. However, there is likely to be demand for other community infrastructure. Future community and recreational uses are more appropriately located closer to the 'civic' and leisure focus of the Activity Centre. While there are benefits to uses more conducive to the Lewis Park interface, it is considered that a focused shift to higher amenity commercial uses should be focused on the area south of Blind Creek.

Table 2 Broad analysis of KCUDF directions

2005 UDF	2015 Geografia Analysis	Recommendations	Officer comment on recommendations
<p>There is a lack of recognition of the need to diversify the retail and hospitality offering outside of the Westfield site.</p>	<p>Increasing consumer desires for more varied and 'urban style' experiences in suburban activity centres.</p> <p>Competitive issues around lack of presence of Woolworths, Aldi, and larger format retailers.</p> <p>Concern about reliance on one major owner/developer in addressing consumer desires.</p>	<p>Consider promoting more independent retailing and hospitality options through ground level restaurants, cafes and shops along Burwood Highway (in residential/office developments).</p> <p>Clarify competitive issues with Woolworths and Aldi at Westfield Knox, and consider whether they should be accommodated elsewhere.</p> <p>Consider whether there is a way to incorporate larger format/big box retailing in a way that complements the character of Knox Central.</p>	<p>A shift toward mixed uses (ground level commercial with upper level residential uses) would provide opportunities for more flexibility in retail/hospitality uses, while also retaining the possibility of office uses should demand for this use increase.</p>
<p>Lack of direction around the specialisation/focus of Lewis Road industrial area.</p>	<p>The value of promoting clusters is increasingly important in the modern economy. There is a need to clarify the types of businesses that might be encouraged to locate there, and which industries might add the most value to existing clusters.</p>	<p>Encourage higher amenity, higher value industrial uses (e.g. scientific services or laboratories, clean manufacturing) in the area.</p> <p>Consider discouraging lower amenity uses (e.g. smash repairs) in parts of this precinct.</p> <p>Consider how to reduce the visual and noise impacts of existing lower amenity uses (e.g. buffers, landscaping, screening).</p> <p>Consider the promotion and investment attraction significance of the Structure Plan during its preparation.</p>	<p>A wholesale shift of the whole Lewis Road industrial precinct is not supported. This area is functioning well and provides a significant employment base for the activity centre.</p> <p>It is considered appropriate that a shift toward higher amenity mixed uses is appropriate close to the retail/entertainment/civic precinct (west of Lewis Road).</p> <p>Buffers to the industrial precinct will need to be carefully managed with the development of the DELWP site.</p> <p>The Structure Plan may recommend an investment attraction program, however an articulation of the role or specialisation for Knox Central should be done in consideration of the Knox Land for Business Study.</p>

2005 UDF	2015 Geografia Analysis	Recommendations	Officer comment on recommendations
Limited discussion about increasing amenity throughout Lewis Road Precinct.	Higher amenity industrial/business areas will promote transition to higher value uses.	Explore how the Structure Plan can promote amenity in the area through interventions such as public design/landscaping, links to Blind Creek, links to Westfield Knox, or landscaping requirements in planning permits.	Strategies for improving linkages and the amenity of the public realm will be included in the Structure Plan.
Lack of discussion around relationship between Wantirna Health Precinct and Knox Central.	The need to promote links between Wantirna Health Precinct and Knox Central, and promote them as complementary centres.	<p>Consider what uses might be promoted and discouraged at each centre, to reduce fragmentation in key industries (e.g. hospitality/entertainment)</p> <p>Promote transport links between the two centres.</p> <p>Consider how industry links might be created between the two precincts (networks, supply chain).</p> <p>Consider where aged care and seniors living might be preferably located.</p>	Preliminary work has commenced to support the development of a framework for the Wantirna Health Precinct. Structure Planning for the Wantirna Health Precinct is intended to support the development of partnerships and investment to build on the existing critical mass of health uses in the area. Knox Central's role as the focus for increased residential development, in the context of the whole municipality, supports the role of Wantirna Health Precinct (within 5 km) as the focus for health services.

This research also identified issues, many of which are identified in the KCUDF:

- Distinctive experiences at Knox Central, particularly the natural environment and mixed use setting, are, perhaps, underutilised in existing retailing and the first stage of the proposed Westfield redevelopment. A distinctive experience at Knox Central should be promoted to differentiate it from other major activity centres in the eastern region. Promoting the interface between retail activity and the natural amenity in the area (Blind Creek, Lewis Park) and outdoor spaces is one avenue. The second stage of the Westfield redevelopment provides an opportunity to encourage these outcomes.
- Structure planning should consider how the parkland and creek amenity and outdoor spaces available at Knox Central could be leveraged. Any development along the creek corridor/parkland may seek to promote entertainment and hospitality businesses at a ground floor level in order to activate public spaces.
- Encourage entertainment and hospitality businesses to develop outside of the Westfield site is important. This will help to diversify the offering and ownership in this sector, making it more resilient to shifts in consumer desires.
- A performing arts centre will help to unlock complementary businesses and community groups - restaurants, bars, accommodation, arts groups, for example. A PAC would help promote more premium entertainment and hospitality options in the centre. It could also be the catalyst for more diverse ownership and management of entertainment and hospitality premises throughout the precinct. Council should use the Structure Planning process, including considering how it uses its land holdings, to promote this greater diversity of ownership.
- Promote spaces that could be used for restaurant and café businesses on the ground floor of higher density residential buildings. This is one means to build a greater diversity in the local hospitality offering.

7. ACCESS, MOVEMENT AND TRANSPORT

A large amount of research and analysis of access, movement and transport in Knox Central has been undertaken by Council over a number of years. This reflects the status of this issue in relation to the Activity Centre. To ensure currency of information to inform the Structure Plan, Council commissioned the preparation of an Integrated Transport Study in 2015, which builds on previous work.

This Study commenced with a review of these previous pieces of work, including the:

- Knox Central Urban Design Framework 2005
- Qualitative Movement Economy Report 2008
- Knox Central Sustainable Transport Options Report 2008

Knox Central Urban Design Framework movement objectives

The KCUDF notes that the movement objectives for the study area include:

- Improving public transport access to the area by extending the tram route along Burwood Highway and establishing a modal interchange at the junction of Burwood Highway and Stud Road;
- Creating on and off-road safe and attractive pedestrian routes throughout the study area;
- Providing safe and convenient cyclist and pedestrian connections to surrounding residential areas (all directions);
- Establishing identifiable road patterns throughout the study area;
- Improving accessibility between precincts within the study area; and
- Integrating the study area with surrounding land uses.

As noted in Chapter 3, the overall vision for the activity centre, articulated in the KCUDF, includes aspirations to:

- *establish the study area as the most accessible place in the municipality and in the outer eastern suburbs of Melbourne by public transport, by pedestrians, bicycles, and also by cars.*
- *'open up' road access to and throughout the precinct and make it easier to move through, understand and be more accessible.*

Knox Integrated Transport Plan

The following actions from the *Knox Integrated Transport Plan 2015-2025* have direct relevance to planning for Knox Central:

- Advocate for improved public transport services and infrastructure such the Knox Tram and improved bus services.
- Advocate for improved bus services to and within key economic growth areas, including activity centres and industrial estates.
- Advocate for bicycle wayfinding across the shared path network.
- Advocate for bus priority on key routes.
- Advocate to VicRoads for improvements to traffic signalling to reduce delays experienced by motorists both on the Arterial Road network and from residential estates.
- Advocate to VicRoads for longer pedestrian cross times at signalised intersections where particular needs are identified.
- Advocate for single staged crossings to be standard across Knox.
- Advocate for safe pedestrian and cycle access across Arterial Roads.
- Advocate for multi-modal corridor planning along strategic road networks within Knox.
- Advocate for improved bus service frequency during peak times to public transport interchanges.
- Develop guidelines to support the planning of mixed use developments and access to activity centres.
- Support the delivery of sustainable arterial road infrastructure through ongoing partnership with VicRoads.
- Undertake a feasibility investigation of the extension of the route 75 tram to Knox including a triple bottom line assessment.
- Develop a Parking Policy that considers parking at activity centres, shopping precincts and other major attractors.
- Ensure pedestrian and cycling permeability in the retrofitting of development sites.
- Provide infrastructure to give public transport, cyclists and pedestrians priority where appropriate.
- Promote liveable streets to improve passive street surveillance.

Qualitative Movement Economy Report

The Qualitative Movement Economy Report (final draft, dated 15 September 2008) sought to help build a local movement economy for Knox Central. The report notes that currently Knox Central is a highly fragmented site and performs primarily as a retail, civic and industrial destination, and that it exist in a surrounding urban environment as an isolated set of urban facilities. The environment is a car dependent environment, and that poor pedestrian infrastructure restricts current urban facilities from improving economic viability, social activity and investment.

The report then goes on to suggest preliminary improvements, which require further investigation as follows:

- Build productive pedestrian infrastructure as a centrepiece in Knox Central so that the local movement economy will improve investment;
- Introduce globally integrated, local street connections to/from and through Knox Central;
- Ensure that future urban layouts support ease of movement for pedestrians and public transport for ease of movement and increase urban safety;
- Integrate land uses across the Burwood Highway (e.g. the Swinburne University and Rembrandt's sites).

The report essentially identifies barriers to pedestrian movement and proposes improvements to the pedestrian network with the aim of improving the vitality and economic prosperity of the Knox Central study area.

Knox Central Sustainable Transport Options Report

The Knox Central Sustainable Transport Options Report, dated 27 October 2008, notes that the travel to and from the Knox Central study area is overwhelmingly dominated by private vehicle travel. The report goes on to outline gaps and improvement options for the public transport, walking and cycling networks.

The recommended improvement actions for each transport mode are summarised below.

Public Transport

- Relocate the bus interchange and improve pedestrian connections.
- Manage road space to priorities bus movements.
- Plan land uses and densities that support the provision of better service standards.
- Potential future tram network expansion (tram extension along Burwood Highway with a terminus either on Burwood Highway or within the shopping

centre.

- Shuttle services in response to network coverage gaps.

Walking

- Remove slip lanes where possible.
- Install signalised pedestrian crossing on all legs of signalised intersections and increase pedestrian walk times.
- Include through-route walkways in new developments.
- Add footpaths to main vehicle entrances.

Cycling

- Bike entrances to site leading to convenient bike parking.
- Bike crossings (lights and lanes) at traffic lights.
- Expanded cycling routes (north-south and east-west).
- Improve current infrastructure standards.

Knox Mobility Study

The Knox Mobility Study investigated the accessibility of the footpath and shared path network for people using mobility equipment. The study report includes the findings of a case study assessment completed for the Knox Central study area, with the identified issues reproduced in Figure xx below.

The study goes on to recommend that Council prioritises their efforts to improve the footpath and shared path network in order that they have the greatest impact on people using mobility equipment, and notes that the four principles criteria guiding the selection of footpaths and shared paths should be:

- Areas where there are no footpaths or shared paths, or where existing footpaths and shared paths are not connected;
- Areas demonstrating the highest proportions of people with a disability and older people;
- Paths between key origins and destinations such as shopping strips, shopping centres, medical centres, transportation nodes and bus stops, retirement villages, social housing, sporting grounds; and
- Locations in the focus areas identified as having specific issues, including Knox Central.

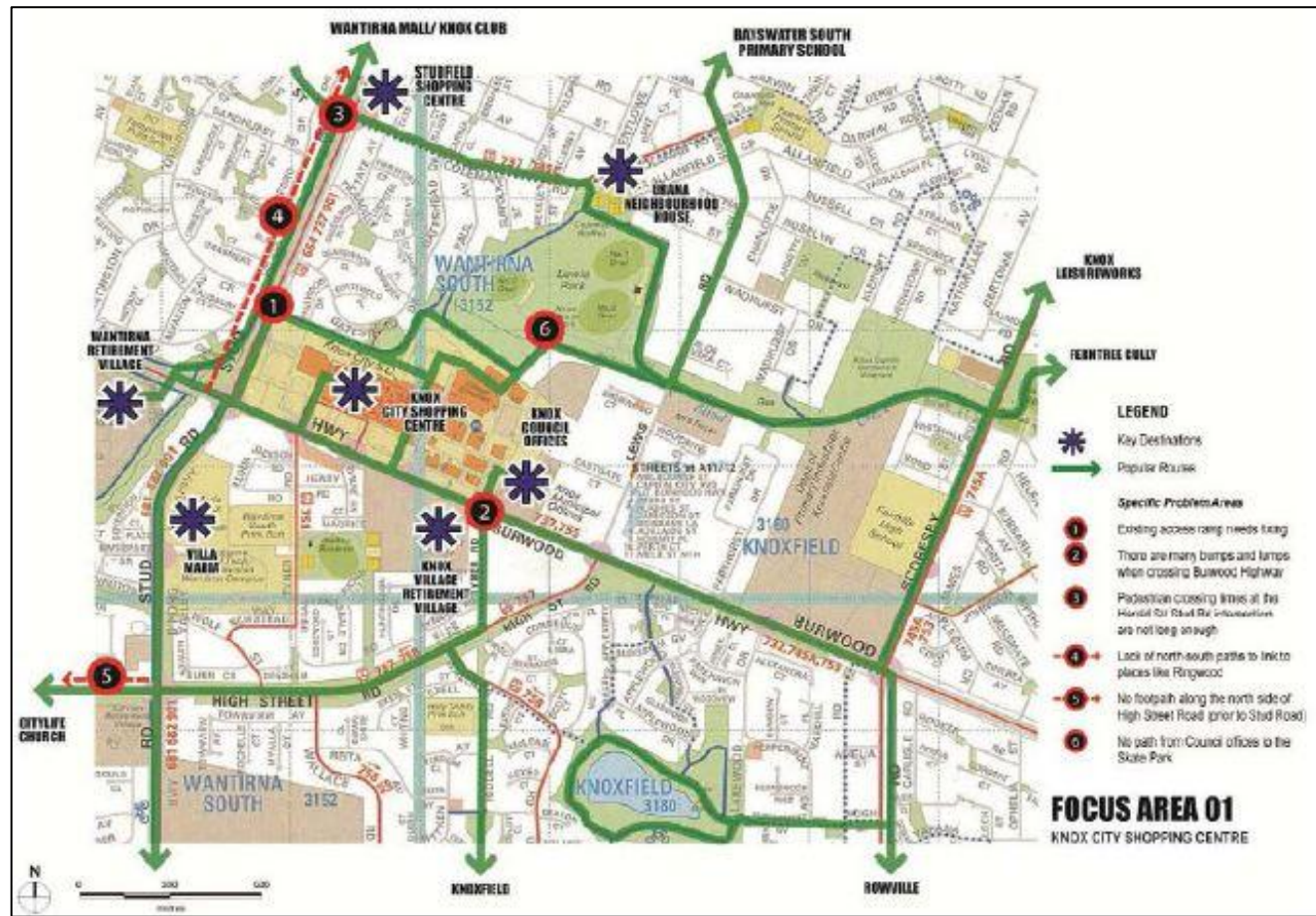


Figure 11 Mobility Issues identified in the Knox Mobility Study

Liveable Streets Plan

New streets should be considered in the context of the themes for streets in the Liveable Streets Plan (section 4.5):

- Streets as Places
- Streets for Travel
- Streets for the Environment
- Streets and the Economy
- Safe Streets
- Streets for the Community
- Streets for Infrastructure

The principles of this plan for any proposed streets should be incorporated into the Structure Plan. For instance, new roads in the Lewis Road area are likely to be 'Industrial and Business Park Streets' as designated in the Liveable Streets Plan.

Knox Central Integrated Transport Study 2015

To ensure currency of information to inform the Structure Plan, Council commissioned the preparation of an Integrated Transport Study in 2015, which builds on the previous work. The study notes the following transport infrastructure changes that have occurred since the adoption of the KCUDF:

- The opening of Eastlink (2008), significantly increasing accessibility between Knox Central and other eastern suburbs.
- The upgrade of High Street Road which is partially constructed and expected to be completed in late 2016, which includes the following key features:
 - Duplication of High Street Road to two lanes in each direction separated by a raised median;
 - Two fully signalised pedestrian crossings at the Tyner Road and High Street Road intersection and between Wolf Street and Wallace Road;
 - Slip lanes along High Street Road to adjacent streets;
 - A new shared use path south of High Street Road;
 - Upgrading the intersections of Burwood Highway and Stud Road; and
 - New bus priority lanes on Stud Road and Burwood Highway at the intersection with High Street Road.
- The increase in the number of bus bays at the Bus Interchange from nine bays to ten bays.
- The extension of Tram route 75 on Burwood Highway which now terminates in Vermont South, approximately 5km to the west of the Knox Central study area.

The findings of the Study are summarised below.

Road safety

Research commissioned by Council in 2015 accessed VicRoads accident statistics⁶ which show that:

A total of two bicycle incidents and five pedestrian incidents were recorded, with the locations illustrated in Figure 12. The study highlights that:

- The two bicycle incidents involved both a bicycle striking a vehicle on the

⁶ VicRoads' CrashStats provides access to a database containing Victorian Road Crash Statistics from 1987 onwards, for crashes where at least one person was injured. The current version of CrashStats contains collision data up to 31st December 2013, though collisions which are involved in court action where a decision has not been reached are excluded from the data set. The CrashStats data was examined for all recorded pedestrian and bicycle incidents in the study area, within the last five years (from 1st January 2009 to 31st December 2013), to assess the recent incident history.

carriageway, and a vehicle striking a bicycle at an intersection;

- Each of the five pedestrian incidents involved a vehicle striking a pedestrian, typically during turning movements at intersections.
- A total of 96 vehicular collisions occurred within the study area, with the three predominate locations identified as follows:
 - Nine collisions occurred at the intersection of Burwood Highway and Melbourne Street (Westfield Knox Access) of which one of the recorded accidents including a fatality;
 - Eight collisions occurred at the intersection of Burwood Highway and High Street Road; and
 - Six collisions occurred at the intersection of Burwood Highway and Capital City Boulevard (Westfield Knox Access).

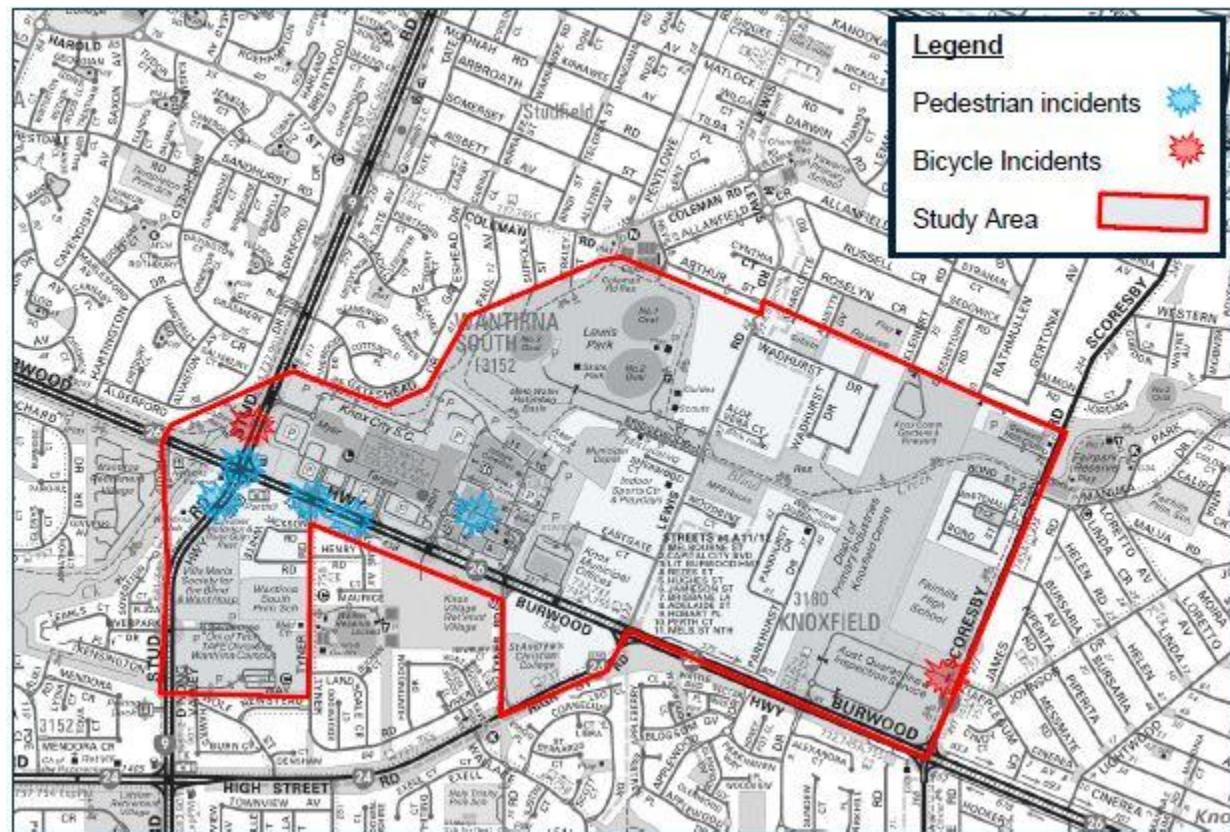


Figure 12 Pedestrian and bicycle incidents

Road Network and Private Vehicle Travel

Existing Road Network

Knox Central sits east-west along the Burwood Highway Arterial Route between the north-south Arterial Routes Stud Road to the west and Scoresby Road to the east. The internal study area road network further consists of local Connector and Access Streets that connect the site to the surrounding Arterial Road network.

The VicRoads *SmartRoads Road User Hierarchy* for Knox Central indicates that

Burwood Highway and Stud Road are nominated as a Bus Priority Route through the study area, as well as Bicycle Priority Routes through the Knox Central Activity Centre. Burwood Highway between the Tyner Road (loop) intersections is also a nominated Pedestrian Priority Route.

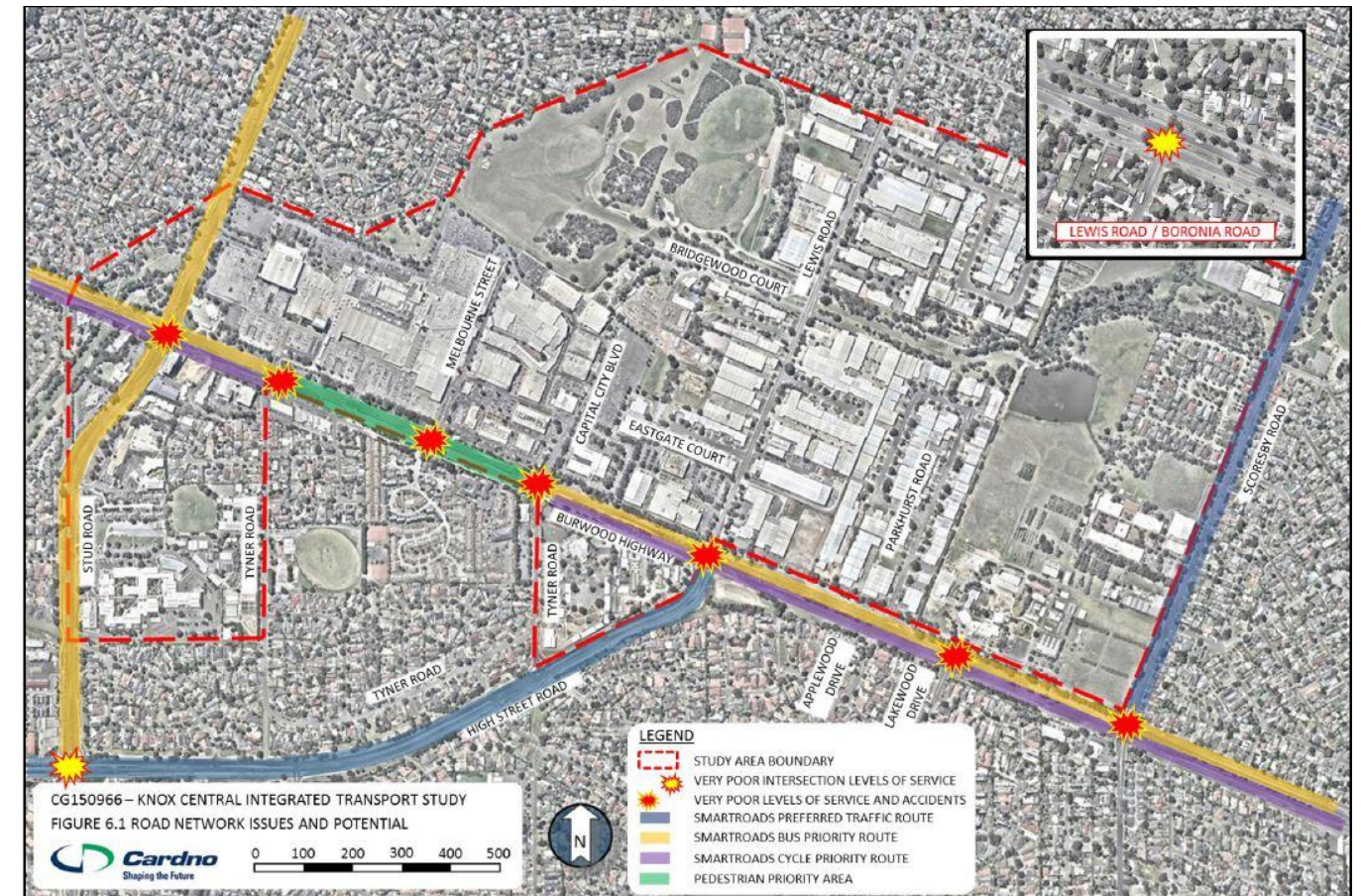


Figure 13 Road Network Issues

Future Road Network

The KCUDF proposed extensive new road connections throughout the Activity Centre (see Figure 14).

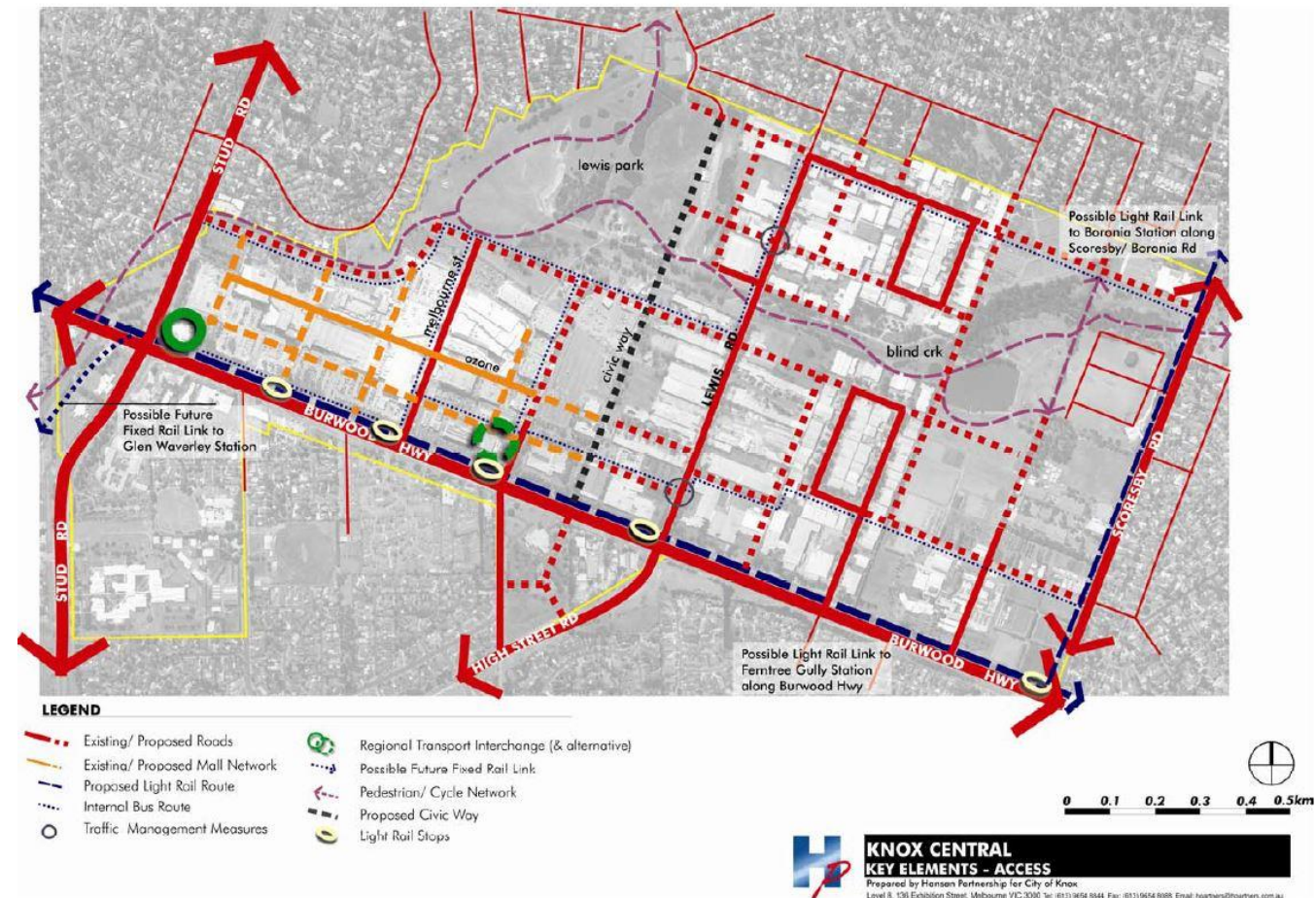


Figure 14 KCUDF Access Map

Strategic modeling undertaken as part of the Knox Central Integrated Transport Study indicates that such an extensive network of roads is not necessary, in order to address future traffic demands and increase connectivity and permeability through the Activity Centre.

Based on the results of strategic modeling, it was determined that the addition of a new east-west link between Scoresby Road and Lewis Road, running parallel to the north of Burwood Highway would be recommended. It was recommended that this road be categorised as a **Level 2 Access Road** or **Level 1 Connector Street** depending on spatial constraints, as per the Metropolitan Planning Authority (MPA) guidelines.

The strategic modeling included a north-south road link from Eastgate Court and Bridgewater Court, with a link through to Westfield Knox. This link would create connections through to the future civic precinct, and would in effect, take the place of 'Civic Way' as proposed in the KCUDF.

'Civic Way' as shown in the KCUDF was a proposed north-south link connecting Burwood Highway to Bridgewater Court. It was intended to connect and provide access to the Knox City Council office precinct, via the existing unsignalised

connection to Burwood Highway. It was proposed to signalise this intersection under that KCUDF proposal however this option is no longer considered appropriate. The Knox Central Integrated Transport Study recommends that it should no longer be pursued for the following reasons:

- There are currently six signalised intersections on the 1200metre section of Burwood Highway between and including Stud Road and Lewis Road
- The proximity to the signalised Capital City Boulevard intersection poses a safety risk as drivers potentially looking through intersection to next set of lights and missing the lights change. Vehicles may also accelerate to catch the green or amber light at the
- Capital City Boulevard intersection, and have to decelerate very quickly at the proposed signalised Council access intersection should there be a red light; and
- The nature of the proposed Civic Way was such that the capacity would be low and encouraging lower speeds, therefore providing signals would not be compatible with the intent of the link.

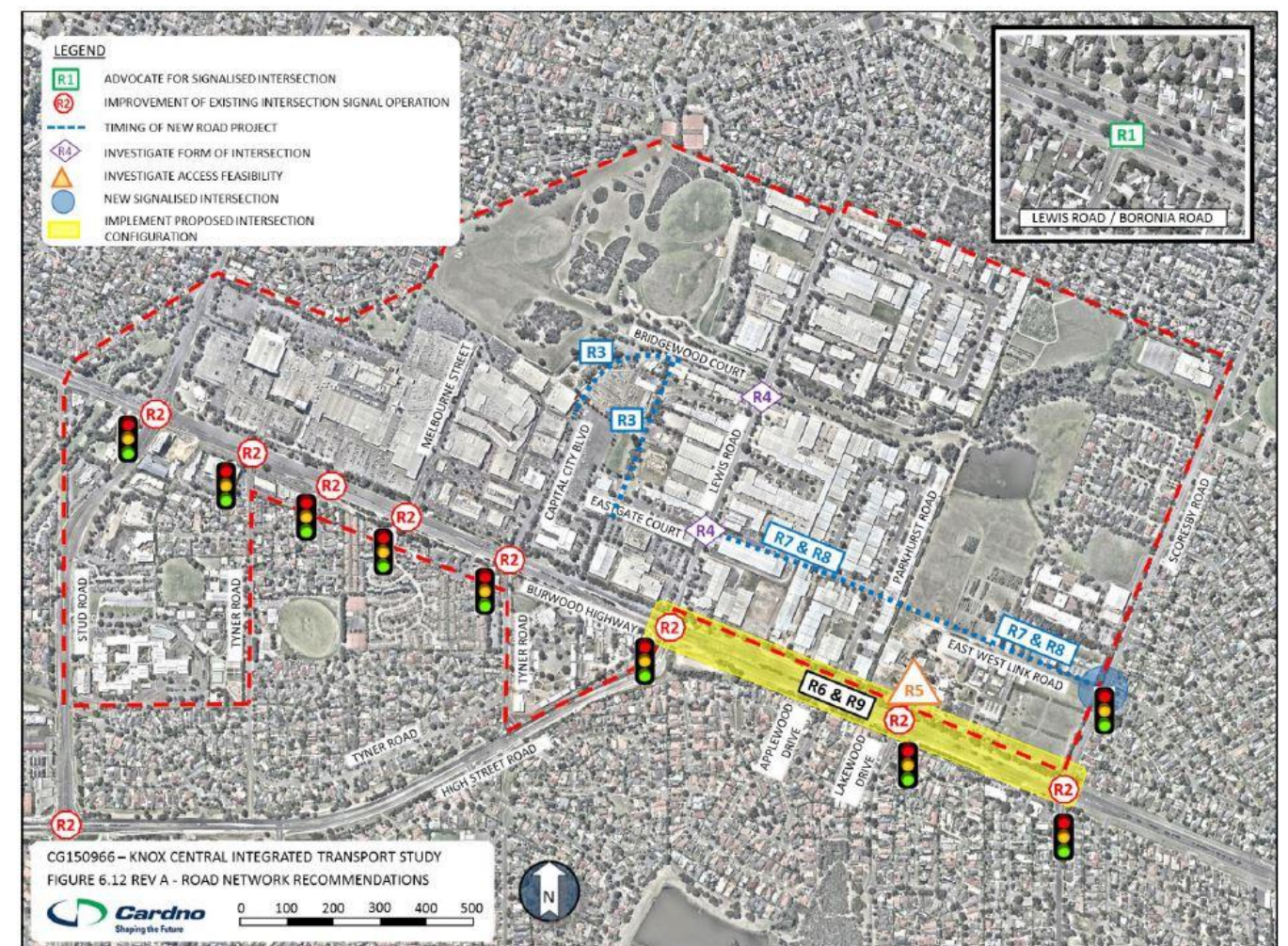


Figure 15 Road Network Recommendations

Car Parking

There are currently few issues associated with car parking within Knox Central. There is considerable provision of both on and off street car parking within Knox Central. Westfield Knox currently provides some 6,300 car parking spaces, and larger employers providing private off street parking for employees and visitors.

Observations made on site suggested that there is no evidence of overspill into neighbouring residential streets and that there was adequate on and off street parking in the industrial area.

However, as the extent of development and activity within Knox Central increases, car park demand will also increase. A key consideration in the future will be to provide adequate parking to address the additional demand, whilst promoting sustainable means of transport.

Car parking provision for future development

The Knox Central Integrated Transport Study recommends that, in the short term, parking provisions for new development should be in accordance with current statutory requirements contained in the Knox Planning Scheme (See Clause 52.06 of the Knox Planning Scheme).



There is a predominance of at-grade carparking within Knox Central

Public Transport

Tram

The extension of the Route 75 tram along Burwood Highway has long been a priority for Council. The Knox Central Urban Design Framework provides the following commentary on the extension of the tram:

The tram concept beyond Vermont South, while not yet finalised is, in the vicinity of the shopping centre, to run the tram along the northern boundary of Burwood Highway outside Knox City. This would be preferable to integrate with the bus interchange and for passengers to access the shopping centre. The terminus for the next stage extension is proposed to be close to the shopping centre possibly in the vicinity of the Council offices.

Key objectives in relation to movement pattern are:

- *Improving public transport access to the area by extending the tram along Burwood Highway to and/or through the study area, in association with a modal interchange at the junction of Burwood Highway and Stud Road.*
- *Alternatively, the tram could terminate near the junction of Burwood Highway and Knox Ozone east, at the new public heart of Knox Central.*

The tram extension continues to be a Council priority, with the following action being included in the Integrated City Strategy and Implementation Plan: *“Enhance understanding of transport priorities for Knox, and implement a strategic advocacy approach focusing on the delivery of the Bayswater Grade Separation Project to ensure it aligns with and enables endorsed strategic plans for Bayswater, the extension of tram service number 75 to Knox Central, and the extension of a rail line to Rowville.”*

Recent advice from Public Transport Victoria (PTV) states that extending the tram along Burwood Highway to the study area is not a high priority but may be considered in the long term. Upgrading the existing metropolitan light rail system is the key priority for the short and medium term. PTV recommends that if the tram extension project proceeds in the longer term, the structure plan should identify whether this will be in the road reserve of Burwood Highway or within the freehold title area of Westfield Knox. PTV notes that the cost of land acquisition from the shopping centre owners will be significant if it is within the freehold title area of Knox City. If it is in the road highway reserve, there will be no land acquisition costs.⁷

However, in the event that Council wishes to pursue the tram within the Westfield land, the following advice was provided in response to Westfield’s recent permit application:

Public Transport Victoria (PTV) does not have detailed plans for the extension of the tram network in this locality however, PTV has considered the plan prepared by GTA (13M1477205-05P6 dated 25th July 2014) and does not consider the building footprint along Burwood Highway will compromise any future tram extension.

- Public Transport Victoria (PTV) have indicated that the proposed development will not preclude the future extension of the Tram along Burwood Highway. This is based on a minimum setback of 11.456 metres to the southern boundary to Burwood Highway as shown on the development plans.⁸

Consideration of the tram alignment is also required in light of the potential impact on landscaping and boulevard outcomes. That is, can the approved Westfield setback accommodate both landscaping and lightrail infrastructure?

The Knox Central Integrated Transport Study (Cardno, 2016) recommends that Council continues to advocate for the extension of Tram Route 75.

As the bus services currently share the Burwood Highway road space service reliability is heavily dependent on road capacity. Burwood Highway is expected to be oversaturated by 2035 and there is limited available carriageway space to provide bus priority measures. Providing the off-road tram route extension will improve public transport reliability as the road capacity is reached and delays become more frequent.

Modelling undertaken for this study shows that the tram route extension would only result in a small shift from car trips to public transport (a shift in mode share of 0.7% or some 1,100 trips per day). The analysis does however indicate a significant shift in bus usage to tram usage. This is significant as trams are less susceptible to on-road delays, particularly where the tram line would be primarily off road as would be the case in this instance. The modelling undertaken for this study showed that Burwood Highway will reach capacity for vehicles by 2035, which will result in delays to bus movements, thus making the tram the preferable option.

Buses

Knox Central is serviced solely by bus services, with the Westfield Knox operating as the bus interchange for a number of local and more strategic bus services.

Bus services operating in the vicinity of the Activity Centre are shown in Figure 16.

⁸ Council report, 28 October 2014.

⁷ Letter from PTV dated 6 November 2015.

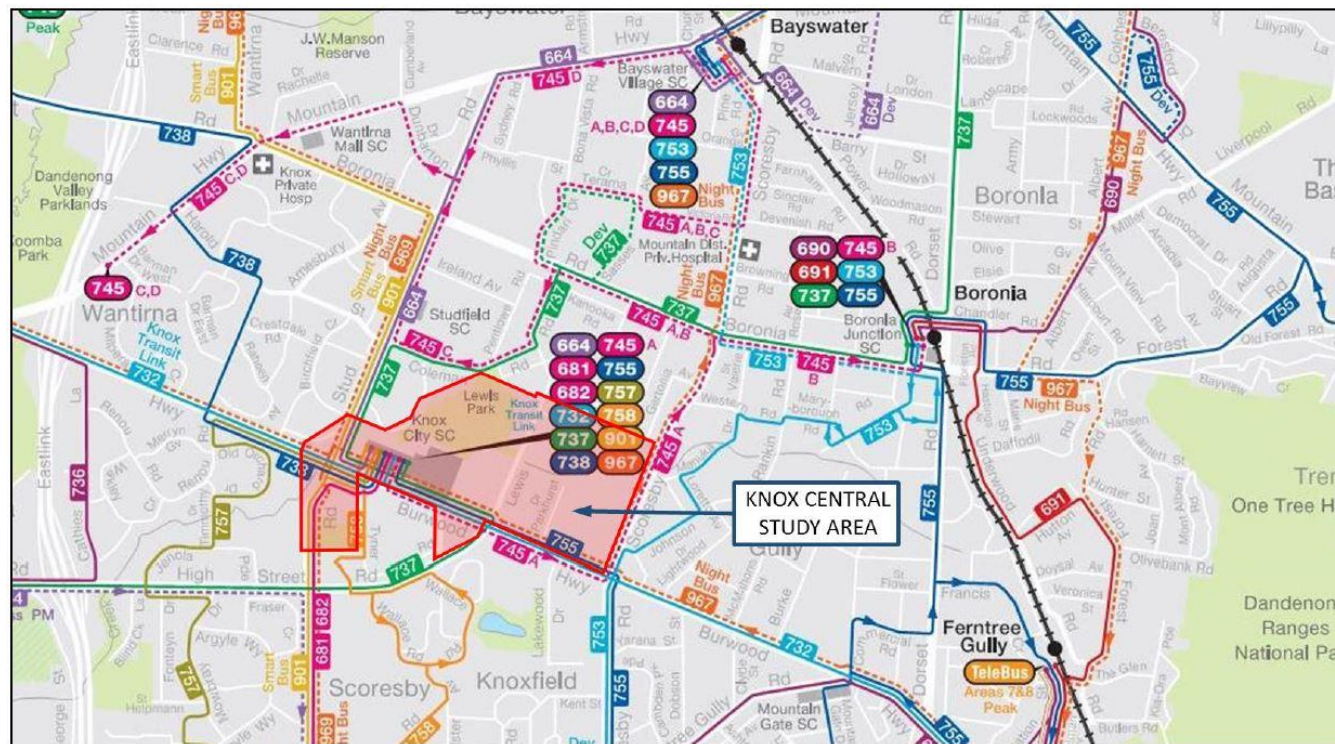


Figure 16 Existing Bus Services

A number of the bus routes that access the Activity Centre study area from local catchments have a very poor frequency. Route numbers 757 and 758 from the south, either side of Stud Road run once every 90 minutes. A number of key bus services from surrounding activity centres and transport hubs run at a 30 minute frequency. These include route 664 providing the primary bus connection from Bayswater and further north, and route 738 through Vermont from Mitcham.

Service frequencies are generally poorer in the evenings and on weekends across the network.

There are service gaps surrounding the Activity Centre, between network catchment areas on direct routes. Areas identified as being greater than 200m to a bus stop⁹ on a higher frequency bus route to Knox Central are shown on Figure 17 and include:

- Wantirna, west of Stud Road, between Burwood Highway and Boronia Road;
- North of Boronia Road, between Stud Road and the rail line between Bayswater and Boronia;
- Ferntree Gully, east of the study area and north of Burwood Highway;
- Knoxfield and Scoresby, south of High Street Road between Stud Road and Scoresby Road;
- Scoresby, south of High Street Road between Stud Road and Eastlink; and
- Scoresby Road, between Bayswater and Burwood Highway.

⁹ It is generally considered that train stations typically have a 1 kilometre radius catchment for pedestrians, with tram stops having a 500 metre radius and a 200 metre radius for bus stops.

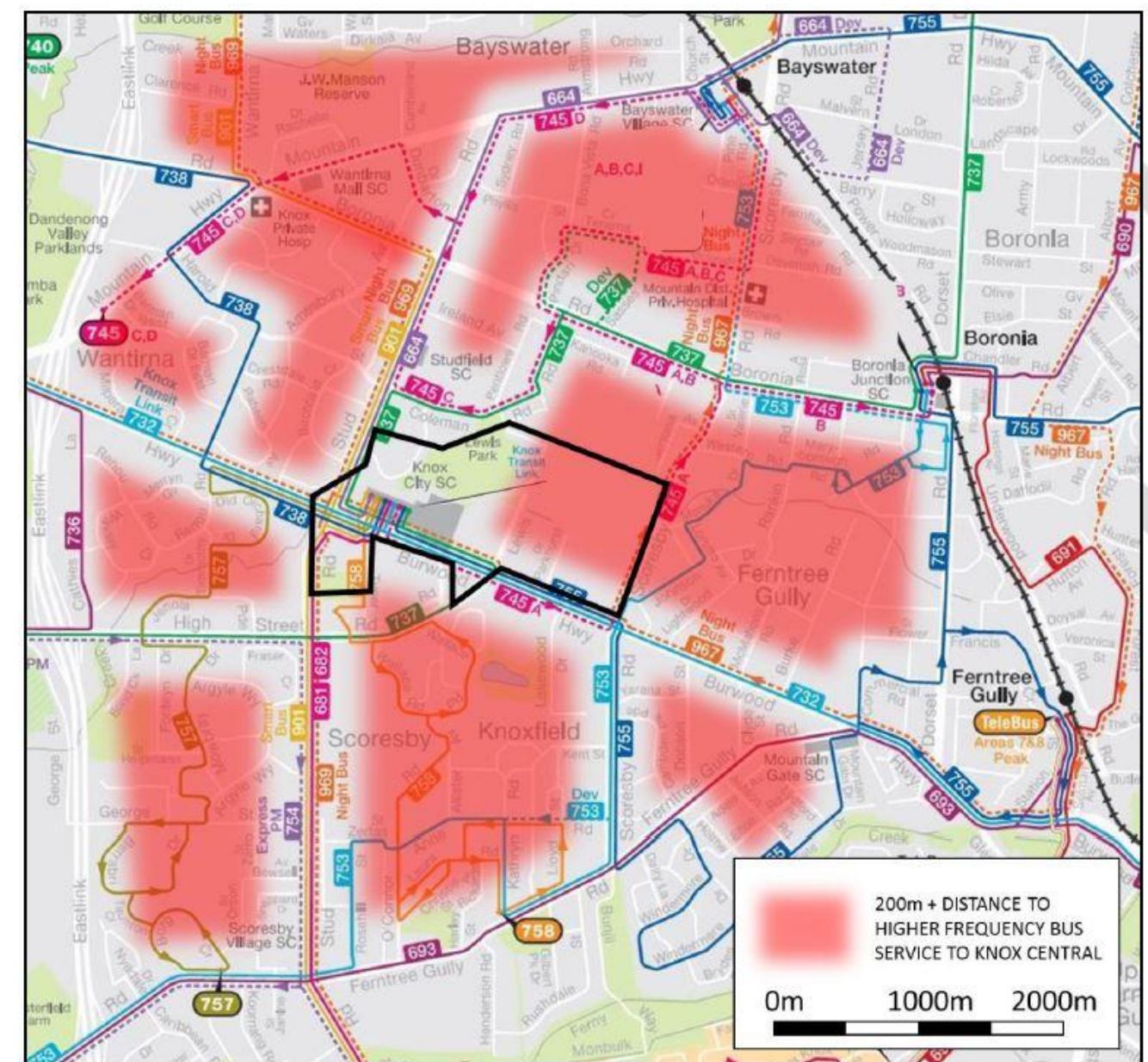


Figure 17 Public Transport Service Gaps

Site observations undertaken for the *Knox Central Integrated Transport Study* indicated that a number of bus stops do not currently include shelters which may discourage their use at night or during inclement weather. For instance, the bus stop on the Fairhills School frontage does not include a shelter and does not provide a direct link into the school which may discourage use of the bus service.

The Study identifies the following opportunities for improving local and strategic bus services providing access to Knox Central:

- Improving the 90 minute service frequencies on routes 757 and 758 from local areas to the south and providing weekend services on these routes;
- Reviewing off-peak and weekend service frequencies on routes 681 and 682 from the south;
- Providing a more direct higher frequency service along Scoresby Road from

Bayswater and further north

- Reviewing the 30 minute service frequencies on routes 664, 738 and 755 that connect the nearest rail stations and activity centres;
- Improve or provide additional local bus services through the nearby residential areas that have been identified to lack access to bus services connecting either to existing high frequency bus services or directly to the Knox City shopping centre bus terminus; and
- Investigate the potential to improve bus priority measures at key intersections along Burwood Highway and Stud Road, to facilitate improved reliability in accessing the terminal within Westfield Knox.

It was also identified that there will be an opportunity in the future to provide a bus service through the precinct along the proposed east west link road that will provide greater access to future commercial and residential development *within* the Knox Central precinct.

The study also recommends that, in order to encourage bus patronage, Council should liaise with PTV and review the current provision of bus stop facilities and provision of service information and shelter facilities across the network.

Walking and Cycling

Shared Paths

Shared paths form a significant portion of the pedestrian and cycle network within and around the study area, supported by pedestrian and cycle specific paths and facilities to provide good connectivity through the area.

Significant connectivity through Knox Central is provided by the Blind Creek Trail, that forms a key east west pedestrian and bicycle route through the study area.

There is generally good network provision for pedestrians and cyclists throughout Knox Central. However, a number of deficiencies in the connectivity and condition of the pedestrian and cycle network have been identified (see Figure 18).

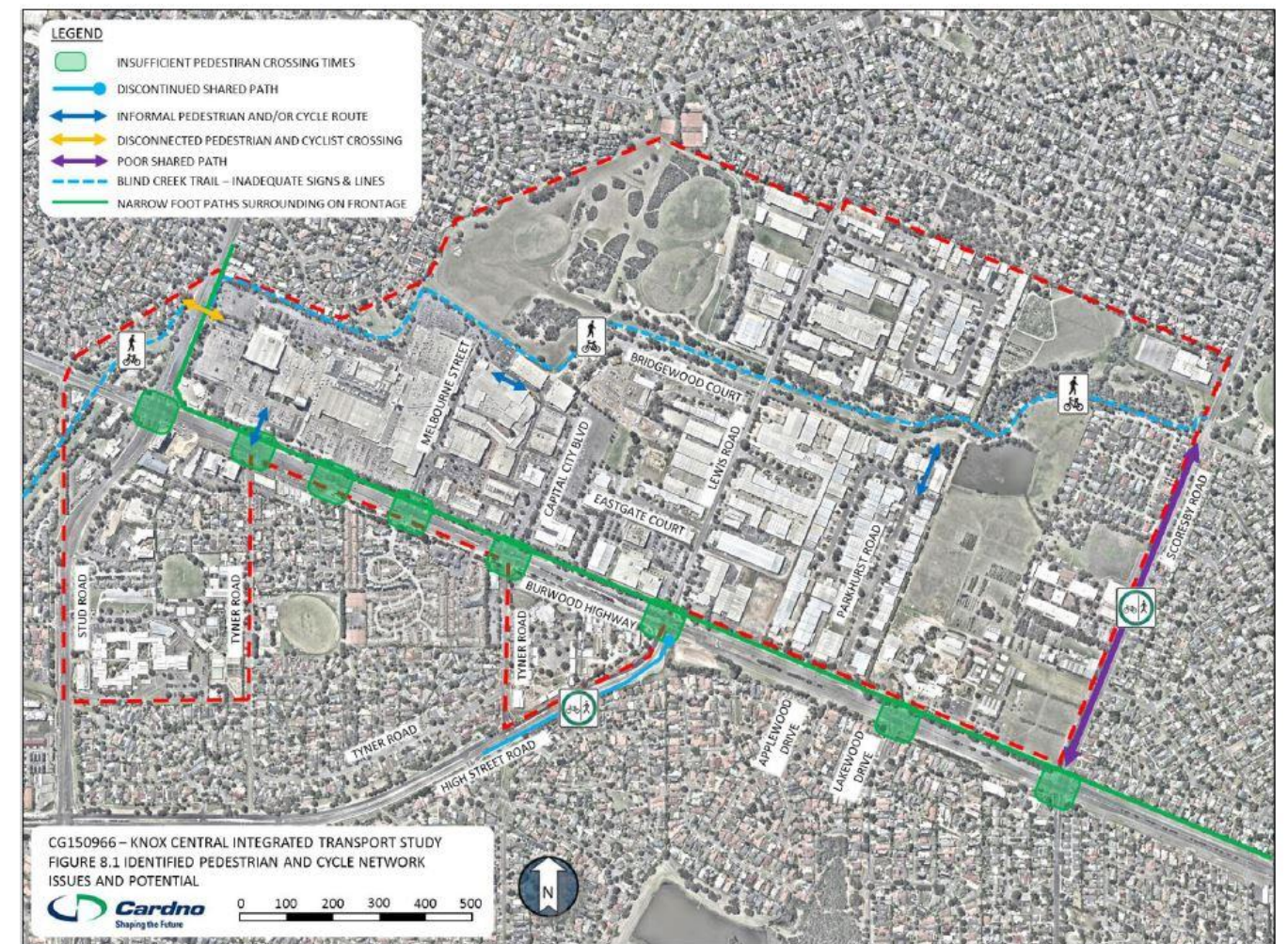


Figure 18 Pedestrian and Cycle Network Issues

A number of shared path improvement measures have been identified under the Westfield Knox Stage 1 development approval, which will address some of the issues identified. These improvements include the widening of the path on the Burwood Highway and Stud Road frontages of the site to function as a shared bicycle / pedestrian path. It is also proposed to include a pedestrian crossing where the Blind Creek Trail meets Stud Road. This crossing will remove the need to cross Stud Road at the slip road into the shopping centre and provide direct connectivity for the trail.

The shared footpath along the western side of Scoresby Road was found to be in poor condition.

Pedestrian Connectivity

Pedestrian improvements identified in the Westfield Knox Shopping Centre development plan included a number of additional pedestrian access points from the shopping centre to the external foot or shared paths to the north and south of the site.

Pedestrian cross times over Burwood Highway are considered to be too short. Given the school and aged care land uses in the areas south of Burwood Highway, it would be considered appropriate to review the pedestrian cross times and pedestrian phase activation at each of the signalised intersections accessing Knox Central.

Cyclist Connectivity

A number of improvements to the cycle network have been identified as part of the proposed shared path improvements.

A lack of a north-south cycle link through the study area has been identified as an issue. Whilst Lewis Road would be considered the more obvious link to incorporate cycle connectivity, it is already above environmental vehicle capacity.

As the nature of the development within Knox Central becomes more apparent, cycling demand patterns will also emerge. The Knox ITS therefore recommends that further investigation as to the most appropriate location for a north south cycle link through Knox Central be undertaken as development progresses in the area.

The addition of bicycle lanterns at the new signalised crossings at High Street Road could also be considered to promote these signals as part of a north-south bicycle route. The addition of bicycle lanterns at most intersections on the approach to Westfield Knox will also help with connectivity for cyclists.



Summary of Transport and Access Issues

Reference	Road Network Issues
I1	The intersections on Burwood Highway within the Knox Central study area all currently operate with very poor levels of service resulting in significant queuing on the approaches during peak periods.
I2	The Stud Road / High Street Road intersection to the south of the study area operates above capacity during the peak periods, resulting in long queues on all approaches during the peak times.
I3	The Boronia Road / Lewis Road intersection to the north of the study area is significantly over capacity and warrants signalisation in the short term.
I4	There is a high concentration of road accidents at intersections along Burwood Highway, including incidents involving pedestrians and cyclists, particularly between High Street Road and Stud Road.
I5	The VicRoads SmartRoads Road User Hierarchy for the study area indicates that the Burwood Highway and Stud Road are nominated as a 'Bus Priority Route' through the study area, as well as 'Bicycle Priority Routes' through Knox Central. Burwood Highway between the Tyner Road (loop) intersections is also a nominated 'Pedestrian Priority Route'. It will be necessary to continue to balance the accessibility needs for all modes on the road network through Knox Central, particularly along the Burwood Highway.
Reference	Public Transport Issues
I6	A number of the bus routes that access the study area from local catchments have a very poor frequency. These include route numbers 757 and 758 from the south and a number of key bus services (routes 664 and 738) from surrounding activity centres and transport hubs such as Bayswater, Vermont and Mitcham.
I7	There are a number of service gaps in the network accessing Knox Central, including areas of Wantirna, Bayswater, Boronia, Knoxfield and Scoresby. There is a significant gap in the service along Scoresby Road between Bayswater and the intersection at Burwood Highway.
I8	While there is currently not the existing road network or demand for services internal to the Knox Central study area, there will be an opportunity in the future to provide an east west service through the precinct that will provide access to future commercial and residential development in Knox Central.
I9	A number of bus stops servicing Knox Central do not provide shelters or adequate service information, which may discourage use of the buses at night or during inclement weather. A particular area of concern is the stop on Scoresby Road near the Fairhills School.
I10	The Route 75 tram service from the CBD terminates at Burwood Highway / Hanover Road, in Vermont South, approximately 5km west of Knox Central. There is an opportunity to extend the tram service to Knox Central in the future.
Reference	Pedestrian and Cycle Network Issues
I11	There are insufficient pedestrian crossing times at signalised intersections along Burwood Highway to cater for pedestrians with limited mobility or children. This is a particular concern given the land uses south of Burwood Highway including aged care facilities and schools.
I12	Pedestrian phases are currently not automatic at intersections along Burwood Highway and need to be activated by the push button.
I13	The new shared path on the southeast corner of the Burwood Highway / High Street Road intersection is discontinuous. There are no current plans according to VicRoads to provide any further connections to the surrounding network beyond this point.
I14	An informal pedestrian route has formed across the front of a loading zone at the north-east corner of the Westfield Knox site creating a hazard of pedestrians and service vehicles.
I15	Pedestrians and cyclists using Blind Creek Trail currently have to cross Stud Road where they are required to utilise the traffic signals at the Westfield Knox access. This includes traversing an unsignalised left turn slip lane at the intersection, creating a conflict point with oncoming vehicles.
I16	The shared path on Scoresby Road is currently in poor condition, with uneven concrete surface and overgrown planting and other obstacles, likely to discourage use of the path by cyclists.
I17	There are currently a number of underpasses on Blind Creek Trail that do not have signs or warning markings, creating a hazard for cyclists.
I18	There is a lack of north south cycle links through Knox Central, however an informal desire line currently exists to Blind Creek Trail from the northern end of Parkhurst Drive. A link at this location would help promote cycling as a means of transport for workers employed in the industrial estates.
I19	Existing narrow paths surrounding the Knox Westfield Shopping Centre do not encourage bicycle movements to/from or across the site.
I20	There is an opportunity to further integrate pedestrian and cycle network connectivity and facilities through Knox Central with the proposed east west road network link.
I21	There is also potential to further integrate pedestrian and cycle connections through Knox Central with the proposed north south road network links
I22	There is currently a lack of end of trip facilities for cyclists at key trip generators within Knox Central
I23	There is a lack of dedicated on-road bicycle lanes within Knox Central, and across Knox more broadly.
Reference	Car Parking Issues
I23	Potential parking overspill from Westfield Knox into surrounding Knox Central streets and car parks and neighboring residential streets.
I24	Car parking demand exceeding supply within Knox Central, causing overspill into Westfield Knox and/or neighboring residential streets.
I25	Car parking generated by the industrial area increasing and spilling into surrounding streets with Knox Central and beyond.
I26	Car ownership outstripping the statutory supply requirements for new residential development in Knox Central, resulting in on-street resident parking demand.

Table 3 Knox Central ITS Identified Issues

Summary of Transport and Access Recommendations

Item Ref	Project Description / Recommendation	Responsibility	Priority
R1	Advocate to VicRoads for the signalisation of the Lewis Road/Boronia Road intersection, and implement VicRoads endorsed intersection layout and signal plans.	VicRoads / Knox City Council	Short Term
R2	Advocate to VicRoads to undertake intersection timing and phasing analysis at key intersections on Burwood Highway and Stud Road to identify improvements in the performance of the existing intersection arrangements.	VicRoads / Knox City Council	Short Term
R3	Further investigate the timing and nature of the proposed north south link road connecting Eastgate Court and Bridgewood Court with Capital City Boulevard.	Knox City Council	Short Term
R4	Investigate the form of intersection connections that can be feasibly provided to Lewis Road north of Burwood Highway, and the proposed north-south link, particularly at the intersections with Bridgewood Court and Eastgate Court.	Knox City Council	Short Term
R5	Investigate whether the preferred access to the existing Lakewood Drive/Burwood Highway intersection through the DELWP site as proposed in the draft DELWP precinct master plan is feasible.	Knox City Council	Short-Medium Term
R6	Consult with VicRoads to determine an acceptable configuration for the intersections on Burwood Highway between High Street Road and Scoresby Road, considering the options tested in this study.	VicRoads / Knox City Council	Medium Term
R7	Investigate the feasibility of providing a staged construction of the identified East-West road connection between Scoresby Road and Lewis Road, and the timing of the implementation of the stages as part of the detailed planning for the DELWP site.	Knox City Council	Medium Term
R8	Design and construct the East-West link road as per the recommendations identified in the feasibility study recommended in R7.	Knox City Council	Medium – Long Term
R9	Implement the VicRoads endorsed intersection configuration along Burwood Highway between Lewis Road and Scoresby Road.	VicRoads / Knox City Council	Medium – Long Term

Table 4 Knox Central ITS Road Network Recommendations

Item Ref	Project Description / Recommendation	Responsibility	Priority
PT1	Support the relocation of the bus interchange as proposed under the Westfield Knox Stage 1 development.	PTV / Knox City Council	Short Term
PT2	Liaise and coordinate with PTV to undertake a public transport awareness campaign associated with the relocation of the bus interchange at Westfield Knox.	PTV / Knox City Council	Short Term
PT3	Investigate the potential to improve bus priority measures at intersections along Burwood Highway and Stud Road accessing the relocated bus interchange within Westfield Knox.	PTV / Knox City Council	Short Term
PT4	Liaise and work with PTV to improve service information and the provision and maintenance of shelters at appropriate bus stops on the surrounding network.	PTV / Knox City Council	Short Term
PT5	Liaise and work with PTV to assess the need to increase service frequencies on identified routes across the bus network servicing Knox Central.	PTV / Knox City Council	Short Term
PT6	Liaise and work with PTV to further investigate and identify gaps in the local bus network to improve accessibility to bus services to Knox Central and neighbouring activity centres including the Wantirna Health Precinct.	PTV / Knox City Council	Short Term
PT7	Undertake a feasibility study into the need and viability of the Route 75 tram extension along Burwood Highway to Knox Central.	PTV / Knox City Council	Medium Term
PT8	Advocate the delivery of network frequency and coverage improvement projects identified in the short term.	PTV / Knox City Council	Medium Term
PT9	Advocate for the delivery of the Route 75 tram route extension.	PTV / Knox City Council	Short Term
PT10	Design and construct the East-West link road as per the recommendations identified in the feasibility study recommended in R7.	Knox City Council	Long Term

Table 5 Knox Central ITS Public Transport Recommendations

Item Ref	Project Description / Recommendation	Responsibility	Priority
PC1	Widen the footpath on the northern side of Burwood Highway between Stud Road and Melbourne Road to function as a shared bicycle / pedestrian path.	Westfield	Short Term
PC2	Widen the footpath on the eastern side of Stud Road between the Blind Creek Trail link and Burwood Highway to function as a shared bicycle / pedestrian path.	Westfield	Short Term
PC3	Provide a pedestrian crossing on each carriageway where the Blind Creek Trail meets Stud Road to provide direct connectivity for the trail.	Westfield	Short Term
PC4	Provide additional pedestrian and shared path access points from Westfield Knox to the external foot or shared paths to the north and south of the shopping centre. Provide proposed additional cycle parking facilities as per Stage 1 development plan for Westfield Knox.	Westfield	Short Term
PC5	Provide a link between Parkhurst Drive and Blind Creek Trail at the existing desire lines to formalise access for pedestrians and cyclists through this area.	Knox City Council	Short Term
PC6	Determine measures to improve shared path connectivity from High Street Road to north of Burwood Highway and implement measures identified.	Knox City Council / VicRoads	Short Term
PC7	Improve wayfinding to shopping centre at new pedestrian crossing on High Street Road between Wolf Street and Wallace Road.	Knox City Council	Short Term
PC8	Provide a short term measure to direct pedestrians away from the entrance to the loading dock on Melbourne Road along the north-east corner of the Knox City.	Westfield	Short Term
PC9	Undertake a review of the shared path along the western side of Scoresby Road to include the provision of signage, the path condition, and its suitability as a shared path and identify improvement measures and implement proposed measures.	Knox City Council	Short Term
PC10	Commission Blind Creek Trail audit, and implement the identified improvement measures.	Knox City Council	Short Term
PC11	Increase crossing times and automate pedestrian phases at the identified signalised intersections on Burwood Highway.	VicRoads / Knox City Council	Short Term
PC12	Commission a study to investigate north-south cycle links through the study area north of Burwood Highway, including Lewis Road and Parkhurst Drive.	Knox City Council	Medium Term
PC13	Advocate to VicRoads regarding reducing the speed limit along Burwood Highway between Stud Road and High Street Road from the existing 80km/h to 60 km/h in order to improve safety for pedestrians and cyclists crossing the road, particularly through the SmartRoads pedestrian activity zone.	Knox City Council / VicRoads	Medium Term
PC14	Provide additional north-south access points to Blind Creek Trail to service new and existing development	Knox City Council	Medium Term
PC15	Integrate pedestrian and cycle facilities into the proposed East-West link road	Knox City Council	Long Term
PC16	Integrate north south cycle link proposals into existing and proposed road network as identified through in the study outlined in PC12.	Knox City Council	Long Term
PC17	Consider on-road bicycle lanes in future reviews of bicycle infrastructure across Knox.	Knox City Council	Long Term
PC18	Provide a link between Blind Creek Trail and the Community Garden / Vineyard site to provide access for pedestrians and cyclists through this area.	Knox City Council	Long Term

Table 6 Knox Central ITS Pedestrian and Cycle Recommendations

Item Ref	Project Description / Recommendation	Responsibility	Priority
P1	Require that statutory car parking rates are satisfied for new developments in order to provide adequate off street parking.	Knox City Council	Short – Long Term
P2	Commission parking assessments to monitor on-street and Council managed off-street parking as development progresses in the Knox Central.	Knox City Council	Medium Term
P3	Require Green Travel Plans for all appropriate residential and commercial developments as per the requirements set out in Council policy developed under the Knox ITP actions.	Knox City Council	Medium Term
P4	Prepare a Precinct Parking Plan for Knox Central as per the requirements set out in Council policy developed under the Knox ITP actions to manage parking throughout the study area as development increases.	Knox City Council	Medium - Long Term
P5	Support provision for electric cars in both residential and commercial car parks, with dedicated charge points for electric cars in public car parks.	Knox City Council	Long Term
P6	Support parking provision for rideshare vehicles in locations that will encourage usage.	Knox City Council	Long Term

Table 7 Knox Central ITS Parking Recommendations

Review of 2005 Knox Central Urban Development Framework Access and Movement Plan

Reference	2005 KCUDF Element	Included in 2016 ITS	Justification
1	East west connection between Capital City Boulevard and Scoresby Road, parallel to Burwood Highway	Yes	Demonstrated demand to assist in distributing vehicles throughout Knox Central by 2025 and onwards
2	East west connection following Blind Creek Trail between Stud Road and Melbourne Street	No	Demand not demonstrated to support link
3	East west link through Westfield Knox site	No	This ITS was not intended to assess the internal shopping centre parking circulation network
4	Four north south links through Westfield Knox site	No	This ITS was not intended to assess the internal shopping centre parking circulation network
5	Road links south of Burwood Highway, within High Street Road and Tyner Road, connecting to proposed Civic Way	No	Land use changed to support St Andrews Christian College, and Civic Way not supported
6	Civic Way	No	The nature and location of the proposed Civic Way was such that the capacity would be low and encouraging lower speeds, therefore not providing a suitable link to disperse the forecast traffic volumes through the study area. The proposed signalised intersection at Burwood Highway would also not be compatible with the intent of the link, particularly as there are currently six intersections on the 1200 metre section of Burwood Highway between and including Stud Road and Lewis Road. It is also considered that the close proximity of that intersection is not desirable for safety reasons.
7	Extension of Capital City Boulevard connection north to Bridgewood Court	Yes	Link connection to proposed civic precinct
8	East west link parallel south of Blink Creek Trail between Melbourne Street and Bond Street to the west of Scoresby Road	No	Demand not demonstrated to support link
9	Three north south links parallel to and between Lewis Road and Scoresby Road	No	Demand not demonstrated to support link
10	East west link between Lewis Road and Scoresby Road at the north of the Knox Central study area	No	Demand not demonstrated to support link
11	Network links north of Blind Creek Trail around Lewis Road and Wadhurst Drive	No	Potential future local links but not considered for modelling
12	Proposed Route 75 Tram (Light Rail) link	Yes	Demonstrated mode shift from Bus and Private Vehicle
13	Light Rail Stops	Yes	Provided at existing bus stop locations
14	Future fixed rail (train) link from Glen Waverly rail station	No	Demand not demonstrated to support proposed rail link
15	Internal bus service along capital City Boulevard and Melbourne Street	No	This ITS was not intended to assess the internal shopping centre network
16	Bus service along proposed east west link between Capital City Boulevard and Scoresby Road	Yes	Potential future demand to support bus service through Knox Central
17	Pedestrian & Cycle link along Blind Creek Trail	Yes	Existing network – improvement measures to be implemented

Table 8 Review of KCUDF Access and Movement Recommendations Source: Knox Central Integrated Transport Study 201

Opportunities and Considerations – Access and Movement

- There are several opportunities for Council to advocate to State Government authorities for improvements to both private and public transport outcomes.
- There is a need to improve pedestrian and cyclist safety and amenity, particularly at intersections.
- There will be a need to mitigate car parking impacts resulting from future developments.
- Transport modelling supports the introduction of new road links and the Route 75 tram extension to Knox Central

8. OPEN SPACE AND RECREATION

The Knox Open Space Strategy and Play Space Plan guide the delivery of parks for the community of Knox through design and parkland standards and service levels. These standards identify the quantity, distribution, quality and level of facility development required to support Knox's community.

Public open space is a vital element in creating a sense of place and achieving sustainable development outcomes by providing amenity and green space to serve the residents of the area, and in encouraging healthy lifestyles that improves the quality and vitality of urban life. Some of the key factors considered when managing open space in Knox Central include:

- providing parks to meet a diverse range of the future recreational needs while improving the overall amenity of the locality for all users;
- applying good design principles to offer convenient and safe access to multi-use parks and open space;
- supporting habitats for biodiversity and assisting in reducing the urban heat island effect and the impacts of climate change; and
- integrating stormwater infrastructure with landscape and enhancing amenity based on the principles of Integrated Water Management and Water Sensitive Urban Design (WSUD).

Open space within Knox Central comprises of:

- Lewis Park
- Blind Creek
- Collier Reserve
- Gateshead Reserve
- Knox Community Garden/vineyard site

These open spaces form part of a broader open space network beyond the Activity Centre including the Blind Creek Trail; Fairpark Reserve (to the immediate east of the Activity Centre); Coleman Road Reserve, abutting Lewis Park; and Roselyn Crescent Reserve (to the north of the Activity Centre).

The extent and proximity of open space within Knox Central is a key distinguishing feature for the activity centre, when compared to comparable activity centres in Melbourne. These areas offer benefits associated with amenity, local identity, recreation, environmental values and health and wellbeing. However, there are barriers to these areas, with most adjoining land uses turning away from these open spaces.

Lewis Park

Lewis Park, which is owned by Melbourne Water, is a significant feature within the Knox Central. It comprises three sporting ovals; a sporting pavilion; a small playground; a small skate park; and part of the Blind Creek Trail shared path. The park also plays a significant role as a retarding basin (see Chapter 13). The openness of Lewis Park also provides for long range views to the Dandenongs (see Chapter 15).

The Knox Central Urban Design Framework identifies Lewis Park's strengths and weaknesses as relating to:

- *Its proximity to schools and the Knox City and Ozone Shopping Centre,*
- *Access connecting it to wide catchments via the off-road shared path system,*
- *Its capacity, and therefore sustainability with three existing sporting playing fields,*
- *Connectivity with a range of other open spaces including Blind Creek,*
- *Lack of prominence and public surveillance,*
- *Relatively poor design of amenities and relationship with associated open spaces such as the Creek,*
- *Considerable undesirable or anti-social behaviour that could be addressed through design of facilities or by providing a more prominent space with public surveillance,*
- *Significant improvements could be made to the Park through the development of new overlooking residential dwellings with improved visual and physical connections to and from the Shopping Centre,*
- *There are few viable sports grounds in the area, as most grounds are single fields unable to support a viable club or shared facilities. Should the precinct be developed the number of fields should not be reduced to less than two,*
- *There are opportunities to engage young people, existing users and create a better connection with the shopping precinct by developing the eastern side of the park for leisure related uses for the same market, and*
- *Should a new skate park be developed in this vicinity it must have a greater management presence, cater for BMX and skaters and more experienced users and address amenity issues.*

Current formal users of Lewis Park facilities include:

- Junior Football
- Cricket
- Skate Park users

- Personal Trainers (who require local laws permit to operate in the park)
- Schools
- Scouts

The Skate Park at Lewis Park is managed as a 'passive skate park'. That is, formal activities are not organised at this park, usage is casual only. Council does not undertake active management of the park, but undertakes maintenance of the facility. While an informal facility, the Skate Park plays an important role in minimising skating activities around Ozone and Westfield car parks etc.

The pavilion at the north of the park is on Council's list for upgrading, as well as upgrading the oval surface (conversion to warm season grass). The Sporting Reserve and Facility Development Guidelines provide a strategic framework for the development of sporting reserve facilities.¹⁰ The Guidelines have a four-tiered hierarchy consisting of Regional, Municipal, Local and School level facilities. Lewis Park accommodates a range of municipal and local facilities within this hierarchy.

The Knox Leisure Plan Action 27 is to *explore opportunities for the establishment of outdoor gyms in line with:*

- *defined service levels/provision hierarchy, and*
- *leading practice (provision checklist being produced by the South Eastern Sydney Local Health District)*

Outdoor gym equipment may be a suitable addition to Lewis Park and may increase usage of the shared path. In 2015, Council installed outdoor gym equipment at four locations in Rowville, connected by shared pathways for easy access to walkers, runners and cyclists. Evaluation of this project (Healthy Together Knox, 2016) found that, eight months after installation, there was strong utilisation of the Rowville outdoor gym. The evaluation recommends that Council continues to install and maintain outdoor gyms so as to provide a free and accessible option for residents to increase levels of physical activity and muscle strengthening. It recommends that outdoor gym equipment be located in Council reserves where there is already moderate to high levels of existing and which are in close proximity to residential areas, early year's services, schools, community centres, sports facilities, employment precincts or retail areas. Outdoor gym equipment would be appropriate for consideration through the development of the Lewis Park Master plan.

Lewis Park Master Plan

A master planning project for Lewis Park is currently on the forward program of works in Council's capital works budget.

It is important that the Lewis Park Master Plan is informed by an understanding of

¹⁰ This Policy does not apply to hockey fields, lawn bowling greens, BMX tracks, golf courses, radio controlled car tracks and multi-purpose facilities, as these are considered to be specialty venues requiring consideration on a case-by-case basis

the potential land uses adjacent to the park. As such, the development of the Master Plan will follow the Structure planning process for the broader area.

The project will involve a substantial body of work that may need to be undertaken with Melbourne Water to balance liveability/place outcomes along with the hydraulic capacity needs of the site and the significant biodiversity located on the site. Given the potential to create a permanent water body on the site and perhaps daylight the creek, the scope of works could extend across Lewis Road upstream towards Scoresby Road.

It is expected that any proposed works proposed through a master plan would build on existing assets within the park.

Given the impending master planning process (and the complexity of issues involved), it is appropriate that the Structure Plan will not attempt to 'do too much' with regard to Lewis Park. The Structure Plan should provide the principles for the whole centre as they relate to the park and provide direction on interface issues to facilitate the future planning of the park.

Blind Creek Trail

The Blind Creek Trail is a shared path which extends from the Tim Neville Arboretum in Boronia and links up with the Eastlink Trail. It bisects the length of the Knox Central Activity Centre.

The Knox Central Urban Design Framework provides the following commentary on the shared path network of which Blind Creek Trail is a major element:

The shared path network is now only in average condition. The asphalt path is generally only 2m wide, running straight along a relatively uniform grassed drainage way. It is extended in places by areas designed for maintenance vehicles that are unsealed. These cause problems in the vicinity of the skate park because of the loose surface and dust. A range of users have been observed on the shared paths from runners, dog walkers, people strolling, wheelchair users, scooters, inline skaters and skateboarders as well as a range of types of cyclists.

In the long term, the design and siting of paths should be improved to accommodate more current leisure behavior, the needs of a greater range of users, and to draw users into the shopping area on alternative forms of transport. This will mean a much wider path through the precinct, in more user friendly material, designed as a series of interconnecting circuits, meeting accessibility standards with nodes for rest and play, and having points of entry with a greater prominence to attract these users especially for the highway.

It remains the case that the shared path requires upgrading and widening. Research commissioned by Council has found that the Blind Creek Trail has high levels of usage by cyclists (Cardno, 2016a). The research recommends a number of actions relating to the trail (see Chapter 8).

New wayfinding signage has recently been installed along the shared pathway.

Collier Reserve and Gateshead Reserve

The Knox Open Space Plan designates Collier Reserve and Gateshead Reserve as 'local open spaces', which serve local neighbourhoods and have a place-based relationship. Both of these reserves are located on the Blind Creek trail.

Gateshead Reserve provides a pedestrian link from Westfield Knox through to Gateshead Drive and the residential area to the north.

Collier Reserve is a site of biodiversity and has heritage significance in the context of the European settlement of Knox.

Community Garden and Vineyard

There is no formally recorded history of the Knox Community Gardens, however it is understood that the Gardens and the vineyard were established in the mid 1980's as part of a Commonwealth Employment Project which Council auspiced, in response to community interest for a garden. The vines were provided by Knox's then sister City of Noarlunga in South Australia. The vines were maintained by Swinburne University for a number of years, after which a commercial operator took over the management of the vineyard.

The community gardens consist of 122 individual plots, most of which measure about 3m x 10m. Some smaller plots have been developed recently to cover a broader range of needs. Facilities on the site include a shed for storage and meetings, a BBQ area, sale of materials including manure, seeds and compost.¹¹

Both of these operations take place on Crown Land for which Council is the Committee of Management. There has been some land use conflict on the site, in part due to the designation of space on the site. Permission for uses, and realignment of the use of space, on the site requires permission under the *Crown Land (Reserves) Act 1978*. In order to ensure the amenable ongoing use of the site, an appropriate designation of space is required. Council has commenced a process to investigate the future of the Vineyard section of the site.

The KCUDF recommended that residential development occur on part of this site. In light of the findings regarding demand and capacity for residential development within the Activity Centre (see Chapter 16), it is considered that this site should be retained for community/recreational uses.

The land at 256 - 258 Scoresby Road abuts the vineyard to the east. This land is occupied by an indoor recreation centre (gym and pool) and the headquarter offices of the Eastern Football League. Fairpark Reserve, which comprises football, netball and cricket facilities, is on the eastern side of Scoresby Road opposite these sites (outside of the activity centre). Retention of 256 - 258 Scoresby Road for uses that are complementary to the community/recreation use of the surrounding area would

be beneficial. The Vineyard/Community Garden site enjoys enviable views to the Dandenong Ranges, which supports the importance of retaining this land as a community asset. Consideration should be given to the potential impact on views of any future development of the land at 256-258 Scoresby Road (see Chapter 15).

The Vineyard/Community Garden site is setback from Scoresby Road and does not currently have opportunities for passive surveillance or integration with adjoining uses. Although it is public land, it is not easily accessible by the general public and functions as a 'semi-private' space for the use of the two tenants. There are opportunities to facilitate pedestrian access through site, via the Blind Creek shared path to the residential area to the north. Consideration is required as to whether this would create security concerns or whether pedestrian traffic would increase safety and surveillance. 'Opening up' this site to its surrounds could have a significant impact on the uses on the site, therefore consultation with the tenants is required on the matter. The panel report for Amendment C50 and supported through C70 panel recommended that "that Council ensure there is continued open communication between Council and the Knox Community Garden Society on the future of the Community Gardens site."

Complementary recreational uses

There are a number of privately run indoor recreational facilities within the Activity Centre and close to Lewis Park. The Knox Leisure Plan acknowledges that there is a role for these types of facilities in the 'recreation picture' and a role for Council in providing information about both community and private providers.

The Leisure Plan:

- *recognises the expansion of the fitness industry to include growing number of health and fitness centres, and in particular 24-hour gyms. Alongside this is a significant increase in the number of small businesses associated with the leisure and fitness sector, including personal trainers, yoga, and fitness instructors. These commercial providers complement club based leisure and sport opportunities. In some cases there may be opportunities for private facilities to address the shortfall in community based facilities and programs.* " (page 46)
- *recognises the important role that community, private and commercial operators play in satisfying the leisure, sport and physical activity needs of the community, and the need to work closely with these organisations. These include groups that manage facilities such as guide and scout halls, private gymnasiums and fitness centre operators and home based facilities such as those operated by personal trainers.* " (page 50)

Existing private facilities in close proximity of Lewis Park include:

- Martial Arts
- Indoor Cricket/Netball/Soccer
- Trampolining

¹¹ Knox Community Gardens Facebook Page

- Personal Training
- Commercial Gyms
- Sporting association headquarters (Eastern Football League)

These types of facilities commonly establish in industrial areas and the 'Lewis Road precinct' is no exception. Consideration should be given to the role that these types of land uses play within the centre and how to manage these uses alongside more traditional industrial/commercial uses.

Opportunities and Considerations – Open Space and Recreation

- There is a need for a coordinated approach to planning for Lewis Park – including biodiversity, water, recreational and community considerations
- Need for upgrades to recreation assets at Lewis Park
- Support complementary recreational land uses near Lewis Park, ensuring that this does not encroach on valuable industrial land
- Need for audit/upgrades to Blind Creek Trail
- Potential for outdoor gym equipment to be incorporated into Lewis Park
- Opportunity to 'tidy up' the designation of space among land uses on the Community Garden/Vineyard site, to facilitate amenable use of the land
- Consideration of whether the Community Garden/Vineyard site should be more accessible to the broader public
- Establish appropriate site management process and communication channels between the tenants on the Community Garden/Vineyard site and Council as land manager
- Retain 256 - 258 Scoresby Road as land for complementary recreational uses

9. SOCIAL AND COMMUNITY INFRASTRUCTURE

In 2009, Council commissioned Urbis to conduct the *Knox Central Activity Centre Social and Cultural Needs Assessment 2009*. The resulting service demand assessment identified evidence to suggest the introduction of the following to service the local and broader municipal catchment:

- Neighbourhood house activities
- Outreach allied health and support services
- Youth programs supporting alternative education opportunities and homework support
- Space for older adults to engage in life-long learning and passive recreation activities

A subsequent preliminary overview of social infrastructure related to Knox Central was undertaken by Council staff in 2016. For the purpose of this initial assessment and overview of social infrastructure requirements, a radius of 2 km was utilised to provide an indicative estimate of demand and supply for community infrastructure.

This preliminary overview identified the following considerations:

General

- The impact of higher density living (resulting from apartment and town house developments) on social infrastructure requirements will require further investigation.
- Current community infrastructure is predominately located along the perimeters of the Knox Central Activity Centre.
- A multipurpose community facility does not currently exist within the Activity Centre.
- The size of the development and the potential population scenario will increase demand for social infrastructure. Work conducted to identify potential community infrastructure requirements in 2009 and 2015 identified the following provision requirements:
 - Community and Lifelong Learning Hub within the Civic Precinct
 - Community Health Centre
 - Playgrounds, one within residential area and one within the Knox Shopping Centre
 - Potential for an arts and culture centre within the Community and Lifelong Learning Hub in the medium term
 - Town Square
 - Early years hub within the Civic Precinct.
- The 2009 Community Infrastructure Assessment conducted by Urbis in 2009, as

part of the social and cultural needs assessment, indicated that community infrastructure facilities to service the local population would be best served within the Westfield shopping area and the future Civic Precinct.

Strengthening of pedestrian and public transport links to the Civic Precinct and existing community facilities that have the potential to service the new residential developments.

- The majority of residential development within Knox Central is likely to provide smaller dwellings such as apartments, which will improve housing diversity and choice within Knox, and may provide more affordable housing options.
- The identification and management of barriers to accessing existing community infrastructure created by major roads, including enhancement of shared pathways and transport links between Knox Central, other activity centres in Knox and surrounds.
- The impact of increased employment opportunities requires further review.
- Development of a community engagement plan with Westfield, Council and community stakeholders would support the development of a social and community infrastructure needs analysis.
- In line with the Knox Affordable Housing Action Plan 2015-2020, a 5% contribution of social housing should be sought for residential developments on government-owned and Council-owned land.

Aged

- There are substantial numbers of aged care facilities located within or adjacent the Knox Central Activity Centre.
- There is a need to provide access to community facilities that provide for seniors service and programs and lifelong learning opportunities provided by organisations such as U3A.
- The increasing ageing population, combined with current aged care reforms which are resulting in increased community based service providers, this combined impact may increase demand for office space in the area.

Early Years

- Families residing in Knox do not have a choice to use Maternal and Child Health (MCH) services outside of the municipality therefore there may be an increase in demand for MCH services. It is unknown at this stage how increased density will impact choices families make with regards to early years services.
- Currently families using sessional preschool and MCH prefer the “neighbourhood model” – where they can walk to their local centre and/or it is near a local primary school. Main roads can then become a natural

border/create a catchment area where families are reluctant to access these services on the other side of a main road to where they live.

- Council has decided to consolidate its child care services into two new early years hubs, along with other early years services at each site. The sites will be Wantirna South – Knox Gardens Preschool site; and Bayswater – Blue Hills Children and Family Centre site
- A preliminary analysis of the impact of increased local population on Early Years services has identified the following:
 - Additional requirements for Maternal and Child Health
 - Space for playgroup that could also be used by MCH for first time parents groups depending on the type of space and usage by playgroups, these rooms can also be used for other community groups.
 - An expected increase in demand for 4 year old preschool.
 - There is potential demand for 3 year old preschool services and an increased demand for the Young Parents Group run by Youth Services and long day care services

Open Space

- Open space provision needs to be self contained, there should be local open space within 500m of all dwellings and there should be a play space within 500m walk of any dwelling.
- A Master Plan is to be prepared for Lewis Park in 2017/18, which includes the Retarding Basin.
- Should the size of Lewis Park be reduced (hence the loss of one oval), the area and dimensions of the remaining site should allow for easy adaptation to different uses in response to changing community active and passive recreational needs.

Existing Community Facilities

- The Knox Model Car Club is currently located on Council land adjacent to Eastgate Court (under a tenancy arrangement with Council). Relocation will require consideration.
- The Activity Centre integrates with public open space along the Blind Creek Corridor and includes the Knox Community Gardens/Vineyard site (under tenancy arrangement with Council) which has been noted as having “attractor” benefit to the Knox Central Activity Centre. The Community Gardens/Vineyard site and surrounds are located on Crown Land which is managed by Knox City Council.
- Council Operations Centre which is to be relocated to Henderson Road in Rowville.
- The Knox State Emergency Unit is located within the Knox Central Activity Centre adjacent to the current Council Operations Centre (under a tenancy

arrangement with Council). The impact of the Operations Centre relocation will require assessment.

- Swinburne University is currently undertaking community engagement to understand how it can enhance local community educational and support services needs via the Wantirna and Croydon campuses.
- Villa Maria is currently undertaking research into the development of a community hub facility.

Performing Arts Centre

It has long been an aspiration of Council to develop a significant cultural venue in the Knox Central Activity Centre.¹² Development of a cultural facility within the activity centre is supported by the Knox Arts and Cultural Plan 2012-2022 of which one action is to *continue to support the development of a significant Cultural Facility at the Knox Central Precinct* (Objective 4, Action 4.6, page 42).

However, further work is required determine the nature of such a facility based on the current and future needs of the local and regional community. Previous research and evaluation commissioned by Council regarding the potential for a performing arts centre was based on a 650 seat venue of AA standard and a 150 seat black box theatre (as set out in the KCUDF).

The KCUDF notes that the land to the east of the proposed Capital City Way, including Council’s existing assets provide the best possible location for the establishment of the proposed regional Performing Arts Centre . See Chapter 17 for a discussion of Council’s land holdings.

Opportunities and Considerations

- There is a need to develop a community facilities needs analysis for Knox Central, in accordance with Council’s Community Facilities Planning Policy, as the Activity Centre continues to develop.
- Further investigation into a potential Performing Arts Centre is required.

¹² Knox Arts and Cultural Plan 2012-2022, pg 18

10. COMMUNITY SAFETY

The *Knox Community Safety Plan 2013-2017* identifies a number of community safety priorities for the Knox community.

As Knox Central functions as the focus of entertainment, leisure and shopping in the municipality and contains large areas of public open space, the following are considered to be of particular relevance for the planning of the Activity Centre:

- Young people and safety;
- Anti-social behaviour;
- Transport-related issues including 'hoon' or dangerous driving;
- Graffiti;
- Perceptions of safety;
- Problem gambling.

The following issues have been identified by Council staff, regarding safety issues in Lewis Park:

- Vandalism of toilets and pathways
- Graffiti in underpasses
- Police call outs to functions in Council facilities (Scout Hall)

Victoria Police has also advised that the existing Bus Interchange at Westfield Knox is a hot spot policing location for Knox in managing anti-social behaviour. "(Knox City Council, 2014)

The Community Safety Plan includes a number of actions, many of which will be undertaken in partnership with other organisations. A number of these actions have some relevance to the activity centre due to the physical features of the activity centre and the mix of activities including:

- The activity centre contains a number of sites where young people congregate: Swinburne TAFE; Westfield Knox; Fairhills Secondary College; St Andrews College; Lewis Park.
- Knox Ozone is Knox's only 'night time economy' location. It comprises a number of restaurants, bars and nightclubs.
- A number of underpasses are located within the activity centre, which are associated with the Blind Creek shared path and drainage infrastructure. These underpasses are almost constantly the site of graffiti and generally provide a poor level of amenity for path users.
- There is a lack of surveillance and low levels of activity in Lewis Park and Blind Creek which may lead to lowered perceptions of safety.
- Two gaming venues are located within the Activity Centre which comprise a

total 174 gaming machines.

Council commissioned research in 2015 (RMIT, 2016) to assess perceptions of alcohol use and safety associated with Knox Ozone. This research made a number of recommendations which are relevant to the structure plan, and acknowledged that Council acting alone will have difficulty in having more than a minor impact on alcohol use (and associated issue) in the Knox Ozone precinct. Addressing this issue requires collaboration with Victoria Police, security firms, licensed venue managers, Westfield and relevant community agencies. The Knox Liquor Accord 2015-2017 (the Accord) facilitates this type of collaboration. The Accord was established in November 2015 and aims to address licensing and permit issues, patron behaviour and control, venue management, community safety and amenity issues. It is intended to be supportive rather than compliance focused, and aims to instill a spirit of cooperation amongst members (which comprise licensees of venues, clubs and outlets; Victoria Police; Council; and security providers). Eight venues within Knox Central are signatories to the Accord.

Opportunities and Considerations

- There is an opportunity to continue Council's partnerships with Victoria Police and local agencies, such as the Knox Liquor Accord, to manage public safety in Knox Central
- *Crime Prevention through Environmental Design* principles can support community safety as Knox Central develops.

11. BUSINESS MIX AND EMPLOYMENT

A land use survey of all premises and businesses within the activity centre undertaken in 2015 (Geografia, 2015) provides data on the types of businesses, vacancy rates and building conditions.

The survey found that the business mix (by number of businesses) is heavily dominated by retail trade (198), other services (85) and accommodation and food services (79) (See Figure 19). Figure 20 shows that, excluding Westfield from the figures, the greatest number of businesses are in wholesale trade (52) and manufacturing (46).

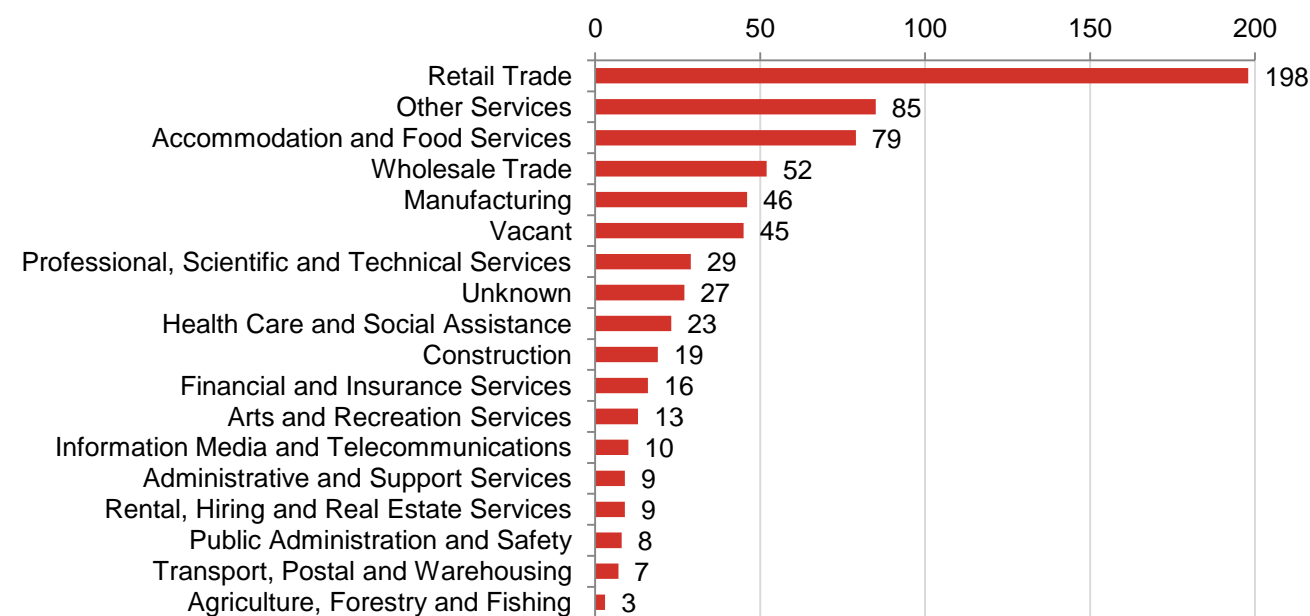


Figure 19 Business mix In Knox Central (including Westfield), ANZSIC1 Level (number of businesses) Source: Geografia, 2015

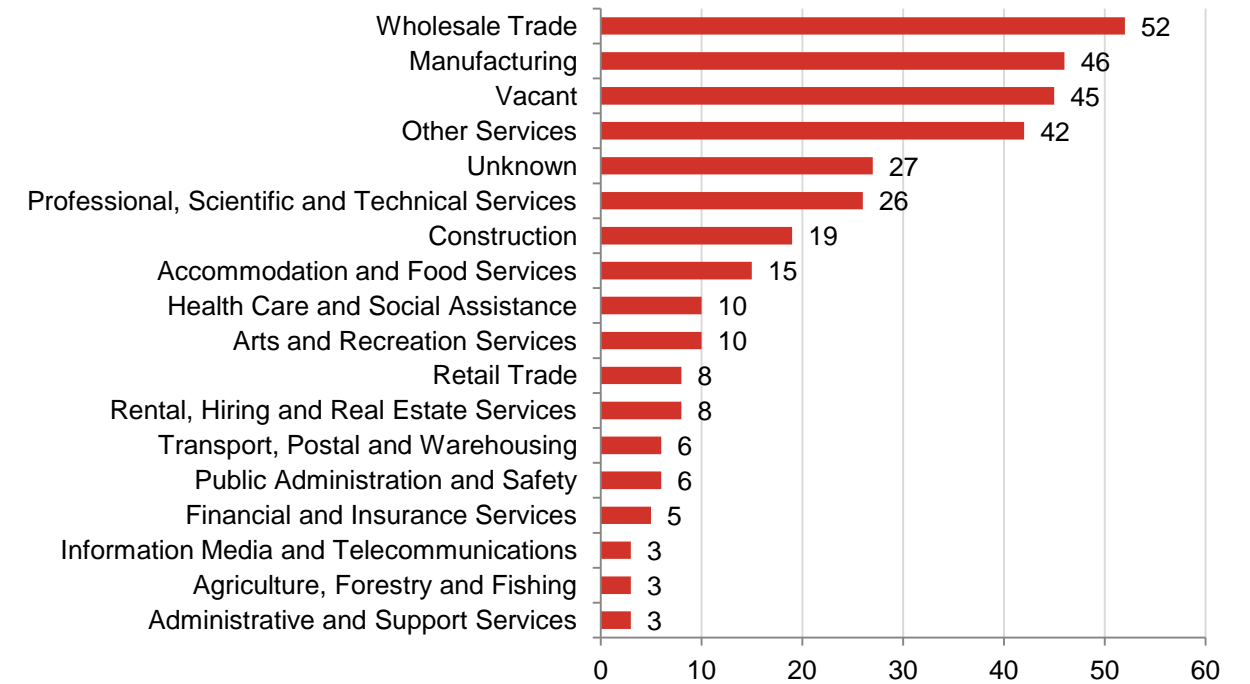


Figure 20 Business mix in Knox Central (excluding Westfield), ANZSIC1 Level. Source: Geografia, 2015

The 2011 Census also provides an insight into the type of employment generated in Knox Central.¹³ Figure 21 shows the breakdown of jobs in the centre by industry at ANZSIC 1 level. This is compared to the average job profile across other major, eastern region activity centres. It reveals the dominance of retail and public administration activity in Knox Central, but also the activity centre's unique position within the region, having a statistically significant manufacturing and wholesaling presence.

¹³ For this analysis, five relevant destination zones that best fit the activity centre have been used for analysis (Zones 212542394, 212522381, 212602401, 212602403 and 212602405).

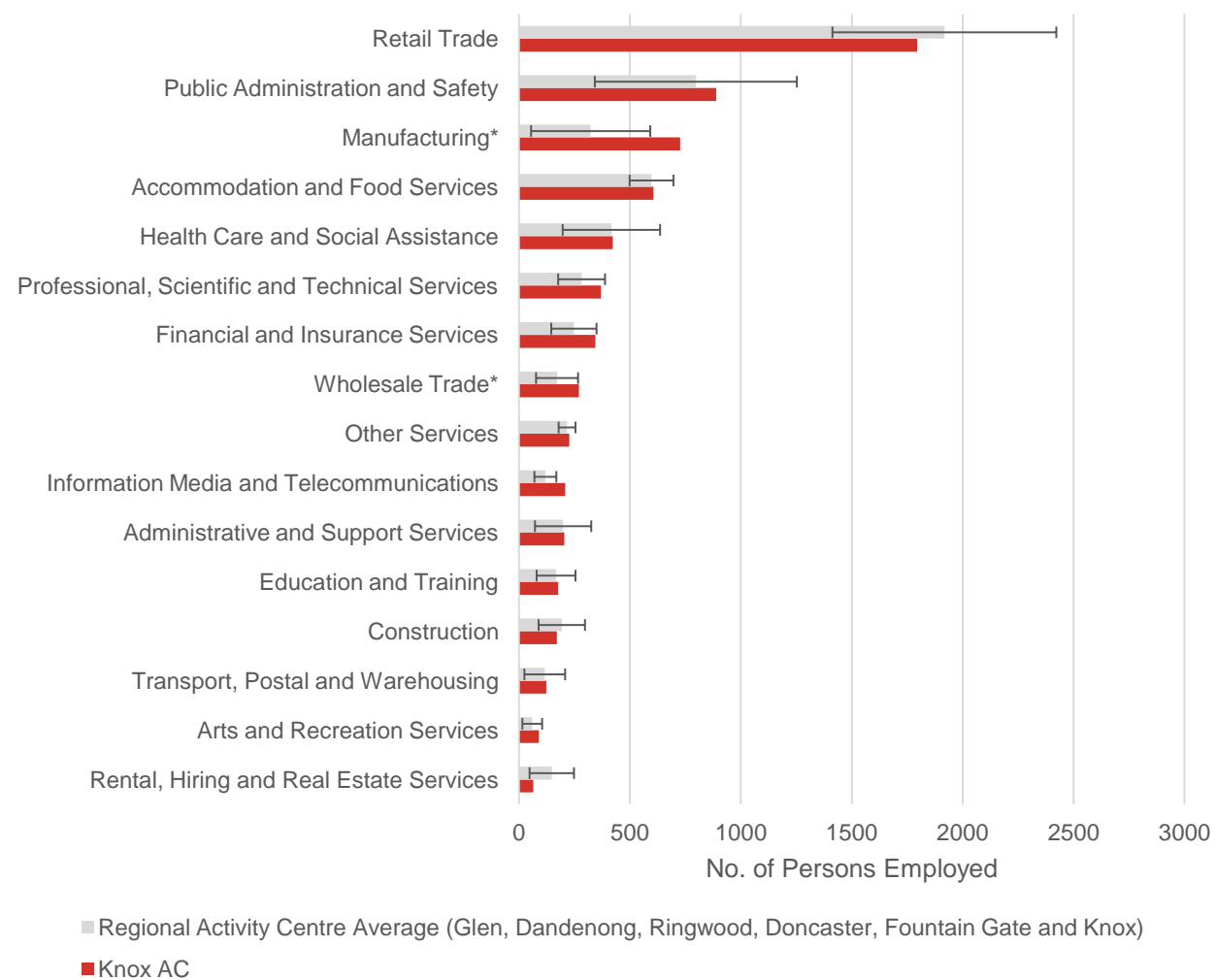


Figure 21 Total employment by industry, Knox Central (including Westfield) and other eastern activity centres (ABS, 2011) Source: Geografia, 2015

Existing Industry Clusters

The following industry clusters have been identified within Knox Central (Geografia, 2015):

- Retailing, entertainment and hospitality: centred on the Westfield Knox Shopping Centre.
- Car related services: auto-repair, panel beating, auto electrical services, located primarily within the Lewis Road industrial area, however there are also a number of these business located within the Westfield site.
- Furniture and flooring manufacturers and wholesalers (ranging from small warehouses to large manufacturers).

- Higher value manufacturing¹⁴ and scientific services, particularly in the pharmaceutical and the professional/scientific equipment sectors. These manufacturers appear to be occupying higher quality, and larger industrial building and office stock in the Lewis Road area.¹⁵
- Construction (small construction related companies operating bases/warehouses from small lots throughout the Lewis Road area).

As noted above, there are also a number of recreation businesses within the activity centre.

There remains a need to identify Knox Central’s role in the broader commercial landscape, in terms of industry mix. That is, should there be an objective for this centre to specialise in certain industries? This should be done holistically considering the various commercial/industrial land within the municipality and the broader eastern region. Knox City Council is an active partner in regional partnerships in the ‘economic development space’, so is well placed to consider the role of Knox Central in the broader context. Council has commenced a ‘Land for Business Study’, which aims to:

- Ensure that Knox has an appropriate supply of employment and activity and neighbourhood centre land well into the future (securing land); and
- Leverage this land to ensure it meets current and future needs (making the land work).

This Study will undertake a holistic view of supply and demand of commercial and industrial land across the whole municipality.

Commercial Vacancy Rates

The Geografia analysis estimates a commercial property vacancy rate of around 13% within the activity centre, which is considered relatively high.¹⁶ The vacant properties in Knox Central are a mix of smaller and larger properties. The vacancy rate is likely to represent a mismatch between the needs of business and building stock available. Specifically, some stock is too small for many businesses. In other instances, the building condition/age may be a barrier to uptake.

¹⁴ Those manufacturers that are likely to require high skilled and high paid employees, and which are generally more resilient to automation trends amongst industry.

¹⁵ Example businesses within the activity centre include DNA Solutions (medical testing laboratory), Douglas Bean (surgical/medical equipment manufacturing), Ritek (laboratory equipment manufacturing), Sleep Technologies Australia, Baldwin Medical (device manufacturing), and Magnum Australia.

¹⁶ A survey of larger industrial facilities (over 10,000 square metres) found that metropolitan Melbourne’s industrial vacancy rate was 5.0% in August 2014 (source: Urbis Industrial Vacancy Rate Report August 2014). The Eastern sub market (which includes Knox) had the lowest vacancy rate (1.0%), followed by the Western (4.7%), South Eastern (5.8%) and Northern (7.2%) sub market.

Diversity of retail/hospitality/leisure providers

A lack of diversity in retail entertainment and hospitality has been identified as a potential issue in Knox Central, with a single owner and manager of the vast majority of entertainment and hospitality offering in the Activity Centre (Westfield). This limits opportunities for independent or boutique operations, which are increasingly becoming desirable in suburban locations. Quickly shifting consumer expectations, and a market desire for urban style smaller, organic and diverse offerings may reduce the competitiveness of Knox Central.

Night Time Economy

RDA Melbourne East, of which Knox City Council is a member, commissioned research in 2015 into Melbourne East's Night Time Economy and its benefits and costs (REMPPLAN, 2015). The term of "Night Time Economy" captures certain social and business activities in the period of "the night". Many non-hospitality and non-entertainment related economic activities also take place at night, including cleaning services, education, government services, retailing, baking and other forms of food preparation, and logistics activities.

Increasingly local government areas are preparing planning policy that recognises the importance of the NTE in key cities and activity centres. This responds to broader land use objectives to achieve greater concentration of mixed use activities that include both commercial and residential activity.

The draft study notes that the main location of activity after 6pm in the City of Knox is Westfield Knox. Of the 987 people working in the Westfield Knox complex in industry sectors that have an exposure to the NTE, it is estimated that 265 jobs (27%) specifically service the NTE. This represents 6% of the total 4,233 jobs in the Westfield Knox precinct and 0.5% of total employment (55,807) in the City of Knox (REMPPLAN, 2015).

While the NTE makes an important contribution to the local economy, there is a need to ensure that potential social impacts, particularly related to alcohol use, are managed appropriately to support the health and wellbeing of the community (see Chapter 11).

Opportunities and Considerations – Business Mix

- Existing industry clusters include retailing, entertainment and hospitality; car related services; furniture and flooring manufacturers and wholesalers; higher value manufacturing and scientific services; and construction.
- Business in Knox Central is dominated by retail however the activity centre also has a unique position within the Eastern region, having a significant manufacturing and wholesaling presence.
- There is a lack of diversity in retail/hospitality/leisure operators.

12. NATURAL ENVIRONMENT AND LANDSCAPE

Views of the Dandenong Ranges in conjunction with trees and vegetation on both private and public land are the essence of Knox's green leafy image. However, Knox, like all modern cities, operates in a dynamic global environment which grows and changes over time. The rate of change particularly in regards to housing developments in Activity Centres (focal points of the local community where local services are concentrated and thus where development is ideally concentrated), has led to renewed community concerns over the loss of Knox's leafy green image through development (Knox@50 Final Report).

The natural environment in Knox provides much more than a green leafy image. The *Knox Integrated City Strategy* acknowledges the health and wellbeing benefits of the natural environment, with an area of focus for the strategy being to *increase awareness and appreciation of the value of local biodiversity and its community health and wellbeing benefits*.

Trees, in particular, provide numerous economic, environmental and social benefits – many of which have been published both nationally and internationally. There is a significant body of evidence on the connections between nature and health, particularly mental health, however this is a fairly new area of concern in planning for cities and population health (Landscape Institute, 2013; Maller et al, 2005; Parks Victoria, 2002).

With regard to economic benefits, research shows that canopy trees can lower ambient temperature by up to 8°C thus reducing air conditioner use and saving an estimated 12-15% per annum in electricity bills (Moore 2012). In addition, tree lined streets not only enhance neighbourhood aesthetics but have also found to lead to an increase in property values within a street (Sander, Polansky & Haight 2010).

Biodiversity

Knox Central has a significant role to play in terms of improving biodiversity outcomes, and the associated environmental and social benefits that this brings. The Activity Centre forms part of a habitat corridor from the Dandenong Ranges to the Dandenong Valley.

Since the adoption of the KCUDF, significant work has been undertaken by Council in this area. The following sites of biological significance are within Knox Central, as identified in 'Sites of Biological Significance in Knox – 2nd Edition,' 2010:

Site 33 – Blind Creek Corridor

Disjointed patches or strips of habitat along one of Knox's three main streams. All the native vegetation in this site belongs to Ecological Vegetation Classes that are regionally Endangered or Vulnerable. While most of the native vegetation is fragmented and has little understorey, there are some patches in fair ecological condition and a tiny fraction that is in good ecological condition. Blind Creek is a

corridor for daily and seasonal movements of birds and insects, which may also transport pollen and plant propagules. The site includes a dam at the Knoxfield Institute of Horticultural Development that is visited by a wealth of waterbirds, including threatened species.

Site 44 – Wadhurst Drive Park, Boronia

Remnant ground flora and tree regrowth surrounding dumped soil and a BMX track. The site was once almost fully cleared and at least one third of it has been smothered with clay fill, but there are still fifty indigenous plant species present, distributed between two EVCs that are both regionally Endangered. Vegetation in the least-disturbed northeastern corner is in good ecological condition with rather rich ground flora.

Site 45 (in part) – Roselyn Crescent Reserve, Boronia

Council park with extensive cover of native vegetation. Despite clearing of part of the park and a history of slashing and drainage works in some other parts, a substantial part of the reserve supports rich native ground flora in two regionally Endangered EVCs (Valley Heathy Forest and Swampy Woodland). There are many species (notably orchids) that are threatened in Knox or the Melbourne area generally, and records from the 1980s of orchids that are threatened in the whole of Victoria.

Site 109 – Fairhills High School, Knoxfield

Part of the grounds of a high school with remnant tree cover. Contains remnant eucalypts, wattles and mat-rushes that represent basic habitat for native birds, bats, possums, frogs and insects.

Water

Knox City Council is a member of the *Co-operative Research Centre for Water Sensitive Cities*, which is a nine year partnership to transform Knox into a water sensitive city. As Knox's largest activity centre, Knox Central has the potential to be the focus of activity in the area of water sensitive cities, including:

- Water resilience – flood, drought
- Urban Heat Island Effect
- Integrated water management/WSUD
- Green walls/green roofs

Blind Creek and Lewis Park are significant water assets within the Activity Centre, which are underutilised.

Integrated Water Management

Integrated Water Management provides a more holistic approach to managing urban water services. This includes making use of alternative water sources, such as recycled water and stormwater, to reduce pressure on our drinking water supplies while improving the liveability of local communities.

Considering the whole water cycle when planning and delivering services, can take advantage of links between different elements and develop solutions that have broader benefits over a long period of time. These benefits can include:

- environment – leaving more water for healthy waterway flows providing ecological and hydrological functions such as biodiversity conservation, flood mitigation and stormwater water quality improvement;
- liveability – improving open space amenity through the planting of native vegetation features such as walkways, reducing the urban heat island effect and managing flooding by providing a buffer against erosion;
- economic – supporting industry and agriculture;
- affordability – reducing costs over the long run;
- long-term resilience – diversifying our sources of water so we can withstand future shocks like droughts and floods;

Typically, stormwater flow is managed by the use of detention storage areas, with stormwater runoff treated by a range of quality treatment devices prior to discharge to the receiving waterways. Any increases in stormwater flows that result from development must be mitigated to ensure non-worsening conditions beyond the boundary for the plan area. Through the implementation of Integrated Water Management and Water Sensitive Urban Design practices, load based stormwater treatment objectives can be achieved. In saying this, the successful delivery of Integrated Water Management will require collaboration between Melbourne Water, Council, retail water companies and developers.

Blind Creek Corridor

The Blind Creek Corridor is a significant feature of Knox Central. While in the very upper reaches of the catchment the creek retains its natural channel, by the time the creek reaches the Knox Central Precinct, it has been piped, realigned and channelled with the retarding basin having been established as a major component of downstream flood mitigation.

A number of studies have been undertaken by Melbourne Water and Council over a number of years into the future management of the creek and its environs.¹⁷

Blind Creek is highly polluted due to illegal tap-ins and industrial waste. While the 'hot spots' for this activity are upstream from the Activity Centre, it impacts areas downstream.

'Daylighting' is the term used to describe the process of redirecting a watercourse above ground, from an underground drainage system, and to restore it to its more

natural state. This process need not be undertaken for the whole 'stretch' of creek but can be applied in specific locations identified as being appropriate for special treatments and where the greatest environmental benefit can be achieved.

The Friends of Blind Creek Corridor group and Knox Environment Society are highly active and focus their efforts on Knox Central and the former Norvell Road Quarry (upstream). These groups will be an important stakeholder in any works to the creek corridor.

Lewis Park Retarding Basin

The Lewis Park retarding basin plays an important stormwater management role within the local and broader area. This facility is managed by Melbourne Water. Maintenance of the retarding basin walls is being conducted by Melbourne Water January to June 2016, with no current plans for further work at this stage.

Extensive investigations into the retarding basin have been undertaken over a number of years. The KCUDF itself includes extensive detail about the hydraulic and environmental requirements for the retarding basin. This level of detail is considered to be inappropriate for this Structure Plan, due to its propensity to date with advances in technology and best practice. Both Melbourne Water and Council's approaches to stormwater management have shifted significantly since the adoption of the UDF in 2005.

Former DELWP site dam

The dam area within the surplus government land at the corner of Burwood Highway and Scoresby Road provides an opportunity to contribute to Integrated Water Management and to provide a high level of neighbourhood amenity. Understanding that the former DELWP site is a Strategic Investigation Site identified for mixed use and medium density residential development, the dam may offer both water quality and quantity opportunities for development. From a water quantity perspective, the dam could conserve water and provide a buffer against erosion and flooding by absorbing and slowly releasing stormwater. In terms of water quality, it would filter out excess nutrients and sediment from runoff which would otherwise go into Blind Creek untreated.

Updating of flood mapping

Figure 22 summarises drainage assets and hot spots in the vicinity of the Knox Central Activity Centre.

¹⁷ KCUDF

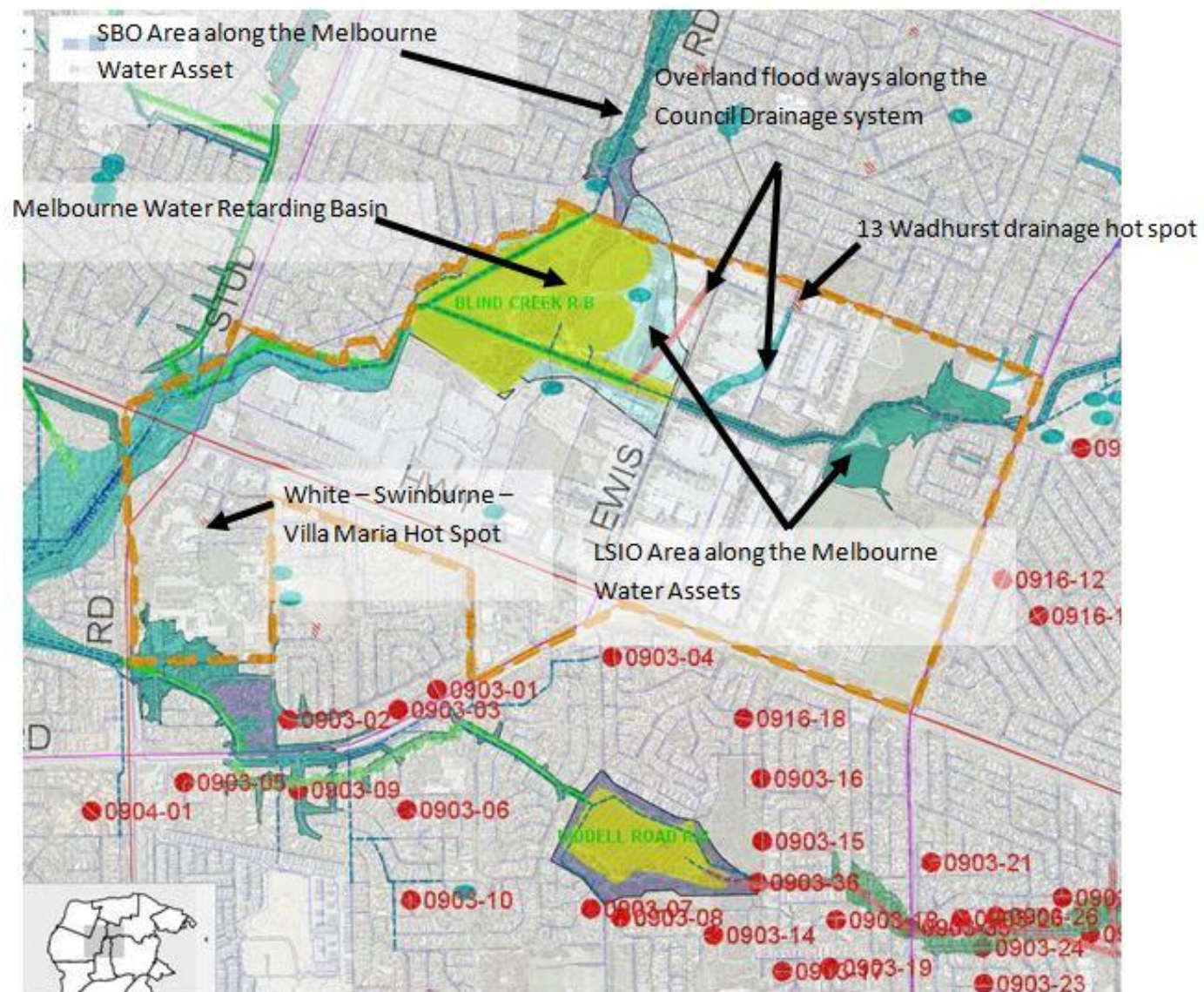


Figure 22 EXISTING DRAINAGE INFORMATION FOR THE KNOX CENTRAL PRINCINCT

Both Melbourne Water and Council have recently undertaken flood modeling for the Knox Central area. Generally speaking, the extent of potential flooding is greater than previously understood.

In order to have effect in planning and building decision making, any revised flood mapping must be introduced into the Knox Planning Scheme. This will take place as a separate process to the Knox Central project (on a catchment-by-catchment basis).

Tree Canopy

Street trees

Council has a number of programs dedicated to the management and renewal of trees in the public realm including the Street Tree Replacement Program (allows for the removal and replacement of existing trees in a road reserve, followed by new streetscape plantings) and Residential Street Tree Planting (replacement of individual trees, where there are 'missing' street trees).

To date, the focus for street tree priority planting has largely been on residential areas. This has, in part, been driven by community interest in street tree planting in local streets and residential areas.

On 22 September 2015, Council received a report on 'Street Tree Planting to High Profile Roads'. Council's Public Road Register classifies each public road according to the following hierarchy: Link Roads Collector Roads, Industrial Roads, Access Roads and Unsealed Roads. Link Roads are the highest profile roads due to a number of functions including to carry traffic between major commercial, industrial and residential areas, link VicRoads arterial roads and efficiently channel traffic through the municipality. Collector Roads provide connectivity to commercial and residential areas from Link Roads or directly from the VicRoads arterial network, concentrate locally generated traffic to an outlet and carry local traffic to shops, schools, commercial districts, hospitals, sports and other facilities.

Many of the Link and Collector roads either lead into or pass through Activity Centres. In the case of Knox Central, both Lewis Road and Scoresby Road, are being considered under this framework.

VicRoads Roads

Historically, the stringent conditions imposed by VicRoads greatly restricted the ability to plant street trees in nature strips in roads under VicRoads control. In February of 2015, VicRoads published a new tree policy (VicRoads reference, QD: 2870614) which allows for the planting of roads under VicRoads control up to a speed limit of 60km per hour. However, conditions (in regard to the installation of costly safety barriers) still apply to roads where the speed limits are greater than 60km per hour.

If the speed limit on Burwood Highway, within the activity centre, were reduced to 60km per hour (see Chapter 8) options for tree planting within the road reserve would increase. In this event, a comprehensive landscaping master plan for Burwood Highway should be undertaken.

Bush Boulevards

The *Knox Urban Design Framework 2020* (2002) includes the establishment of Burwood Highway and Stud Road as declared 'bush boulevards'. This is reflected in both the Urban Design Framework and the Knox Liveable Streets Plan. The Knox Urban Design Framework poses the following vision for Burwood Highway:

A continuous 'Bush Boulevard' treatment along Burwood Highway, with or without the projected tram extension, would enhance its image as the City's premier transport corridor, linking it to the landscape of the Dandenong Hills.

Despite strong policy direction, there is a need to provide clearer direction for what this means 'on the ground'. In particular, it is necessary to articulate landscaping and setback expectations, in order for the private realm to contribute to *Bush Boulevard* outcomes. In its consideration of the Westfield permit application, the

Office of the Victorian Government Architect provided the following advice to Council¹⁸:

We encourage the Council to clearly define what the 'Bush boulevard' means in urban terms and encourage a design-led exercise to test and illustrate this future condition. An urban design framework should seek to resolve the traffic, pedestrian and cycle movements along Burwood Highway and establish a strategy for planting and treatment of footpaths. The aim of defining the future condition of Burwood Highway would be to assist all landowners and developers along the Highway to understand the potential of the street to transition as it becomes more populated and diverse in use. While we recognise that this will take time, each development is contributing to realising a higher quality public realm in the future street. Achieving the ambition of the boulevard will raise the value of their development and the area.

The Structure Plan presents an opportunity to articulate the landscape outcomes that are expected (for Burwood Highway in particular) in a way that distinguishes Knox Central from the less urban sections of the Highway.

The *Knox Liveable Streets Plan 2012-2022* provides design principles and guidelines which are to be used to guide the planning, design, implementation and maintenance of streets in Knox, including Bush Boulevards. This plan focuses on the public realm and it is important to note that Bush Boulevard roads are managed by VicRoads.

The extent of road reserve on Burwood Highway is inconsistent. In some locations, there are wide landscape reserves, in others locations carparks and services lanes interrupt any continuity. Furthermore, it is likely that can accommodate landscaping may be eroded over time (for instance, to accommodate the tram reserve, or accommodate more lanes of traffic).

There is a need therefore to ensure that private land accommodates landscaping, particularly within front setbacks, in order to contribute to the quality of the public realm. Landscaping has an important role to play in improving the quality of streets, particularly for pedestrians. There are significant environmental, social, health and economic benefits to ensuring that an increasingly urban environment is balanced with the natural environment. The role of private land needs to be articulated and planning controls developed to achieve private land outcomes.

Opportunities and Considerations – Natural Environment and Landscape

- There is an opportunity to use the natural assets within Knox Central to have positive health and well being benefits for the community
- There is an opportunity to create a unique boulevard character on Burwood Highway within Knox Central, in order to distinguish the Activity Centre from other areas in Knox and create a sense of arrival.

¹⁸ Correspondence to the Director, City Development dated 25 September 2014

13. LAND USE DEMAND AND SUPPLY CONSIDERATIONS

The following provides a summary of findings from research commissioned by Council in 2015 regarding land use demand and supply (Geografia, 2015).

Demand considerations	Supply Considerations
Retail	
<p>Modelling suggests that between 30,000 and 70,000 of additional retail floor space is required by 2035. This figure is inclusive of hospitality and entertainment uses (see below). The Westfield Knox stage 1 redevelopment will add 45,000sqm of retail space in the activity centre. Following this redevelopment there will be <i>up to</i> 25,000sqm of unfulfilled retail floor space demand.</p>	<p>The land supply capacity for retail floor space in Knox Central is expected to be at least 42,000 sqm by 2035. This supply should easily respond to demand for retail space.</p> <p>There is a need to consider whether this figure might be accommodated outside of the existing Westfield Knox site, or if future demand is encouraged to be included in Stage 2 of the Westfield redevelopment.</p> <p>A greater diversity and independence of retailing at Knox Central would increase the centre's competitiveness in the longer term. This would include independent shops or restaurants located outside of Westfield Knox. This will allow the centre to better compete with other regional centres in the face of changing consumer preferences and a desire for varied, urban style experiences in activity centres. Council needs to determine when the non-compete agreement between Westfield and Coles is set to expire. If this will occur after the proposed Westfield redevelopment, then Council needs to consider accommodating alternative supermarkets (e.g. Woolworths, Aldi) <i>outside</i> Westfield to overcome current competitive issues, and then explore options for this accommodation.</p> <p>Consideration is required whether there is a desire for accommodating bulky goods/large format retailing along Burwood Highway, and options for this accommodation.</p>
Entertainment and Hospitality	
<p>Knox Central services a very large entertainment and hospitality catchment, extending up to 35 minutes away. The current mix of options at Knox Central is strong and competes successfully with regional centres at Ringwood, Glen Waverley, Dandenong, and Fountain Gate. However, competition is likely to increase substantially with the development of more leisure based retail and hospitality options at Ringwood.</p> <p>In terms of land use demand, entertainment and hospitality uses are included in retail floor space estimates (see earlier commentary). It is likely that food and beverage services (restaurants and cafes) will account for a major component of the expected increase in retail land use demand at Knox Central.</p>	<p>See above (entertainment and hospitality uses are included in retail floor space estimates).</p>
Professional Services and Office Space	
<p>Knox Central does not play a significant regional role in professional, technical, and financial services. Professional 'white collar' jobs that require office space are increasingly being 'reurbanised' – with significant growth in these sectors in the inner city, and little growth in established, outer urban areas.</p> <p>There is not expected to be a significant increase in demand for office space within Knox Central over time. The only exception would be if there is a significant shift toward a regional role for Knox Central. This might be driven by a substantial investment in public transport infrastructure (connecting to other locations in the region) or a regionally significant business park type development.</p>	<p>Vacancy rates across a mix of office space categories in the activity centre are high. The quality of some office stock may be a barrier to market uptake. There is potential supply of at least 64,000sqm of office space across the Activity Centre by 2035.</p>

<p>Knox Central will require between 5,000 and 17,000 sqm of additional office space over the next two decades. The higher figure presumes that Knox Central will play a more significant service role within the region than it currently holds, and will attract professional, technical and financial workers from beyond the local catchment area.</p> <p>If Council seeks to facilitate a more regional office role, and achieve an additional 17,000sqm of space, it will need to consider how it might compete with other centres in the outer eastern region, potentially through a number of mechanisms such as:</p> <p>Promote high profile and quality office locations which are needed especially when office development begins in order to further develop the 'office focused branding' of Knox Central.</p> <p>Consider a strategy to transition existing industrial uses to office uses as the demand for office space becomes larger. This may require the creation of sub-precincts where land and infrastructure is packaged together in order to target niche market segments (e.g. technology firms). This would require a review of zones to allow this shift.</p> <p>Offer a variety of amenities including specialty stores, cafés, restaurants, banking facilities and car parking.</p> <p>Invest in marketing or branding to promote Knox Central as an office location.</p> <p>Consider whether a business park or similar could be facilitated within the centre.</p>	
<h3>Health & Social Services</h3>	
<p>There is currently a very limited healthcare role at Knox Central. There are a number of smaller medical services – such as general practitioners, orthodontists, and physiotherapists.</p> <p>The Wantirna Health Precinct, located around 10 minutes drive from Knox Central will capture the majority of employment and floor space growth in this sector over the long term. The Precinct is a State significant health precinct in Plan Melbourne. It will be the focus of both state and private investment in the health sector over this period. Given dominance of the precinct in the health and social services sector, it is important to consider how the offering at Knox Central in other sectors complements this precinct. .</p>	<p>Land demand and supply relevant to the health industry is captured within the modelling, and discussion of office space demand and supply within Knox Central (see above).</p>
<h3>Residential</h3>	
<p>There is significant demand for higher density (medium and high density) dwellings within Knox Central, driven largely by Couple only households (e.g. empty nesters who might use extra bedrooms as a study, for guests or storage); Younger households / persons (e.g. looking to stay in the area); Lone person households (e.g. professionals); and Households / persons who are working in the local/regional area.</p> <p>A variety of housing types may be required and, depending on the product, feasible, including:</p> <p>Townhouses / villa units (and other similar one and two storeys attached and semi-detached dwelling types). Demand for townhouses can be considered as 'uncapped' – the main barriers to development of townhouse stock will be supply side factors (land economics and lack of available supply).</p> <p>Apartments (three plus storeys). There is expected to be demand for up to 2,400 additional apartments across Knox Central by 2035.</p>	<p>There is capacity for up to 630 townhouses across the Activity Centre, primarily on the DELWP site.</p> <p>There is expected to be sufficient land to supply for at least (approximately) 3,600 in the Activity Centre by 2035, easily fulfilling demand. A variety of precincts / locations would be suitable for residential development. (See Chapter 16).</p> <p>Intensification of land use is recommended, while also ensuring that a broad range of dwelling types are provided which meets current market demand at the time of development.</p> <p>The focus should be on medium density housing stock with some provision for apartments in the initial stages of residential development.</p> <p>The focus on high-density development should occur in the latter stages of development. By 2035, there is expected to be demand for up to 2,400 additional apartments in the activity centre.</p> <p>The provision of apartment and townhouse style development within Knox Central is supported by the <i>Knox Housing Strategy 2015</i>.</p>
<h3>Aged Care & Seniors Living</h3>	

<p>Retirement and aged care represent key market opportunities for Knox Central with demand being driven by an ageing population in Knox and nearby municipalities; and proximity/access to a range of facilities and services.</p> <p>The accessibility of Knox Central from a large regional area due to good road transport infrastructure (although the lack of public transport is a disadvantage) also will stimulate locational demand</p> <p>Land use demand and capacity analysis for seniors living is included in the residential analysis.</p>	<p>Consider planning for potential locations of retirement / aged care facilities and building on existing sites (e.g. by nominating a precinct and/or site to accommodate future facilities as part of master planning processes).</p> <p>Provide for sufficient flexibility in the planning process to allow the growth and evolution of facilities. For example, the co-location of aged care and retirement living facilities is now common to allow residents to 'age in place' in the same location. This approach is supported by the <i>Knox Housing Strategy 2015</i>.</p> <p>Plan for the integration of aged care and residential facilities into Knox Central so that the lifestyle elements and advantages are protected and enhanced. This is because retirement living, especially, is also increasingly a 'lifestyle' choice and aged care facilities are increasingly of a higher quality providing a range of services and facilities.</p> <p>Plan for aged care and retirement facilities of different sizes and formats. This may include low-rise facilities or vertical/multi-storey facilities.</p>
<p>Industry</p>	
<p>Knox Central is one of the only substantial activity centres in metropolitan Melbourne with a large quantity of industrial land available. Knox Central has a statistically significant manufacturing and wholesaling presence, when compared to other activity centres in Melbourne's east.</p> <p>This creates an opportunity to target high value industry that is attracted to high amenity locations. Creek and parkland access, and street trees in the area provide amenity benefits in the Lewis Road area.</p> <p>There is expected to be no growth in industrial land demand over the coming decades. The demand modelling suggests negative demand over the period of next twenty years. The analysis of land supply suggests there is an opportunity to intensify some of the existing industry in the Lewis Road area, however, the lack of demand suggests there is little benefit from intensification.</p> <p>The 'Land for Business Study' which will assess supply and demand of commercial/industrial land across the whole municipality may identify further opportunities to refocus land use in Knox Central.</p>	<p>The redevelopment of lower quality, vacant stock in the Lewis Road (that is often mismatched with market desires) should be encouraged.</p> <p>Consider supporting the consolidation of strategic parcels of land to help shift toward higher value uses in the area.</p> <p>Identify strategic sites that might be candidates for business park style development that can accommodate a mix of office and higher amenity industry.¹⁹ These would generally be larger sites, those with strong consolidation potential, and those with good amenity. Council may play a role in facilitating such development on this land through promotion, consolidation, joint ventures or incentives.</p> <p>Promote amenity throughout the Lewis Road area through streetscaping and improved physical links to Westfield Knox and Blind Creek.²⁰</p>

¹⁹ Given expectation of moderate increase in office demand, and decrease in industry floor space demand.

²⁰ SouthWest Business Park (Logan, QLD) and Norwest Business Park (NSW) both provide examples of high amenity business parks with strong environmental features (green space, landscaping, water features).

LAND USE DEMAND AND SUPPLY SUMMARY

Table 9 provides an overview of the land use demand and land supply capacity analysis for Knox Central. It compares supply side and demand side factors for different land uses – apartments, townhouses, detached dwellings, retail, commercial office space and industry.

Land use	Demand side	Supply side
<i>Apartments</i>	Maximum demand for approximately 2,400 new apartments by 2035	Minimum capacity for around 3,600 apartments by 2035
<i>Townhouses</i>	Uncapped demand	Maximum capacity for 630 townhouses by 2035
<i>Detached dwellings</i>	Uncapped demand	No supply available
<i>Retail (incl hospitality and entertainment)²¹</i>	Max demand for around 70,000 sqm. This demand is inclusive of demand underpinning current Westfield expansion plans.	Supply of at least 42,000 sqm in 2035. This figure is in addition to capacity on the Westfield site (which is accommodating an upcoming 45,000sqm expansion).
<i>Office</i>	Max demand for 17,000 sqm	Potential supply of at least 70,000 sqm in 2035.
<i>Industry</i>	No expected additional demand	Very little new industrial capacity expected to be made available (<3,000sqm).

Table 9 Land Use Demand and Supply Figures

The supply side figures above represent 'ultimate capacity' if all possible sites were to 'turn over'. Consideration is required as to the appropriate land use mix, and interface issues, in determining where land uses changes are best placed to occur. These decisions will influence final land supply figures. See Chapter 16 for analysis of sites for future residential development.

Opportunities and Considerations

- There is expected to be no growth in industrial land demand over the coming decade and no significant increase in demand for office space within Knox Central over time.
- There will be sufficient land supply to address demand in all land use categories

²¹ Demand and supply analysis are exclusive of Westfield Stage 1 redevelopment plan.

14. BUILT ENVIRONMENT

The physical form of Knox Central remains one of disjointed precincts with poor interfaces between different land uses and poor access to and within the activity centre. Distinctive aspects of the activity centre, particularly the natural environment and mixed use setting, are, perhaps, underutilised in existing retailing and the first stage of the proposed Westfield redevelopment. (Geografia, 2015)

Urban Heat Island Effect

The Urban Heat Island (UHI) effect is a phenomenon whereby temperatures in urban areas are warmer than surrounding non-urban areas, often by a number of degrees. High night time temperatures are a key characteristic of the Urban Heat Island Effect, where the heat from the day is absorbed by built structures (such as buildings, roads and driveways) and then released overnight keeping the night-time temperature higher compared to undeveloped or densely vegetated areas.

Heat is the single biggest environmental cause of death during emergencies in Victoria. (Department of Health and Human Services, 2015). Managing the Urban Heat Island Effect is therefore an essential element of community wellbeing and emergency management.

The UHI effect is influenced by a number of factors:

- Vegetation extent
- Permeability of ground surfaces
- Building materials
- Orientation of buildings and streets

Knox Central has large areas of hard surfaces (car parks, industrial areas) and large areas of green, permeable surfaces. It is expected that the activity centre will accommodate intensification of activity and increased residential densities. With this change in the built environment, there will be inevitable loss of permeable surfaces and some loss of vegetation. In light of the significant change in the built form expected in the Activity Centre, there is a need to mitigate the urban heat island effect.

Council commissioned research in 2009 into Heat Island Effects, with a particular focus on activity centres (Cardno Grogan Richards, 2009). The analysis used Stud Park and Mountain Gate as case studies and identified a number of measures to mitigate the impacts of UHI:

- Increase vegetation
- Water Sensitive Urban Design – implement WSUD into the urban landscape
- Increase the amount of light/heat that is reflected off surfaces, rather than

absorbed, through the use of reflective materials

- Landscaping – use of deciduous canopy trees to block out heat
- Street Design to minimise radiant heat
- Parkland and Open Spaces
- Green roofs and green walls
- Energy efficiency and Environmentally Sustainable Design
- Building Design
- Mass Transport/Active Travel (eg walking/cycling)

Council does not yet have the capacity to measure canopy tree cover (and its loss or gain over time). A separate project is underway to seek funding for this capability to be added to Council's current mapping and GIS capabilities. The Knox Central Activity Centre could provide a suitable pilot project for using this technology for the purpose of assessing the Urban Heat Island effect.

Consideration of the Urban Heat Island effect provides another lens through which to consider open space within the activity centre. Green spaces play a valuable cooling role in urban settings and are more effective if they contain trees and receive passive irrigation, as is the case for Lewis Park and Blind Creek (Norton et al, 2015). Future strategic work on the retarding basin and Blind Creek should consider UHI benefits that these assets provide (see Chapter 13).

Sustainable Building Design

One element of the vision for Knox Central, articulated in the *Knox Central Urban Design Framework* is to pursue all realistic opportunities to incorporate principles of **environmental sustainability** in all development that occurs throughout the study area.

Since the adoption of the KCUDF, there has been a significant increase in awareness of ESD principles broadly, with recognition of both environmental and social benefits (such as reduced running costs).

While there are requirements in the Building Code, a planning policy provides a framework for early consideration of environmental sustainability at the building design stage in order to facilitate environmental benefits such as:

- Easier compliance with building requirements through passive design;
- Reduction of costs over the life of the building;
- Improved affordability over the longer term through reduced running costs;
- Improved amenity and liveability;

- More environmentally sustainable urban form; and
- Integrated water management.

A number of Melbourne councils have recently introduced new ESD policies in their planning schemes. Significant work was undertaken to achieve this outcome and it is likely that these policies will provide a model for a statewide ESD policy, in time.²² Following on from the success of these councils in implementing these policies, the City Futures Department at Knox City Council is intending to introduce a similar policy through the Planning Scheme Rewrite project (Amendment C150).

Built Form guidance

The KCUDF included the following objectives in relation to built form:

- *A built form and scale that is respectful of the natural and environmental elements that characterise Knox Central, such as Lewis Park, Blind Creek, and the bush boulevards of Stud Road, Burwood Highway and Scoresby Road.*
- *The proposed built form should also be capable of accommodating a significantly higher intensity of land use and activity commensurate with the role of Knox as a principal multipurpose activity centre in the outer eastern suburbs of Melbourne.*
- *An intensity of built form that provides an incentive to encourage the redevelopment of existing properties, so that the level of change and the objectives identified for the study area by this Framework actually occurs.*
- *Buildings that are designed to integrate with the roads they front to create active, pedestrian friendly streets and attractive and visually pleasing streetscapes, both within the study area and along the major roads that abut the area.*
- *A building form that is higher and more intense than its surrounds in order to 'mark' the study area as a major town centre and focal point of the municipality and outer eastern region of Melbourne.*
- *The opportunity for well designed 'feature buildings' that exceed the building height that will prevail throughout study area generally, especially where they define key corner sites, topographical high points, and gateways to and within the precinct.*
- *The ongoing redevelopment of areas of ground level car parking and upper (open) levels of decked car parks, with activity generating uses such as residential or commercial, complemented by an increasing reliance on underground and deck car parking to accommodate the needs of new developments within the area.*
- *A building height and form that respects the character and amenity of existing residential areas.*

Objectives for the key precincts within the Activity Centre were also included.

The KCUDF Built Form/Scale plan is shown at Figure 23. While the objectives remain relevant, there is an opportunity through the Structure Plan to provide clearer direction and parameters for development, particular regarding building heights and setbacks, and desired outcomes for the Burwood Highway Corridor.



Figure 23 KCUDF Built Form/Scale plan

The land use demand and supply analysis summarised in Chapter 14 found that the Activity Centre has enough land to accommodate the projected demand, particularly for residential development. This analysis was based on the built form framework in the KCUDF. From a development economics perspective, the built form directions in the KCUDF remain sound.

²² The approved policies will expire on 31 December 2017, or earlier if it is superseded by an equivalent provision of the Victoria Planning Provisions (state-wide policy).

Given that the built form guidance in the KCUDF was quite broad (eg '5+ storeys for higher forms, no guidance provided for feature forms) it was necessary to refine this guidance to provide greater clarity. As a means of 'testing' more specific building heights, analysis was commissioned by Council to assess the KCUDF built form framework against the topography of the land, and how future development would sit in the context of the Dandenong Ranges backdrop. This provided an opportunity to model and test the visual impacts of recently developed and approved developments, and by extension, model the forms proposed in the KCUDF.

The study identified a number of key views, particularly long range views to the Dandenong Ranges, available from public areas within and around Knox Central (Hansen Partnership, 2016a). This analysis showed that the general built form framework within the KCUDF would not significantly impact on these views. This analysis identified locations where heights could be increased and was used to inform more detailed building height and built form guidance for development, for inclusion in the Structure Plan.

Based on the visual assessments from the identified vantage points the study recommended that the Knox Built Form Envelopes be amended as follows to create the Future Preferred forms (see Figure 24):

- the Feature Forms be 10 commercial storeys or 40m;
- the commercial forms to the north of Burwood Highway and to the south-western edge of the study area to Stud Road be 7 storeys or 28m;
- the commercial forms to the north of Burwood Highway and fronting Stud Road to be 6 storeys or 24m ;
- the residential forms to the immediate south of Burwood Highway between High Street Road and Tyner Road East to be 7 storeys or 21m;
- the commercial forms fronting Lewis Park (between Capital City Boulevard and Lewis Road) to be 5 storeys or 20m ;
- the residential forms to the immediate south of Burwood Highway and fronting Lewis Park to be 6 storeys or 18m;
- the commercial/industrial forms predominantly along the Blind Creek interface to be 3 storeys or 12m;
- the residential forms fronting Blind Creek and Scoresby Road to be 3 storeys or 10m;
- the residential forms fronting Tyner Road to be 3 storeys or 9m and;
- the residential forms fronting Blind Creek to be 2 storeys or 8m.

Some variations to the recommended building heights may be required through the development and refinement of the Structure Plan, as additional factors are considered. There may be opportunities to identify additional feature forms in order to provide greater flexibility within Knox Central and to mark corner sites along Burwood Highway.



Knox Central Preferred Built Form Heights Plan 2016

Legend

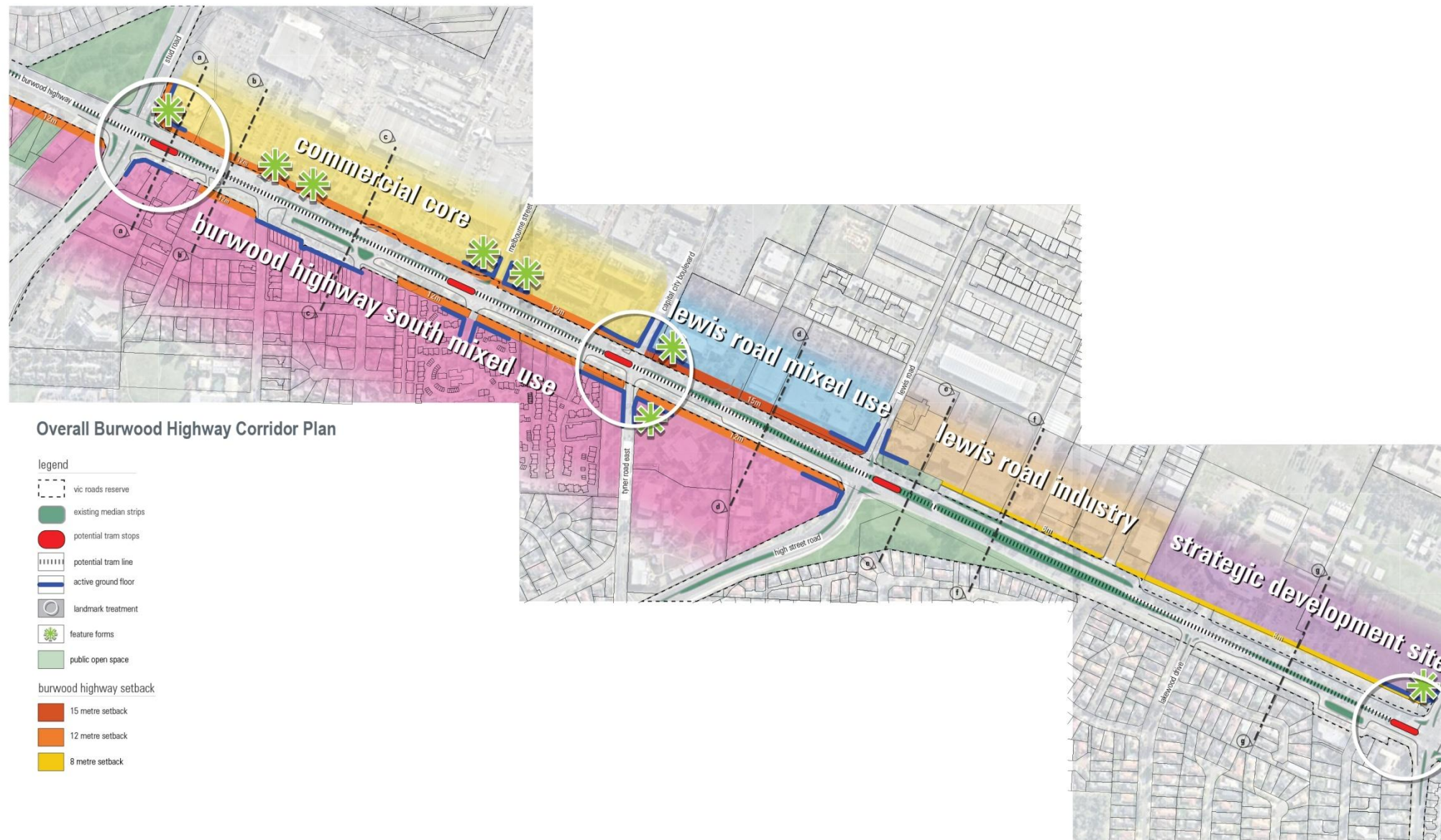
40m feature forms (10 storeys) commercial		20m 5 storeys commercial		18m 6 storeys residential		9m 3 storeys residential	
34m 11 storeys residential		24m 6 storeys commercial		12m 3 storeys commercial-industrial		8m 2 storeys residential	
28m 7 storeys commercial		21m 7 storeys residential		10m 3 storeys residential		8m 2 storey commercial (recreation)	

Figure 24 Key views from public areas and recommended building heights in metres. Source: Hansen Partnership 2016a

Burwood Highway Corridor

Burwood High is the 'central spine' of Knox Central, and contains the majority of sites with the Activity Centre capable of accommodating more intense built form. Council commissioned an analysis of this corridor, to inform guidance that contributes to the achievement of *a distinctive, high quality built form that provides: a contemporary entryway into Knox Central and surrounds, improved frontages to the public realm, legible connections across Burwood Highway and development that strongly relates to the surrounding landscape character.*

The resultant *Burwood Highway Built Form Guidelines* (Hansen, 2016b) provide recommendations for street setbacks, street wall heights, ground floor interfaces and landscaping. The aim of these guidelines is to achieve a unified built form outcome along the Burwood Highway corridor. The recommended setbacks respond to the significant variations in the road reserve width (which could have the potential to result in fragmented building setbacks if a blanket approach were applied).



Commercial Core		
Land Use	Built Form	Setback
Commercial	6-7 storeys with 4 storey streetwall 10 storey 'feature forms' with 6 storey streetwall	12m front setback from Burwood Highway

Burwood Highway South Mixed Use		
Land Use	Built Form	Setback
Mixed use (predominantly residential)	6 storeys with 4 storey streetwall 10 storey 'feature forms' with 6 storey streetwall	12m front setback from Burwood Highway (except where existing service lane present)

Lewis Road Mixed Use		
Land Use	Built Form	Setback
Mixed use	7 storeys with 4 storey streetwall 10 storey 'feature forms' with 6 storey streetwall	15m front setback from Burwood Highway

Lewis Road Industry		
Land Use	Built Form	Setback
Industrial/commercial	6 storeys with 4 storey streetwall	8m front setback from Burwood Highway service lane (except 551 and part 557 Burwood Highway)

Strategic Development Site		
Land Use	Built Form	Setback
Commercial	7 storeys with 4 storey streetwall 10 storey 'feature forms' with 6 storey streetwall	8m front setback from Burwood Highway (property boundary)

Table 10 Recommended street wall heights and setbacks

Figure 25 Burwood Highway Corridor and recommended setbacks

Better Apartments Design Standards

The Better Apartments project is a joint initiative of the Department of Environment, Land, Water and Planning (DELWP) and the Office of the Victorian Government Architect (OVGA). In May 2015, *Better Apartments – A Discussion Paper* commenced a statewide conversation with the community, government and industry to help shape potential future apartment design guidelines and mechanisms. The discussion paper focussed on how to better manage the amenity of apartment living and maintain Victoria's liveability. The top five issues that came through the *Better Apartments* community engagement were:

- Daylight
- Space
- natural ventilation
- noise
- energy and resources.

Draft design standards are on public exhibition until 19 September 2016. The Guidelines and implementation mechanisms are due for completion in late 2016. The design standards will be introduced into all planning schemes through a new particular provision in the Victoria Planning Provisions. The provision will apply to all apartments and will adopt the same performance based approach currently used to assess residential development in the planning scheme.

Industrial Areas

There is an existing policy within the Knox Planning Scheme addressing built form design in industrial areas, which applies to all land within the Industrial 1 Zone and Commercial 2 Zone.²³

This policy has the following objectives:

- *To facilitate growth in employment by ensuring that the design of industrial and restricted retail sales development maintains and enhances the appearance of industrial areas.*
- *To ensure that development in industrial and restricted retail sales areas is compatible with the surrounding streetscape and landscape character, with particular attention to complementing adjoining built form.*
- *To promote design and subdivision which are functional to the needs of industry.*

The policy provides guidance on matters of subdivision, siting, landscaping, architectural quality and signage. The Knox Planning Scheme Review 2014 identified a number of limitations with this policy and recommends its review. It is intended that the policy content will be reviewed as part of the Land for Business project which considers the commercial and industrial land needs of the whole municipality.

Existing Residential Areas

The KCUDF is largely silent on the pocket of land to the south of Burwood Highway (White Road and the residential area north of Fairhills Secondary College on Scoresby Road). However, with the approval of Amendment C131 these areas are subject to new residential zone schedules which apply specific design requirements.

Heritage

European Heritage

Given the age of the Knox Heritage Study (1993), Council commissioned a Heritage Assessment for the Knox Central Activity Centre (Context, 2016).

The assessment identified the Wantirna South Primary School early classrooms and the former head teacher's residence as having local significance. The assessment does not recommend a heritage overlay for this site, however it does recommend that the place should be included as part of a wider thematic post-war heritage study in the future as there is currently little information currently published on this modern period of development in Knox and it would assist in placing the school in an appropriate historical context. The assessment notes that the place is not at risk, being used by the school community. The classroom has been well integrated into new development on the school site and appears to have been used as a design template in the redevelopment.

Areas of Cultural Heritage Sensitivity

A significant proportion of the Activity Centre is located within an area of cultural heritage sensitivity (i.e. within 200m of Blind Creek). Under the Aboriginal Heritage Act 2006 a Cultural Heritage Management Plan is required 'if all or part of the proposed activity is in an area of culture heritage sensitivity, and all, or part of the activity is a high impact activity'.

Public Art

The Knox Public Art Policy provides a framework for the planning, commissioning and on-going management of public art activity across the municipality. According to the Policy, a percentage of project budgets for Council capital works projects is allocated to funding public art. In Knox Central, there may be opportunities to fund public art associated with the capital works for the future Civic precinct and future work in Lewis Park.

²³ Clause 22.02 Industrial and Restricted Retail Sales Area Design

Signage

Advertising Signs

The Knox Planning Scheme Review/Rewrite project includes the addition of a new Advertising Signs local policy into the Knox Planning Scheme. This policy provides guidance for the consideration of planning permit applications for advertising signs, in order to ensure that advertising signs achieve their commercial objectives without creating visual clutter or having detrimental streetscape or amenity impacts. When approved and included in the Knox Planning Scheme, this policy will guide decision making for land across the Knox municipality including within Knox Central. Public exhibition of the draft policy is scheduled to occur in the second half of 2016.

Activity Centre Entry Signage

In June 2015, Council adopted the *Knox Activity Centre Entry Signage Design Framework*. This document provides a hierarchical structure of activity centres within the municipality to guide the placement, location and types of entrance signage. A series of design principles and guidelines serve as the basis for all future site specific activity centre roadside entry signage design and installation works.

Any future entry signage for Knox Central should be developed in accordance with the guidance provided in this framework document.

Opportunities and Considerations

- There is a need to mitigate the urban heat island effect. Knox Central could be a suitable location for a pilot project.
- There are opportunities for public art associated with Council's capital works projects.
- There are opportunities to build on existing municipal-wide planning strategies, such as the Knox Housing Strategy, to achieve built form outcomes.
- Knox Central is able to accommodate more intensive development than currently exists without eroding key views.
- Clear guidance for Burwood Highway developments will contribute to a unified built form 'corridor'.
- There is an opportunity to facilitate development within Knox Central by identifying locations for feature forms, where development can accommodate greater height.

15. RESIDENTIAL DEVELOPMENT

Knox Housing Strategy

Appropriate housing is central to the health and wellbeing of individuals and communities. The *Knox Housing Strategy 2015* sets out Council's plan for managing residential development to respond to the current and future needs of the Knox community.

The majority of dwellings in Knox are separate houses (86.5% of dwellings in Knox, according to the 2011 Census, compared to 71.1% for greater Melbourne). It is expected that families with children will continue to be the dominant household type in Knox, however couple-only and one-person households are the fastest growing household types. A greater diversity of housing types, in terms of size, type, affordability and accessibility, is needed in order to respond to the changing needs of Knox's population.

The Strategy aims to balance the changing housing needs of Knox's current and future residents with the important aspects of Knox that should be retained and enhanced. To achieve this, the Strategy applies a 'scaled approach' to housing development across the different areas of Knox. The Strategy sets out the preferred types of housing (detached dwellings, dual occupancies, villa units, townhouses and/or apartments) for each different area.

The Strategy designates Knox Central as an 'Activity Area'. These are areas that will:

- see a greater change in housing styles than other areas in Knox;
- balance the retention of the green and leafy character, whilst allowing more intensive development;
- allow more people to live close to everyday and specialised services to support their needs and lifestyle changes; and
- contribute to quality residential design that is well-designed both architecturally and functionally, to enhance the quality of living in Activity Areas in Knox.

In order to support an increase in residential activity, preferred housing types in Activity Areas are villa units, townhouses and apartments.

Knox Affordable Housing Action Plan

The *Knox Affordable Housing Action Plan 2015-2020* outlines objectives, actions, outcomes, timelines and costs to improve housing affordability in Knox in accordance with Council's defined affordable housing roles as planner, provider, partner and advocate. The key focus of the Action Plan is to increase the supply of social housing.

Council has forecast that an additional 860 social housing dwellings will be needed in Knox by 2036 to meet minimum requirements across the municipality, as well as more diverse and affordable housing options generally (Knox City Council, 2015). The following actions in the Action Plan are relevant to planning for housing in Knox Central:

- Implement a scaled approach to housing development through the *Knox Housing Strategy 2015* that encourages higher density housing in areas with good access to transport, shopping, and services
- Ensure that the need for affordable/social housing is considered and addressed in the development of structure plans and other place-based strategic plans for Activity Centres and Strategic Investigation Sites which have been identified as appropriate areas to support medium density, higher density housing and social housing options (i.e. Boronia, Bayswater, Rowville, Ferntree Gully, Upper Ferntree Gully, Knox Central)
- Promote diverse and affordable housing options as an appropriate outcome of structure plans, Strategic Investigation Sites and other new residential developments and advise developers of the role of Registered Housing Associations and provide contact details as appropriate.
- Negotiate with developers (on a case-by-case basis) for a voluntary 5% contribution of social housing in larger-scale private land developments, including Strategic Investigation Sites.
- Provide for at least 5% social housing at Stamford Park and other Council-owned sites in Knox.
- Advocate to the Victorian Government to introduce the tools and supporting legislation that would enable local government to require certain levels of social and/or affordable housing in some developments.
- Ensure the policy on the disposal of Council land enables affordable/social housing outcomes for sites suitable for residential development in line with the requirements of the Local Government Act.

Consideration of residential development in the Knox Central Urban Design Framework

The KCUDF identified the following areas as providing opportunities for residential development:

- Westfield Knox on the southern boundary of Lewis Park
- West of Lewis Road, south of Blind Creek (mixed use)
- Former government land, corner of Burwood Highway and Scoresby Road
- Northern boundary of the Activity Centre (from northeast corner of Lewis Park to the Community Gardens/Vineyard site)
- Burwood Highway south (excluding 'Rembrandts Triangle')

The KCUDF noted the following considerations for residential development:

- Knox's population is growing (albeit slowly) and diversifying.
- Household size is falling and household numbers are growing. This points to the potential to develop smaller housing options close to services in Knox.
- The townhouse market is growing strongly from a low base. A number of low-rise medium density townhouse residential projects have come onto the market in Knox in recent years. This trend can be expected to continue. Owner-occupiers are likely to be the main market segment for this form of housing.
- The apartment housing market in outer eastern Melbourne is not well developed at this point in time. Attractive to market segments of professionals, students and to a lesser extent 'empty nesters'. Apartment prices are at a lower level than in regions where there is significant high-density housing activity. Nevertheless, demand for high quality and well priced product can be expected to grow over time.

The KCUDF included an indicative quantum/target of 2,000 apartments and 1,600 townhouse/villas over 10 to 20 years as a notional target. It noted that townhouses/villas were a short-term proposition and apartments were a longer term proposition. The sustainable absorption of apartments was considered to be less than 2,000 units over 10 to 20 years. This was based on an initial analysis of the potential market for apartments in the eastern region and was contingent on a number of supply-side considerations (eg. quality of product, cost-price).

However, in the decade since the adoption of the KCUDF, there has been a significant shift in the eastern region housing market. This shift has seen the approval of approximately 320 apartments within Knox Central alone since 2012. Recent analysis commissioned by Council projects a demand for up to 2400 apartments within Knox Central and suggests that the market for townhouses is 'uncapped', constrained only by supply factors (Geografia, 2015).



Figure 26 View east toward the 'Kubix' development on the corner Burwood Highway and Stud Road

Opportunity Sites for Residential Development

Analysis of a number of potential opportunity sites is undertaken below. This will consider both recent research undertaken (Geografia, 2015), and the land use framework in the *Knox Central Urban Design Framework 2005*.

The following sites and precincts are considered to have capacity to accommodate the anticipated demand for residential development (see Figure 27):

1. Lewis Road industrial land west of Lewis Road and South of Blind Creek
2. Strategic Redevelopment Site (former Government Land)
3. Southern boundary of Lewis Park (within the Commercial Core precinct)
4. Burwood Highway South Mixed Use Precinct

Some of these will require a significant change in land use and therefore a rezoning to accommodate residential activity. As noted in Chapter 14, demand for townhouses can be considered as 'uncapped' within Knox Central and there is expected to be demand for up to 2,400 additional apartments across Knox Central by 2035.

The sites identified in this section have the capacity to provide more than 4,000 dwellings (Geografia, 2015).



Figure 27 Recommended areas for residential development

Lewis Road

This area is characterised by a small number of large sites located on the western side of Lewis Road, large numbers of small subdivided allotments and a number of vacant 'land locked' sites on the western edge (adjacent to Westfield Knox). The existing land use mix comprises automotive business, indoor recreation facilities, food manufacturing, and engineering businesses.

This area is located adjacent to Council's Operations Centre, which is being relocated to an industrial area outside of Knox Central. A shift away from industrial uses is considered to be compatible with the adjoining retail/entertainment uses and complimentary to future civic and community facilities that would interface with Lewis Park.

The KCUDF noted that:

"That part to the of the industrial area to the west of Lewis Road (south of Blind Creek) is critical in terms of achieving new linkages from the shopping centre, through the municipal precinct to Lewis Road. Its proximity to core municipal and retail activities as well as to Lewis Park, provides the potential for a transition to occur in this part of the industrial area over time. This transition could well include the opportunity for higher density residential uses. A Mixed Use Zone would provide the potential for this evolution to occur over time."

A rezoning would be required, in order to achieve this outcome. The Mixed Use Zone has a purpose to *"provide for a range of residential, commercial, industrial and other uses which complement the mixed-use function of the locality, provide for housing at higher densities, and to encourage development that responds to the existing or preferred neighbourhood character of the area."*

Rezoning of the precinct has implications for the ongoing operation of a number of current businesses located in the area. Current businesses such as panel beating, asbestos removal, food manufacturers, guttering and cabinet makers, steel and iron manufacturing, printing and adult shops will be prohibited under the provisions of the Mixed Use Zone. However, their ongoing use may be supported through the 'existing use' provisions at Clause 63 of the Knox Planning Scheme.

There are also implications for land use conflicts as the area transitions over time. That is, the impacts of existing and new sensitive land uses on each other. This could include noise emanating from existing industrial uses and affecting new residential developments; and residential developments starting to encroach on the freedom of commercial operations to operate. State Environment Protection Policy No. 1 (known as SEPP N-1) is the relevant State policy relating to noise from commercial or industrial premises.

Advice from the Environmental Protection Agency, provided to Council in October 2015, included the following commentary:

The proposed (sic) Knox Central Urban Design Framework involves an intensification of complex land uses which may result in conflicting amenity expectations and outcomes. The interface of mixed commercial and industry land uses with residential development

may result in adverse amenity outcomes involving noise, odour and air quality. It is requested that Council consider potential amenity conflicts during the strategic planning stage to mitigate inconsistent development expectations.

The 'agent of change' principle has recently been introduced into the Victorian planning system in the context of noise from existing music venues near new residential developments. This principle assigns responsibility for noise attenuation measures to the 'agent of change' – a new use or development that is introduced into an existing environment. In the context of a transitioning area, this would mean a new residential development close to existing industry would be responsible for noise attenuation of its building to protect future residents from the nearby industry. This does not mean however that businesses are free of any responsibility for noise management. The Structure Plan and supporting planning controls can provide guidance on noise attenuation measures to be incorporated into new residential development, such as locating noise-sensitive rooms (particularly bedrooms) away from significant noise exposure by using spaces like walkways, laundries and storage as a buffer; using acoustic glazing, wall, ceiling and roof construction; sealing gaps, joints and service penetrations and using acoustic insulation; using setbacks and acoustic fencing; using a noise masking system (for example by relying on heating, ventilation or air-conditioning noise).

A rezoning of this area would also require the application of an Environmental Audit Overlay, to ensure that any potentially contaminated land is investigated and, if needed, ameliorated prior to residential development occurring.

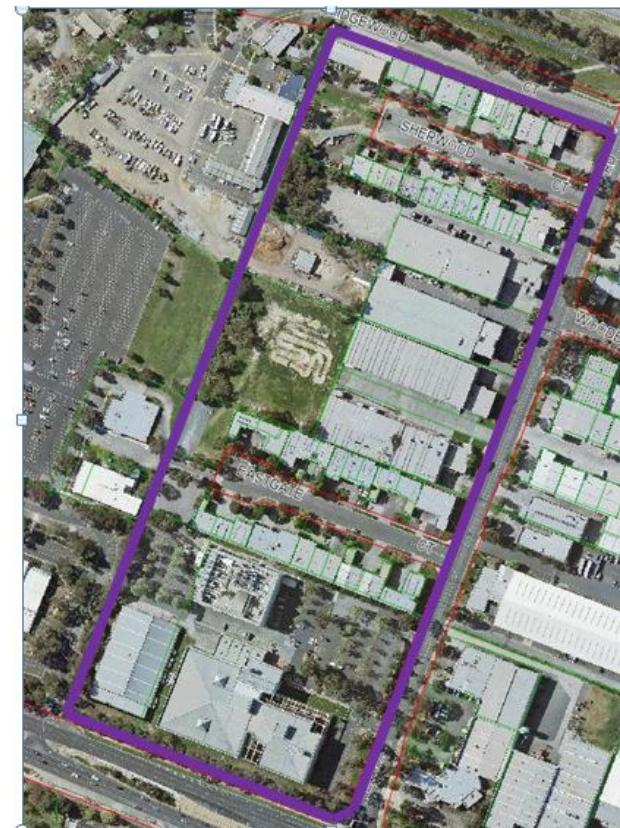


Figure 28 Area west of Lewis Road and south of Blind Creek - potential mixed use area

Strategic Development Site (former Government land)

The State Government declared the majority of this site (18.5 hectares) surplus to needs in 2015. The Department of Environment Land Water and Planning will continue to have a regional presence on the front portion of the site. The key planning principles and constraints are shown in Figure 28. This map reflects the key directions proposed in the *Knox Central Urban Design Framework 2005* (where still relevant) alongside more contemporary issues such as the need for some social housing to be provided. These principles will be translated into the Knox Central Structure Plan, in order to provide a clear development framework for the future owner of the site. In the event that the site is still in Government ownership when the Structure Plan is translated into new planning controls for the Activity Centre, the existing Public Use Zone will need to remain in place. In this event, a separate rezoning process will be required in order for this site to be developed and used for alternative purposes. It is likely that this will take place through the Minister for Planning's Standing Advisory Committee for the Rezoning of Surplus Land. The Structure Plan will inform Council's submission to this process.

Address

609-621 Burwood Highway, Knoxfield (Melway Reference 64 D12)

Location

The precinct is located at the eastern end of the Knox Central Activity Centre. The precinct abuts the Fairhills Secondary College and Wantirna Lea Estate (to the east), the Blind Creek linear public open space to the north and Parkhurst Drive business park to the west.

The precinct is accessible via public transport in the form of bus routes along both Burwood Highway and Scoresby Road. The precinct presently contains two vehicle access points, the main access being off Burwood Highway at the signalised intersection with Lakewood Drive, and a secondary access being off Scoresby Road, opposite Applegum Crescent.

Site Area

The total site area is 23.515ha consisting of approximately 18.5ha of surplus land plus approximately 4.9ha to be retained in Government ownership in the south-western corner of the site.

Planning Provisions

The following controls apply to the land:

- Public Use Zone - Schedule 2 (Education) and Public Use Zone- Schedule 7 (Other Public Use)
- Urban Floodway Zone (UFZ)
- Environmental Significance Overlay – Schedule 2
- Land Subject to Inundation Overlay

Council's Strategic Objectives

Any future development of the Department of Environment, Land, Water and Planning (DELWP) site must address the following design objectives:

Land Use

- To allow for continuation of existing Government use on retained Government land.
- To provide a mixed use precinct to the Burwood Highway frontage and Scoresby Road corner.
- To encourage local employment opportunities within the mixed use precinct.
- To allow a minimal amount of local convenience retail within the mixed use precinct.
- To provide a high amenity medium density neighbourhood in the northern portion of the site, that is integrated with the Blind Creek corridor.
- To provide 5% of the total housing allotments as social housing (contribution to include dwelling and land).

Access and Movement

- To improve existing access to the precinct off Burwood Highway (primarily at the existing signalised intersection with Lakewood Drive).
- To investigate opportunity for additional left in/left out access along Burwood Highway frontage, adjacent to mixed use precinct.
- To create a new vehicle access point off Scoresby Road.
- To enhance existing pedestrian crossings across Burwood Highway.
- To provide a prominent and safe public transport stop at the corner of Burwood Highway and Scoresby Road, which is integrated into the future built form and public realm.
- To enhance the existing bus stop along Scoresby Road (near Applegum Crescent).
- To provide a shared path along the length of the Burwood Highway frontage.
- To provide pedestrian and cycle linkages to the Blind Creek linear open space and shared trail.
- To create a permeable street network that provides provision for future connections to the west (to Parkhurst Drive).
- To allow for a potential future north-south pedestrian connections across Blind Creek.

Design and Amenity

- To encourage contemporary design and architecture that incorporates ESD principles and takes full advantage of passive surveillance opportunities and frontage to the Blind Creek corridor.
- To ensure site responsive design that makes the most of existing site features and topography.
- To encourage active frontages at ground level across the entire site.

Built Form

- To establish a strong built form presence along the Burwood Highway frontage.
- To provide a prominent, high quality built form and landscape response to 'mark' the corner of Burwood Highway and Scoresby Road.
- To create a gradual transition in built form scale and character from a robust Burwood Highway frontage to the naturalistic Blind Creek interface.
- To encourage medium density housing forms that capitalise on the setting and take full advantage of outlook and frontage onto the Blind Creek corridor and long range views.
- To ensure an appropriate and sensitive built form responses to the interfaces with the Fairhills School land and Wantirna Lea Estate (residential estate).
- To provide appropriate interface treatments or buffers to retained Government land and industrial use/s.

Open Space and Integrated Water Management

- To provide a minimum 8.5% land contribution of unencumbered public open space in accordance with the Knox Planning Scheme and consistent with the Knox Open Space Plan 2012 and Knox Play Space Plan 2013.
- Provide road frontage and ensure development fronts onto public open space to enable passive surveillance of public spaces.
- To provide additional connections into the existing Blind Creek linear public open space and shared path.
- To retain and enhance the water body on site in order to facilitate integrated water management and to provide a high level of neighbourhood amenity.
- To provide a local public open space (local play space with community amenity e.g. park furniture) centrally to the precinct and to enable a transition between the more intense Burwood Highway precinct and the lower scale residential area towards Blind Creek.
- Provide a natural open space adjoining Blind Creek with facilities e.g. park furniture and retain canopy trees.
- To utilise the natural fall in the land towards the Blind Creek.
- To mitigate the detrimental effect of development on the abutting Blind Creek, by the application of best practice stormwater management through the integration of water sensitive urban design (WSUD) principles.

Vegetation

- To provide for 10m wide 'Bush Boulevard' treatment along the Burwood Highway frontage in accordance with Council's Liveable Streets Plan.
- To protect and enhance any remnant native vegetation within the precinct and in particular in the fringe areas of the existing waterbody.
- To retain and enhance existing native vegetation along the Burwood Highway and Scoresby Road frontages.
- To encourage planting of indigenous vegetation throughout the precinct to extend the habitat provided by the Blind Creek and existing waterbody and surrounds (on site).

Potential Contamination

- To ensure the necessary investigations are undertaken in accordance with the relevant Practice Note.

Reference documents

- For further relevant design guidance refer to the *Activity Centre Design Guidelines* (2005) and the *Urban Design Charter for Victoria* (2010).

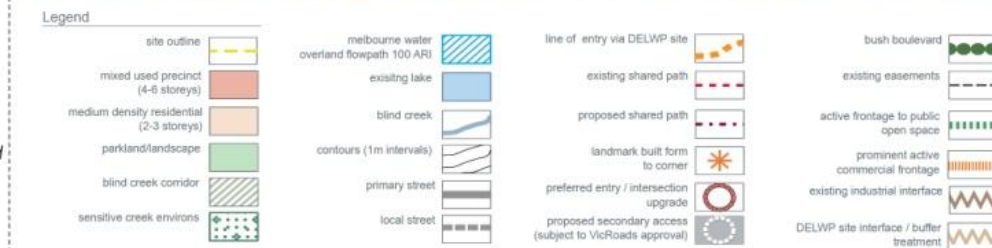
Notes:

Melbourne Water

- The overlaid flowpath flood extent depicted is attributed to the Blind Creek catchment for the 100 year ARI rainfall event. Any development must cater for the existing site constraints caused by flooding, refer to Melbourne Water's "Guidelines for Development in Flood Prone Areas".
- Any development of the site must also ensure all existing natural overlaid flowpaths are considered (either maintained or accounted for) as part of the development.
- As Blind Creek is 'daylighted', or running above-ground through the site, Melbourne Water will impose a buffer (generally 40-60m on each side of the waterway from its centreline) which is loosely informed by the "Urban Floodway Zone".
- Council is undertaking its own flood mapping of the locality in early 2016, which will trigger a revision of the current flood extent.

Aboriginal Cultural Heritage

- This property is within, or is affected by, one or more areas of cultural heritage sensitivity as described in the *Aboriginal Heritage Regulations 2007*.



DELWP site - broad master plan
 609-621 burwood highway, knoxfield
 november 2015

DRAFT
 Not endorsed by Council

Figure 29 Strategic Development Site Strategic Objectives

Southern Boundary of Lewis Park

The KCUDF noted that a key aim of the Framework was to **transform Lewis Park into a regional parkland facility** that is an environmental and open space focus for the wider community, which would involve (amongst other things):

- *Refocusing development on the Knox City site towards the park, benefiting from the northerly aspect it provides, especially in relation to higher density residential development, but also with the opportunity for entertainment, leisure and other uses;*
- *Providing new development opportunities around the edges of the park and in places within the park itself, so that new, active medium to high density uses that create pedestrian activity, can benefit from open space provided by the park.*

The aim is still relevant today as the need to activate Lewis Park remains an issue. Any development *within* the park will be considered in the context of the Lewis Park Master Plan. Development *abutting* the park should be addressed in the Structure Plan. The opportunity to achieve activation on the southern boundary remains feasible, given that no new development has occurred on the northern boundary of the Westfield site. Such development would be complementary to the future civic development nearby and should therefore continue to be encouraged.

Burwood Highway South

The south side of Burwood Highway has seen the approval and construction of two significant residential developments ('Kubix' and 'Knoxia' – see Chapter 4). These represent a shift towards a higher density residential character on the southern side of Burwood Highway.

The KCUDF is somewhat prescriptive in terms of non-residential uses that should occur on the southern side of Burwood Highway. Analysis suggests that the Structure Plan should be less prescriptive in terms of land use (Geografia, 2015).

The KCUDF and existing zone for the parcels of land on the south-west corner of Stud Road and Burwood Highway identify the preferred uses for this location as being offices and other commercial uses (including limited convenience-style retailing), as well as educational, institutional and leisure and recreational uses along Stud Road and the Burwood Highway, with residential development above and behind.

The KCUDF and existing zone for the area referred to as 'Rembrandts Triangle' identify the preferred uses for this location as being major hotel accommodation, convention facilities, entertainment and leisure, educational and institutional. A location either within the commercial core (Westfield) or the proposed Mixed Use area is considered to be a more appropriate location for a hotel use. This is due to proximity and access to entertainment and leisure facilities at Knox Ozone and Lewis Park and the future civic precinct. In the event that all of Council's operations are consolidated at the northern 'civic precinct', the Civic Centre site may be a suitable site for a hotel.

The 'triangle' is comprised of three allotments:

- Northwest site – occupied by St Andrews College (and it is understood owned by a hotel company)
- Southwest site – owned and occupied by St Andrews College
- Eastern site – owned and occupied by a plant nursery

It is anticipated that the school will remain and its presence will expand on the site. The intentions of owners of the former Rembrandts site and the plant nursery are not known at this stage.

There is an opportunity to define 'Burwood Highway South' as a broader mixed-use precinct, with a view of delivering significant residential development with commercial uses at ground floor.

16. OTHER OPPORTUNITY SITES

Council Land

A key objective of the KCUDF was to establish a strong, separate and high profile municipal/civic precinct within the activity centre. Strengthening the civic presence with the activity centre continues to be relevant in the contemporary context, as the expansion of Westfield Knox will increase community and leisure activity in the immediate area. The civic presence also contributes to the diversity of the centre, which comprises a broad mix of uses beyond the traditional 'retail centre'.

Strengthening the civic presence within the activity centre will also provide opportunities to improve interfaces with, and increase activity within, Lewis Park as Council's land extends north to Lewis Park.

While the Structure Plan can facilitate Council's aspirations for its land holdings and strategic sites nearby, more strategic work is required, which is beyond the scope of the Structure Plan. Future work should include:

- Continued investigations into the development of appropriate arts and cultural facilities in Knox, within the context of the South/Eastern region.
- Development of a master plan for the future civic precinct and Council's land holdings, which should include:
 - Proposed road network and lot layout
 - Building envelopes
 - Indicative land uses
 - Pedestrian and cycle paths
 - Public/civic space
 - Connections to surrounding land uses
- Investigate innovative options for funding the future Civic Precinct (including partnerships)

It should be noted that the vision for a future Civic Precinct within the Activity Centre, both in the UDF and subsequent studies, included the development of a north-south road link ('Civic Way') from Burwood Highway to Bridgewater Court. Advice from both Council's Transport Planners and consultants engaged by Council to undertake the Knox Central ITS is that this link to Burwood Highway would not be supported by VicRoads. Alternative options for a 'Civic Way' should therefore be pursued (see Chapter 8).

Some of Council's land is currently leased to community groups, the most significant being the SES, which occupies a site adjacent to the Operations Centre. Any future redevelopment of this land will involve discussions with the SES and State Government to achieve an alternative location.

Council has entered into a short term licensing agreement with a model car club to

use vacant land to the north of the Knox Civic Centre. There may be an option to relocate this club to Wadhurst Reserve (a site of biological significance). Such a move may contribute to the regeneration of Wadhurst Reserve, which is currently degraded due to informal use by BMX riders.



Figure 30 Council-owned Land

Westfield Knox

The KCUDF identifies the following issues that should be addressed for the Westfield site:

- *A wider mix of uses in and around the shopping centre, especially residential, employment, business, entertainment, community and leisure activities;*
- *An intensification of activities generally, to increase the number of people living and working close to the shopping centre;*
- *An improvement in the urban design and form of the precinct, with clearly delineated internal and external pedestrian ways and streets, and a vastly improved external amenity with an emphasis street level activity, pedestrian activity and amenity and street level activity and a generally greening of internal roads and streets;*
- *An improved built form relationship to Burwood Highway and Stud Road, with the opportunity for direct connections with the tram line extension proposed to occur along the north side of Burwood Highway;*
- *Reorientation of the centre and improved integration with Lewis Park to the north and the municipal precinct and balance of the study area to the east;*
- *Rationalisation and better utilization and integration of the shopping centre with the relatively ad hoc and disjointed range of activities that exist on the former Towerpoint site.*

These issues are largely still relevant today. The UDF provides a series of design objectives; built form, scale and massing guidelines; access and circulation guidelines; and public domain initiatives for the site/precinct, which will be translated into the Structure Plan where still relevant.

Stage 1 approval

The approved 'Stage 1' development of the Westfield site includes the following elements²⁴:

- Extension of the shopping centre to the south toward Burwood Highway. A total of 46,000 square metres of additional floor space, comprising 36,451 square metres of shop floor area and 9,549 square metres for restricted retail and non-retail uses will be provided in the extension, which will create a new internal east-west mall to run parallel with the existing mall.
- A circular porte cochere (main feature entrance) is proposed at the western end of Burwood Highway, at the Tyner Road intersection. Existing intersections along Burwood Highway are to be modified and upgraded. The existing intersection on Stud Road is to be removed with a new intersection constructed at the northern end of the Stud Road boundary.

- The existing bus interchange is to be removed. A new bus interchange is proposed within Knox Ozone, to the north of Hungry Jacks. The bus interchange will be accessed via Melbourne Street with provision for 10 bays (including two articulated bays). New facilities will include bicycle storage and driver amenities. A new taxi rank will be co-located at this site.
- The Knox Municipal Library to be re-located to a new temporary tenancy within Knox Ozone., with a view to a larger, long term library being built as part of the shopping centre's redevelopment. Otherwise, there are no changes to floor area or uses within Knox Ozone, with the proposal confined to 'Knox City'.
- Approximately 2,700 new car parking spaces are to be provided within a new basement, on the roof of the proposed building and in modified and new decked parking areas on the west and north side of the existing building. This will increase the total number of car parking spaces in the Centre to approximately 8,850 spaces.
- Construction of new loading bays are proposed to service the additional retail floor area, accessed via the Lynne Avenue intersection.

It is understood that a 'Stage 2' of the development will be undertaken in the future, which may include the eastern and northern parts of the site. The Structure Plan should set a framework which ensures integration with surrounding land uses, particularly the future civic precinct and Lewis Park.

Opportunities and Considerations

- Opportunities to strengthen the 'civic presence' within Knox Central, particularly through more efficient use of Council's land holdings.
- Opportunity to facilitate a multi-purpose facility with a strong connection to Lewis Park.
- There is scope for significant expansion, including a broader mix of uses, on the Westfield site.

²⁴ Council report, 28 October 2014

17. FUTURE PLANNING FRAMEWORK

Both the KCUDF and more recent research commissioned by Council (Geografia, 2015) suggest that the current zoning framework does not facilitate the mix of uses sought for the Activity Centre.

Consideration has been given to applying the Activity Centre Zone (ACZ) to the activity centre, versus the relative merits of more 'traditional' zones within the Victorian Planning Provisions (VPPs).

The ACZ is considered to be a useful tool in that it provides a potentially simpler planning mechanism for activity centres. It provides a 'one stop shop' which provides both land use and development requirements tailored to the individual centre, which can provide for ease of use for landowners and the community. The zone allows for more flexibility in the types of uses and development permitted in the activity centre through the locally tailored zone schedule. This is beneficial in controlling uses through an activity centre, especially through using precinct based land use triggers.

Despite the potential for simplification, however, the zone schedule can be result in less clarity. There are concerns with the potential size of the zone schedule, with specific measures for each precinct, meaning that the schedule can be up to fifty pages in length with repetition of provisions within the ACZ Schedule, zone and elsewhere in the planning scheme.²⁵

Some conflicts have been identified with existing provisions in the planning scheme and the requirements of the ACZ schedule, particularly with regard to Rescode in residential precincts.

Anecdotally it is understood that 'on the ground' use of the Activity Centre Zone has caused some issues, including a general community misunderstanding of what the ACZ is, and how it will affect individual properties.

The Highpoint Activity Centre provides a useful reference point for Knox Central, as a centre to which the Activity Centre was *not* applied through a very recent planning scheme amendment.²⁶ The Highpoint Activity Centre has a number of similarities with Knox Central – a 'big box' shopping centre; light industrial area (transitioning to Mixed Use); and community facilities. While the City of Maribyrnong applied the ACZ to the Footscray Activity Centre²⁷, it elected not to do so for Highpoint, an approach which was broadly supported by Planning Panels Victoria.

It is noted that there appears to be a lack of bipartisan support for the Activity Centre Zone at the State Government level. Generally speaking, the Activity Centre Zone is favoured by Labor governments, whereas the reformed commercial and

residential zones were a Liberal government initiative. It is noted that no Activity Centre Zones were approved between 2010 and 2014 (Liberal Government term) and several have been approved to date during the current Labor Government term. The use of the current commercial and residential zones and overlays in the Victorian Planning Provisions have broadly bipartisan support and may provide greater certainty through the lengthy planning scheme amendment process.

Since the advent of the Activity Zone, significant changes have been made to commercial and residential zones which provides greater flexibility in these zones.

The Knox Central Activity Centre has large areas of Commercial 1 Zone and Industrial 1 Zone. With the exception of the relatively small area between Westfield Knox and Lewis Road, it is not expected that the Structure Plan will recommend a shift in the land use objectives for these areas. In light of this, there is little value in drafting a new Activity Zone Schedule which would in effect replicate the provisions of the existing zones. Furthermore, the activity centre has large areas of government land and public open space, which would not be rezoned as part of the planning scheme amendment.²⁸

It is arguable that it would be more efficient to use the existing suite of zones, with Design and Development Overlay and/or Development Plan Overlays and locally specific content in the MSS, rather than creating a new zone schedule which repeats and potentially conflicts with other provisions of the scheme. The combination of zones, DDO and policy (MSS) reflects the approach taken with Knox's other major activity centres.

Opportunities and Considerations

- Useability and clarity of planning controls.
- Areas where current zones are 'working'.
- Opportunities to facilitate a mix of uses in appropriate locations.

²⁵ See City of Stonnington, Amendment C172

²⁶ See City of Maribyrnong, Amendment C135

²⁷ See City of Maribyrnong, Amendment C125

²⁸ In accordance with the relevant planning practice note (Practice Note 56) all land which is currently zoned for public use would retain its current zoning if the ACZ were applied to the Centre (Department of Environment, Land, Water and Planning, 2015). All existing environmental and heritage overlays would also be retained as this content cannot be reflected in the Activity Centre Zone.

18. REFERENCES

- ▶ Cardno, *Knox Central Integrated Transport Study Report*, 2016
- ▶ Cardno, *Knox Central Integrated Transport Study Existing Conditions Transport Assessment*, 2016.
- ▶ Cardno Grogan Richards, *Analysis of Heat Island Effects*, (draft), 2009.
- ▶ Context, *Knox Central Activity Centre Heritage Assessment, Final Report*, 2016.
- ▶ Department of Environment, Land, Water and Planning, *Practice Note 56 Activity Centre Zone*, June 2015
- ▶ Department of Environment, Land, Water and Planning, *Better Apartments A Discussion Paper*, May 2015
- ▶ Department of Environment, Land, Water and Planning, *Better Apartments Draft Design Standards*, September 2016
- ▶ Department of Health and Human Services, State of Victoria, *Heat Health Plan for Victoria: Protecting health and reducing harm from extreme heat and heatwave*, 2015
- ▶ Geografia, *Knox Central: Land Use, Economic & Property Analysis*, 2015 (updated August 2016).
- ▶ Glossop, *Planning Scheme Review Report*, 2014
- ▶ Hansen Partnership, *Knox Central Urban Design Framework*, 2005.
- ▶ Hansen Partnership on behalf of Knox City Council, *Knox Activity Centre Entry Signage Design Framework*, 2015.
- ▶ Hansen Partnership, *Knox Central Views and Vistas Study*, 2016a.
- ▶ Hansen Partnership, *Burwood Highway Design Guidelines*, 2016b.
- ▶ Healthy Together Knox, *Rowville Outdoor Gym Evaluation Report*, 2016.
- ▶ Knox City Council, *An Active Future: Knox Leisure Plan 2014-19*, 2014.
- ▶ Knox City Council, *Knox Open Space Plan 2012-2022*, 2012.
- ▶ Knox City Council, Council Report, 28 October 2014.
- ▶ Knox City Council, *Minimum Supply of Social Housing, Knox (2014-2036)*, 2015
- ▶ Knox City Council, *Knox Urban Design Framework 2020*, 2002.
- ▶ Landscape Institute, *Public Health and Landscape Creating healthy places*, 2013
- ▶ Liddell, M & Johns, D, *Knox Ozone Research: Perceptions of Alcohol Use and Safety*, RMIT University, 2015
- ▶ Maller, Cecily, Townsend, Mardie, Pryor, Anita, Brown, Peter and St Leger, Lawrence, *Healthy nature healthy people: 'contact with nature' as an upstream health promotion intervention for populations*, 2005.
- ▶ McInnes, Margaret, City of Knox Heritage Study, City of Knox, 1993.
- ▶ Norton BA, Coutts AM, Livesley SJ, Harris RJ, Hunter AM, Williams N, 'Planning for cooler cities: A framework to prioritise green infrastructure to mitigate high temperature in urban landscapes', *Landscape and Urban Planning*, 134 (2015), pp127-138
- ▶ Parks Victoria, *Healthy Parks Healthy People, The Health Benefits of Contact with Nature in a Park Context A Review of Current Literature*, June 2002.
- ▶ Urbis, *Knox Central Activity Centre Social and Cultural Needs Assessment*, 2009.

