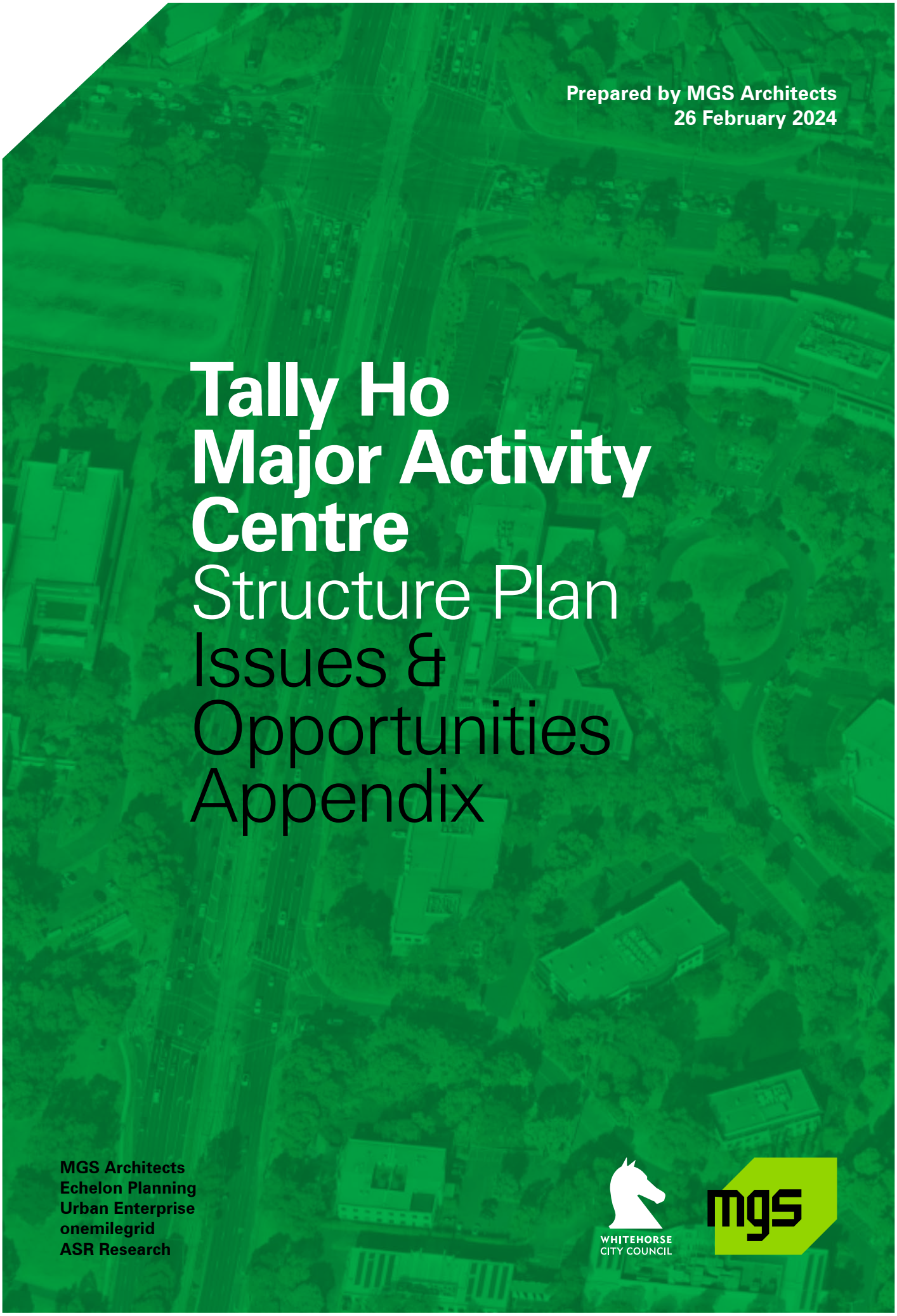

Prepared by MGS Architects
26 February 2024

Tally Ho Major Activity Centre Structure Plan Issues & Opportunities Appendix

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Echelon Planning
Urban Enterprise
onemilegrid
ASR Research

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Appendix

A

Contents

Planning today for the communities of tomorrow

Tally Ho Major Activity Centre

Structure Plan

Review of Community Infrastructure Provision and Issues

Final Report

February 6, 2024

Prepared by ASR Research Pty Ltd

for Whitehorse City Council

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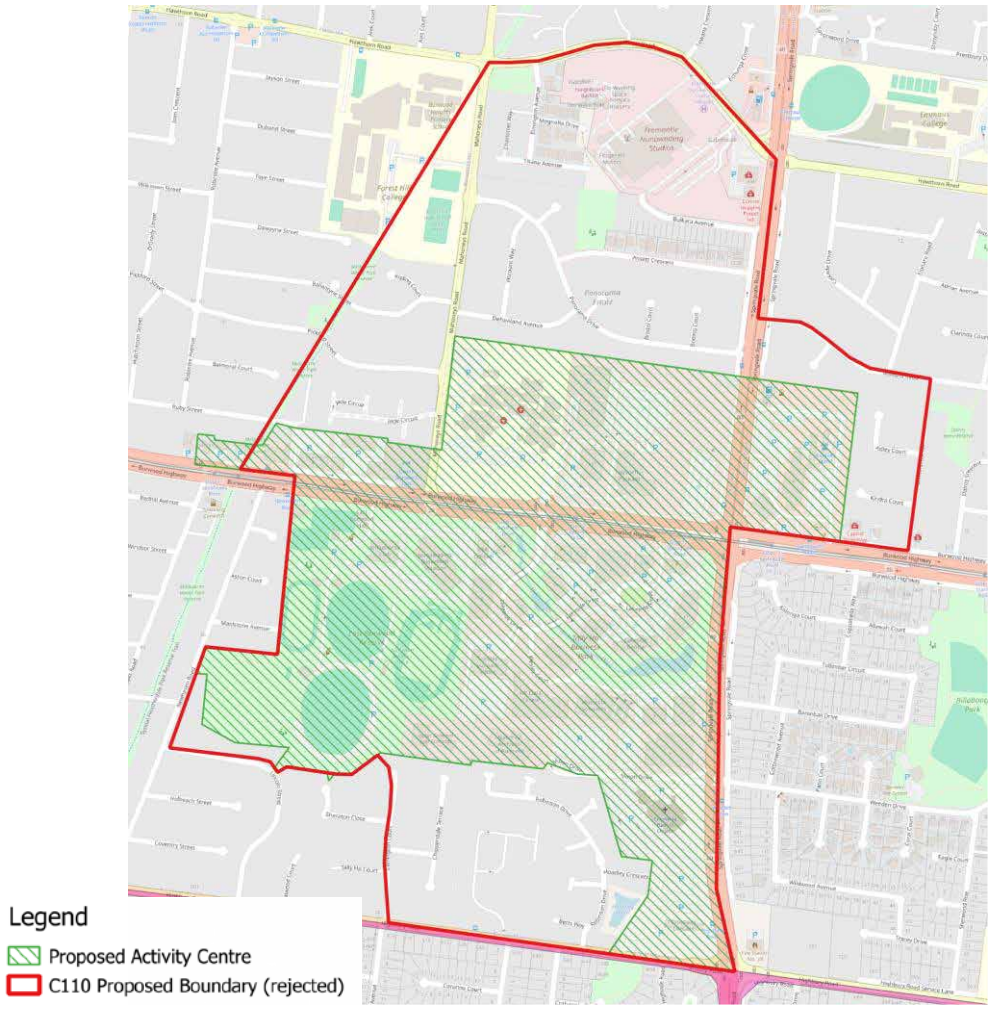
1 Introduction

ASR Research was engaged by MGS, working on behalf of Whitehorse City Council, to prepare the following high level community infrastructure needs assessment associated with a review of the Tally Ho Major Activity Centre Urban Design Framework 2007 (the UDF) and the Tally Ho Activity Centre Urban Design and Landscape Guidelines 2013 (the Guidelines).

The Tally Ho Major Activity Centre (MAC) is unique amongst metropolitan activity centres in that the centre is predominately a business park, and it is not anchored by the types of retail, civic and other uses more typically found in activity centres. It is an established and maturing office employment location with supporting retail and other uses. It accommodates several technology and computer related industries, along with supporting uses in professional services, financial and insurance services and government services. Both the proposed Tally Ho MAC Structure Plan area and the boundary rejected as part of Amendment C110[1] is shown below in Figure 1.

Figure 1 – Proposed Tally Ho MAC Structure Plan Area



[1] Amendment C110 to the Whitehorse Planning Scheme (Planning Scheme) implemented the Tally Ho Urban Design Framework (UDF) adopted by Council in 2007 and the Tally Ho Urban Design and Landscape Guidelines 2013 subsequently adopted in October in 2015.

1.1 Review Objectives

The specific objectives of the review were as follows:

1. Undertake a high-level needs assessment to determine if there are additional community infrastructure needs that may be relevant to the future planning of the Tally Ho MAC; and
2. Provide Whitehorse City Council with broader community infrastructure planning advice relating to the preparation and implementation of community infrastructure planning objectives for the forthcoming update of the Tally Ho Structure Plan.

1.2 Scope of Community Infrastructure & Catchment Area

1.2.1 Community Infrastructure Scope

For the purposes of this review community infrastructure is defined as both public and private, Council and non-Council facilities (e.g. buildings and ovals) likely to be required to support social services, programs, activities and accessibility to them (e.g. kindergarten services, child care, community meetings, sporting competition, informal recreation etc.). For the purposes of undertaking this review an audit of the following social infrastructure categories were selected:

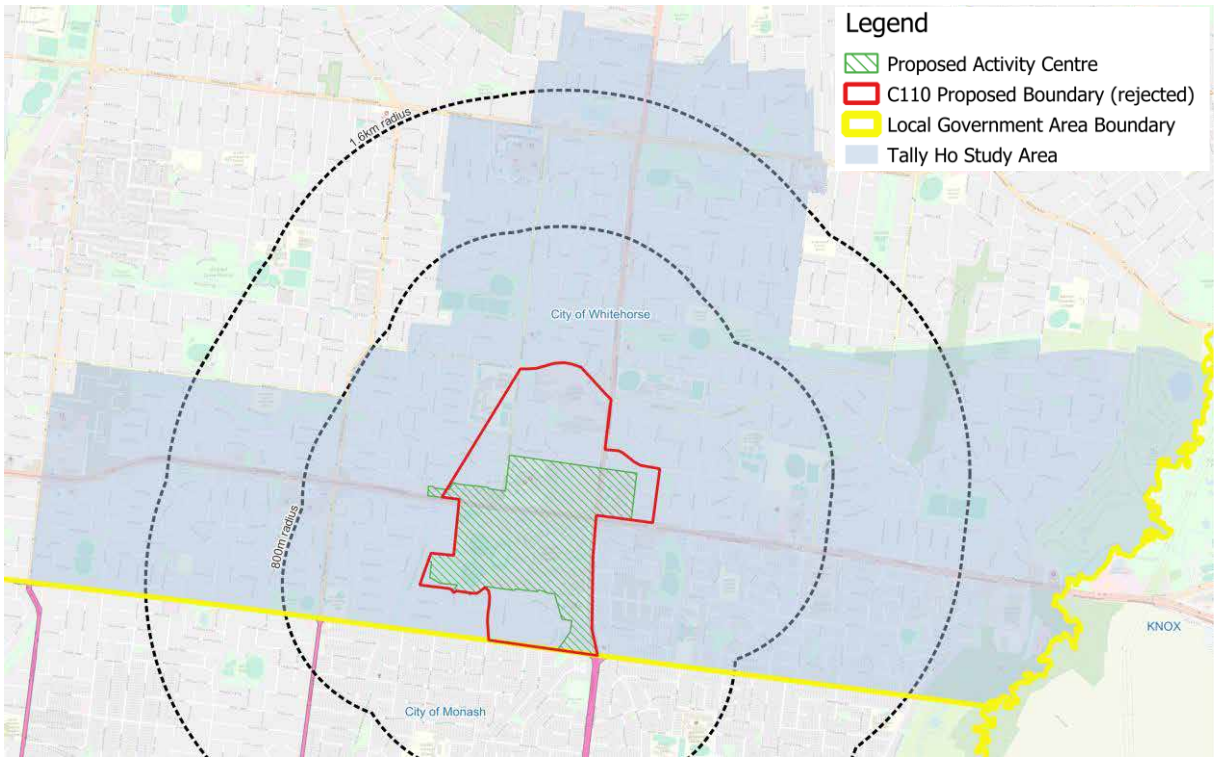
1. Early years services;
2. Open space (active and passive);
3. Community centre, meeting spaces, libraries, learning centres and arts and cultural facilities;
4. Indoor recreation facilities;
5. Education facilities;
6. Health services;
7. Police & Emergency services; and
8. Aged care.

Categories 1 to 4 are typically (but not exclusively) Local Government responsibilities and are often (but not always) included in development contribution agreements associated with significant land use developments. However, government education facilities (typically primary and secondary schools), where deemed to be required within a land use development, are generally funded (both land and building costs) by the State Government.

1.2.2 Main Demographic Study Area

For the purposes of understanding the impact of projected demographic changes over the next 20 years on community infrastructure needs, a broader Study Area surrounding the Tally Ho Major Activity Centre was constructed for the assessment process. The Study Area, shown below in Figure 2, is based on the small area geographic structure used for Whitehorse City Council's community profile and population forecasts[2]. The Study Area consists of Burwood East, Forest Hill and Vermont South.

Figure 2 – Tally Ho Major Activity Centre Study Area



1.3 Review Methodology

The review methodology was based on undertaking the following specific tasks:

- A review of State and Regional land use policies and the relationship with community infrastructure planning objectives;
- A review of Whitehorse City Council policies, strategies and plans relevant to implementing community infrastructure planning objectives as part of the Tally Ho MAC Structure Plan;
- Mapping the existing community infrastructure located within and outside the Tally Ho MAC Structure Plan area with a focus on the 20 minute neigbourhood catchment (i.e. 800 metre radius around the boundary of the Structure Plan area); and

[2] *Source: Population and household forecasts, 2021 to 2041, prepared by .id (informed decisions), June 2023*

- Assessing "high-level" community infrastructure implications of dwelling and population forecasts anticipated for the Tally Ho MAC Structure Plan area over the next 20 years.

2. State, Regional & Local Policy Context

2.1 Plan Melbourne Plan Melbourne 2017-2050: Metropolitan Planning Strategy

Plan Melbourne is a metropolitan planning strategy that defines the future shape of the city and state over the next 35 years. Integrating long-term land use, infrastructure and transport planning, Plan Melbourne sets out the strategy for supporting jobs and growth, while building on Melbourne's legacy of distinctiveness, liveability and sustainability. The plan includes:

- 9 principles to guide policies and actions
- 7 outcomes to strive for in creating a competitive, liveable and sustainable city
- 32 directions outlining how these outcomes will be achieved
- 90 policies detailing how these directions will be turned into action

In addition, a separate 5-year Implementation Plan with 112 actions has been developed. Of particular relevance to this assessment are the directions and policies outlined in Outcome 2 (housing related directions) and Outcome 5 (social infrastructure related directions). The directions and polices associated with these two outcomes are summarised below.

Outcome 02: Melbourne provides housing choice in locations close to jobs and services

Manage the supply of new housing in the right locations to meet population growth and create a sustainable city

- Maintain a permanent urban growth boundary around Melbourne to create a more consolidated, sustainable city
- Facilitate an increased percentage of new housing in established areas to create a city of 20-minute neighbourhoods close to existing services, jobs and public transport
- Plan for and define expected housing needs across Melbourne's regions
- Provide certainty about the scale of growth in the suburbs

Deliver more housing closer to jobs and public transport

- Facilitate well-designed, high-density residential developments that support a vibrant public realm in Melbourne's central city

- Direct new housing and mixed-use development to urban-renewal precincts and sites across Melbourne
- Support new housing in activity centres and other places that offer good access to jobs, services and public transport
- Provide support and guidance for greyfield areas to deliver more housing choice and diversity
- Require development in growth areas to be sequenced and staged to better link infrastructure delivery to land release

Increase the supply of social and affordable housing

- Utilise government land to deliver additional social housing
- Streamline decision-making processes for social housing proposals
- Strengthen the role of planning in facilitating and delivering the supply of social and affordable housing
- Create ways to capture and share value uplift from rezonings

Facilitate decision-making processes for housing in the right locations

- Support streamlined approval processes in defined locations
- Facilitate the remediation of contaminated land, particularly on sites in developed areas of Melbourne with potential for residential development

Provide greater choice and diversity of housing

- Facilitate housing that offers choice and meets changing household needs
- Provide a range of housing types in growth areas

Outcome 05: Melbourne is a city of inclusive, vibrant and healthy neighbourhoods

Create a city of 20-minute neighbourhoods

- Create mixed-use neighbourhoods at varying densities
- Support a network of vibrant neighbourhood activity centres

Create neighbourhoods that support safe communities and healthy lifestyles

- Improve neighbourhoods to enable walking and cycling as a part of daily life

Deliver social infrastructure to support strong communities

- Facilitate a whole-of-government approach to the delivery of social infrastructure
- Create health and education precincts to support neighbourhoods
- Support not-for-profit community services to build social capital and stronger communities
- Provide and protect land for cemeteries and crematoria

Deliver local parks and green neighbourhoods in collaboration with communities

- Develop a network of accessible high-quality, local open spaces
- Support community gardens and productive streetscapes

2.2 Plan Melbourne 2017-2050: Draft Eastern Metro Land Use Framework Plan Summary

The purpose of the plans is to guide the application of Plan Melbourne's nine principles, seven outcomes, 32 directions and 90 policies at a regional and local level.

The plans will support a regional approach to planning across state and local government.

Plan Melbourne's Land Use Framework Plan for the Eastern Metro Region is shown in Figure 2 on the following page. Figure 2 shows identifies Tally Ho as a Major Activity Centre. It also shows that the Tally Ho Major Activity Centre is located between and within reasonable proximity to a State Health Precinct (Wantirna – which includes Knox Private Hospital) to the east and a State Education Precinct (Deakin University Burwood Campus) to the west.

The plan covers six themes: 1) Productivity; 2) Housing; 3) Integrated transport; 4) Liveability; 5) Strong communities; 6) Sustainability and resilience. For the purposes of the review the liveability and strong communities theme are of most relevance.

Liveability

Strengths and challenges. Established networks of open spaces and walking and cycling paths exist in the region, but the network needs to be expanded and improved. The region is renowned for its built heritage which needs to be protected. Traditional Owners will play a bigger role in protecting and managing Country into the future.

Key objectives under the liveability theme are:

- Create great civic spaces that reflect the region's environment and history – including the heritage of Aboriginal communities.
- Protect waterways and the Port Phillip Bay coastline.
- Expand the network of open spaces and trails – using linear parks to connect people to destinations and public transport.
- Support improvements and access to existing open space assets such as Caulfield Racecourse Reserve.

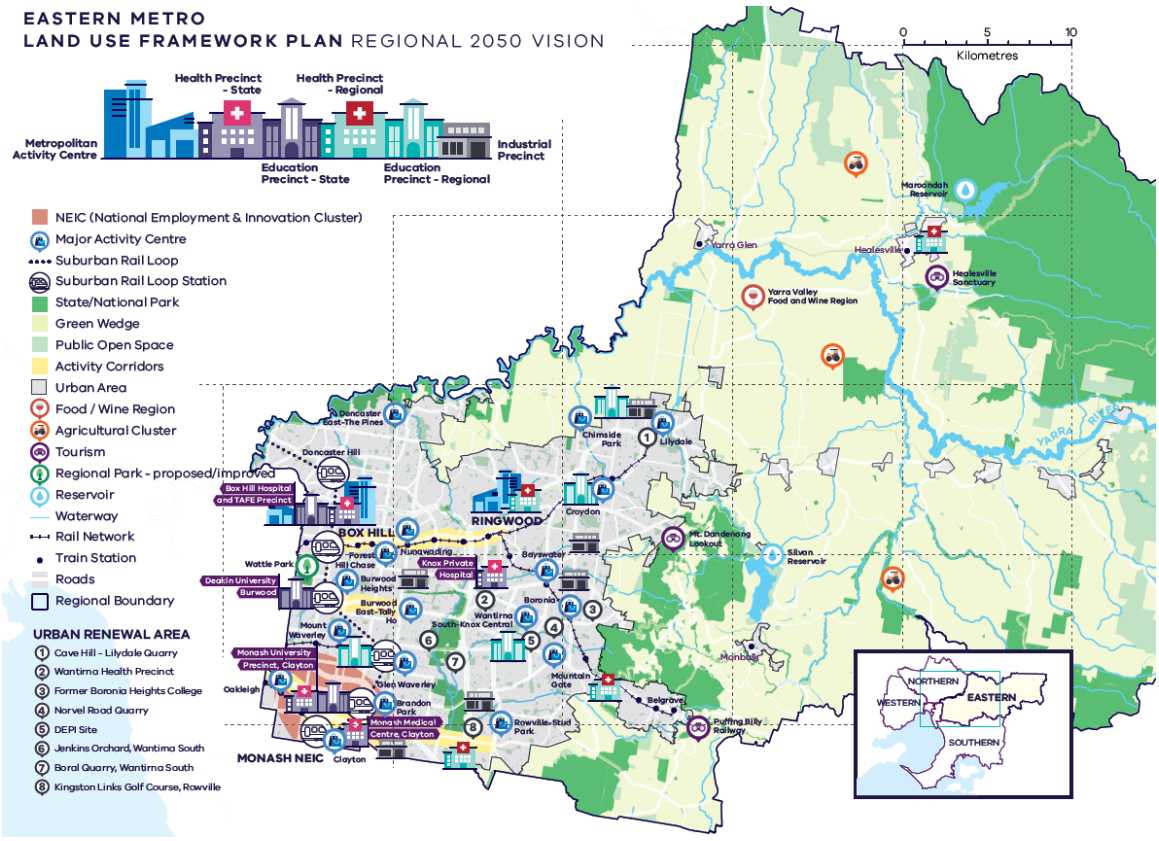
Strong Communities

Strengths and challenges. The region is well placed to create a strong network of 20-minute neighbourhoods. It already has most of the services, facilities and infrastructure in place. But there is a need to create more places where people can go to relax, play sport and be active.

Key objectives under the strong communities theme are:

- Invest in libraries, cultural centres and community hubs.
- Expand the network of health and education facilities and precincts.
- Continue to develop 20-minute neighbourhoods around activity centres.
- Map all schools, golf courses, tertiary campuses and large land holdings – identifying opportunities for shared-use agreements.

Figure 3 – Eastern Metro Land Use Framework Plan (Regional 2050 Vision Map)



Source: Plan Melbourne 2017-2050, Inner South East Metro Land Use Framework Plan Summary, page 3

2.3 Whitehorse City Council Policies, Strategies, Plans & Major Capital Projects

Although the review does not include a full-scale review of Council prepared policies, strategies and plans (including masterplans), it did identify the strategic material likely to be of most relevant to community infrastructure provision in the Tally Ho MAC Structure Plan area and surrounding Study Area. These include:

- Whitehorse Planning Scheme (in particular community facilities and open space)
- Whitehorse 2040 Community Vision
- Whitehorse Council Plan 2021-2025
- Whitehorse Financial Plan 2021-2031
- Whitehorse Asset Plan 2022-2032
- Whitehorse Health and Wellbeing Plan 2021-2025
- Whitehorse Arts & Cultural Strategy 2014-2022
- Whitehorse Open Space Strategy (adopted 2007 Strategy and in progress 2023 Strategy)
- East Burwood Reserve Master Plan (2023)
- Whitehorse Play Space Strategy
- Whitehorse Municipal Early Years Plan 2014-2018
- Whitehorse Municipal Youth Plan 2014-2018
- Whitehorse Recreation Strategy 2015-2024
- Pavilion Development Policy
- Whitehorse Infrastructure and Development Contributions Framework
- Whitehorse Development Contributions Plan (2023)

Note: Council is also in the process of preparing a Positive Ageing in Whitehorse Strategy and a Play Space and Social Recreation Action Plan.

Council has also recently completed a number of important community infrastructure projects within or close to the Tally Ho Mac Structure Plan area including:

- Construction of Whitehorse's new performing arts centre, The Round, in Nunawading; and
- Redevelopment of the Sportlink recreation facility in Vermont South

2.4 Whitehorse Infrastructure and Development Contributions Framework & Development Contributions Plan (2023)

In 2021 Whitehorse City Council endorsed the Whitehorse Infrastructure and Development Contributions Framework (Framework). The Framework considered the demand for infrastructure across the municipality and how Council can use infrastructure funding and delivery mechanisms to meet the growing infrastructure needs

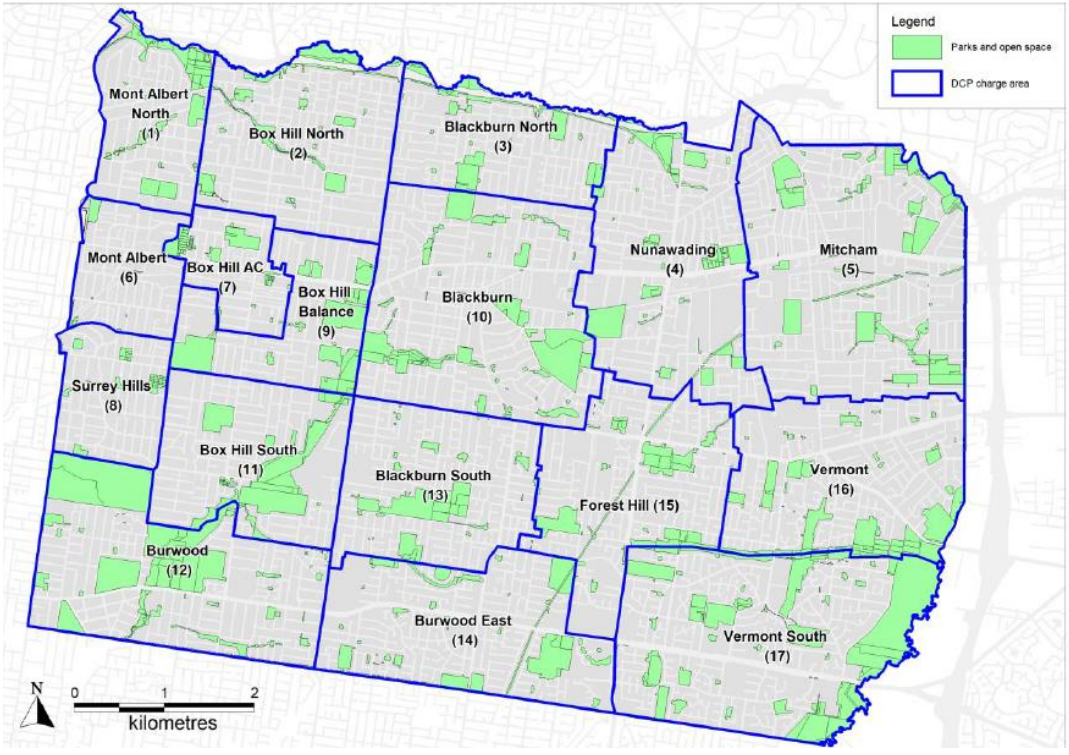
over time. A municipal wide Whitehorse Development Contributions Plan (DCP) was subsequently prepared, along with associated planning scheme amendment documents to implement the DCP into the Whitehorse Planning Scheme.

Council endorsed the draft Whitehorse DCP and the amendment documents on 8 August 2022, and sought authorisation from the Minister for Planning (the Minister) to exhibit Amendment C241whse. Council subsequently adopted the revised Whitehorse DCP and Amendment C241whse and submitted the amendment to the Minister for approval. The Amendment was formally approved and gazetted in December 2023.

The purpose of the Council endorsed Whitehorse DCP (2023 amended version) is to identify infrastructure projects that will be delivered by Whitehorse City Council over a nominal 20 year period and show associated levies for those infrastructure projects to be imposed on defined classes of development to contribute towards the funding of the infrastructure projects. The DCP timeframe and development period is nominated as 1 July 2022 to 30 June 2042. This DCP will end 20 years from the Approval Date.

The DCP area is divided into 17 separate analysis areas and charge areas for which a unique levy is calculated. The 17 charge areas, shown below in Figure 4, are suburb-based data areas within the municipality and also include the Box Hill Metropolitan Activity Centre. The areas are sourced from the Whitehorse City Council 'forecast .id' data areas.

Figure 4 - Whitehorse DCP Area and Charge Areas



The Whitehorse Development Contributions Plan outlines a number of community infrastructure projects (mostly sporting infrastructure and playspace projects) relevant to any future development which may occur in the Tally Ho MAC Structure Plan area and surrounding Study Area (Charge Areas 14, 15 and 17). These include:

- Whitehorse Performing Arts Centre WPAC – (Area 01 Area 02 Area 03 Area 04 Area 05 Area 06 Area 07 Area 08 Area 09 Area 10 Area 11 Area 12 Area 13 Area 14 Area 15 Area 16 Area 17)
- Morack Golf Course Pavilion, Driving Range and Mini Golf Facility Construction (Area 14 Area 15 Area 16 Area 17)
- Mahoneys North Pavilion Refurbishment (Area 13 Area 14 Area 15 Area 17)
- Sportlink Multi Purpose Facility Redevelopment (Area 13 Area 14 Area 15 Area 16 Area 17)
- Vermont Reserve Pavilion (Area 14 Area 15 Area 16 Area 17)
- Forest Hill Reserve Pavilion Upgrade (Area 03 Area 04 Area 05 Area 10 Area 13 Area 14 Area 15 Area 16 Area 17)
- East Burwood Reserve South Pavilion (Area 13 Area 14 Area 15 Area 17)
- Ballyshannassy Park Pavilion (Area 11 Area 12 Area 13 Area 14)
- Eley Park Pavilion Refurbishment (Area 11 Area 12 Area 13 Area 14)
- Morack Golf Course Improvements (Area 14 Area 15 Area 16 Area 17)
- Vermont South Club Rooms (Area 15 Area 16 Area 17)
- Nunawading Gymnastics Building (Area 03 Area 04 Area 05 Area 10 Area 13 Area 15 Area 16)
- Aqualink Box Hill Tile Rectification Works - Stage 2 (Area 01 Area 02 Area 03 Area 04 Area 05 Area 06 Area 07 Area 08 Area 09 Area 10 Area 11 Area 12 Area 13 Area 14 Area 15 Area 16 Area 17)
- Nunawading Community Hub (Area 03 Area 04 Area 05 Area 10 Area 13 Area 15 Area 16)
- Ballyshannassy sports field lighting (Area 11 Area 12 Area 13 Area 14)
- Eley Park court (Area 11 Area 12 Area 13 Area 14)
- Forest Hill Reserve car park (Area 03 Area 04 Area 05 Area 10 Area 13 Area 14 Area 15 Area 16 Area 17)

The DCP also identifies a large number of playspace renewal projects relevant to the Study Area including the following three projects located within the Tally Ho MAC:

- East Burwood Reserve (South) - Playspace renewal – Local (Area 14 Area 15)
- Pickford Paddock (North) - Playspace renewal – Nhood (Area 13 Area 14 Area 15 Area 17)
- Ansett Crescent Reserve- Playspace renewal – Local (Area 14 Area 15 Area 17)

2.5 Other External Agency Policies, Strategies and Plans

Although the review does not include a full-scale review of External agency prepared policies, strategies and plans, it did identify the strategic material likely to be of most relevant to community infrastructure provision in the Tally Ho Major Activity Centre area. These include:

- Victorian Infrastructure Plan (2021), Infrastructure Victoria;
- Victoria's Infrastructure Strategy 2021-2051, Infrastructure Victoria;
- Swinburne Horizon 2025, Swinburne Strategic Plan, Swinburne University of Technology;
- Working Together Towards 2025, Eastern Health Strategic Plan 2023-2025, Eastern Health;
- Kindergarten Infrastructure and Services Plan City of Whitehorse (2020), Department of Education;
- Kindergarten On and Next Door to School Sites, Department of Education;
- The Best Start for Every Victorian Child, Department of Education;
- Three-Year-Old Kindergarten, Department of Education;
- Skills First, Department of Education;
- The Future of Adult Community Education in Victoria 2020–25, Department of Education;
- Community Use of Schools — Hiring, Licensing and Community Joint Use Agreements, Department of Education;
- Health 2040: Advancing health, access and care, Department of Health;
- Statewide Design, Service and Infrastructure Plan for Victoria's Health System 2017–2037, Department of Health;
- Victoria Police Blue Paper: A Vision for Victoria Police In 2025;
- Victorian State Emergency Services (VICSES) Service Delivery Strategy 2025;
- Court Services Victoria Strategic Asset Plan:2016-2031;
- Open Space Strategy for Metropolitan Melbourne 2021 (Open Space for Everyone), Department of Energy, Environment and Climate Change.

3. Existing Community Infrastructure Provision Within & Near to the Tally Ho Major Activity Centre

Appendix 2 presents as series of maps showing the location of various forms of existing and planned community infrastructure within and surrounding the Tally Ho MAC. These maps are useful in providing an understanding of the distances between these facilities and the MAC. Depending on the type of community infrastructure, catchment radii of 800 metres (which equates approximately to a 20-minute walkable catchment area – return walking trip) and 1.6 kilometres are shown in these maps. Table 1 below provides a summary of the existing community infrastructure located within the Tally Ho MAC and within 800 metres of the MAC.

Table 1 – Existing Community Infrastructure within the Tally Ho MAC & within a 800 metre Radius

Existing Community Infrastructure	Located within the Proposed Structure Plan Area	Located outside Structure Plan Area but within 20 minute neighbourhood 800 metre catchment (radius only)
Open Space and Recreation		
Passive Open Space		
East Burwood Reserve (Passive Open Space Component)	✓	Not included
Tally Ho Business Park	✓	
Active Open Space (Public Sportsgrounds / Facilities)		
Burwood East Reserve (Active Open Space Component)	✓	
Billabong Park		✓
Charlesworth Park (including Vermont South Bowling Club)		✓
Davey Lane		✓
Mahoney's Reserve		✓
Livingston Reserve		✓
Holy Saviour Tennis Club (located on independent school)		✓
Indoor Recreation Facilities		
Nunawading Basketball Centre (proposed expansion from 5 to 11 courts)	✓	
Sportlink (4 indoor courts and 4 outdoor all-weather courts with a roof)		✓
Education		
Primary Schools – Government		
Burwood Heights Primary School		✓
Parkmore Primary School		✓
Livingston Primary School		✓
Weeden Heights Primary School		✓
Highvale Primary School		✓
Glendal Primary School		✓
Burwood East Primary School		✓
Secondary Schools		
Forest Hill College		✓
Highvale Secondary College		✓
Catholic & Other Independent Schools		
Holy Saviour Parish School		✓

Existing Community Infrastructure	Located within the Proposed Structure Plan Area	Located outside Structure Plan Area but within 20 minute neighbourhood 800 metre catchment (radius only)
Emmaus College		✓
Early Years Services		
Sessional Kindergarten		
Burwood Heights Primary School Kindergarten		✓
Parkmore Preschool		✓
Birralee Preschool		✓
Beacon Street Children's Centre Kindergarten		✓
Glendal Kindergarten		✓
Long Day Child Care		
Petit Early Learning Journey Forest Hill	✓	
Greenwood Burwood East	✓	
Beacon Street Children's Centre Kindergarten		✓
Vermont South Children's Services Centre		✓
Kendall Glen Waverley Early Education Centre		✓
Snuggles Early Learning Centre		✓
Boulevard Early Learning Centre		✓
Maternal & Child Health		
No services		
Community Centre and Meeting Spaces		
East Burwood Hall	✓	
Neighbourhood Houses		
Vermont South Neighbourhood House		✓
Libraries		
Vermont South Library		✓
Arts & Cultural Facilities		
Strathdon House & Orchard Precinct		✓
Health		
Community & Mental Health Services		
The Peter James Centre	✓	
Acute Health		
The Peter James Centre	✓	
Aged Care Facilities		
Northside Aged Psychiatry Residential Care Facility (located within The Peter James centre	✓	
Uniting AgeWell Srathdon Community		✓
BlueCross Livingston Gardens		✓
Burwood Lodge Supported Residential Service (SRS)		✓
Justice & Emergency Services		
Forest Hill Police Station		✓
Vermont South Fire Station		✓

4. Projected Community Infrastructure Demands Generated by the Tally Ho Major Activity Centre Study Area

4.1 Community Infrastructure Standards and Demand and Supply Estimates

Appendix 1 of this report provides a table of indicative estimates of community infrastructure demand and supply requirements across the Study Area from 2023 to 2041. These estimates apply to various forms of community infrastructure that lend themselves to some form of quantifiable demand and / or supply measure. The source of these demand / supply measures is also identified the same table. ***It should be emphasised that the numbers indicated should not be interpreted as final provision recommendations for the various development scenarios proposed for the Tally Ho Major Activity Centre.*** Community infrastructure assessments also require existing strategic priorities be taken into consideration, as well as the capacity of existing services and facility to meet current and future needs.

4.2 Tally Ho MAC & Tally Ho MAC Study Area Dwelling and Population Assumptions

According the 2021 ABS Census, the Tally Ho MAC Structure Plan Area was home to 1,885 residents and accommodated 770 residential dwellings[3].

Table 2 below summarises the dwelling and population forecasts for the Tally Ho MAC Study Area from 2023 to 2041. It reveals that both the number of dwellings and population of this area will increase by approximately 29% (approximately 3,800 additional dwellings) and 27% (approximately 10,000 additional residents) respectively over the 18-year period. In 2023, the Study Area was estimated to contain approximately 14,000 dwellings and had a residential population of approximately 35,600. By 2041, the Study Area will accommodate approximately 17,700 dwellings and be home to almost 46,000 people.

Table 2 – Dwelling & Population Projections for Tally Ho MAC Study Area

	Year						
	2023	**2026**	**2031**	**2036**	**2041**	**Change from 2023 to 2041 No.**	**Change from 2023 to 2041 %**
Total Population	35,577	38,517	41,214	43,528	45,796	10,219	29%
Total Dwellings	13,903	14,640	15,726	16,726	17,726	3,823	27%

Source: Source: Whitehorse Population and household forecasts, 2021 to 2041, prepared by .id (informed decisions), June 2023

[3] Source: Australian Bureau of Statistics, Census of Population and Housing: Mesh block counts, 2021(28 June 2022)

4.3 Key Age Cohort Population Projections for the Tally Ho MAC Study Area

The use of population forecasts data prepared by .id for Whitehorse City Council provides an indication of the likely changes to community infrastructure demand that can be anticipated for the Study Area from 2023 to 2041. Table 3 below reveals the current projected change to key age cohort populations between 2023 and 2041 that underpin the demand for a wide variety of community infrastructure forms. The age cohorts shown reflect a requirement for (but not necessarily restricted to) the following types of services and / or facilities:

- 0 - 3 Years - Maternal and Child Health Services, Playgroups;
- 3 - 4 Years – Kindergarten Programs;
- 0-4 Years - Long Day Child Care, Occasional Child Care;
- 5-11 Years - Primary School, After Hours School Care, School Holiday; Programs, Family Day Care;
- 5-14 Years – Participation by children in organised sport and leisure activities;
- 15+ Years – Participation by older youth and adults in organised sport and leisure activities;
- 12-17 Years - Secondary School, School Holiday programs;
- 55+ Years- Senior Citizens Groups and Centres;
- 70+ Years – Aged care services and facilities for older persons; and
- All population age cohorts – Libraries, Neighbourhood Houses etc.

Table 3 – Key Age Cohort Projections for Tally Ho MAC Study Area

		Year					
Age Cohort	**Community infrastructure types the age cohort is relevant to**	**2023**	**2026**	**2031**	**2036**	**2041**	**Change from 2023 to 2041**
0-3	MCH, Playgroups	1,150	1,241	1,330	1,379	1,433	283
4	4 Year Old Kindergarten	321	340	372	388	401	80
3	3 Year Old Kindergarten	317	331	356	370	383	66
0-4	Long Day Child Care & Occasional Child Care	1,471	1,581	1,702	1,767	1,834	363
5-11	Primary School enrolments, out of school hours care	2,675	2,766	2,816	2,931	3,038	363
5-14	Participation in organised children's sport	3,841	4,119	4,173	4,313	4,481	640
15+	Participation in organised youth & adult sport	30,263	32,816	35,340	37,447	39,479	9,216
15-24	Participation in higher education (youth & young adult)	4,486	5,032	5,498	5,728	5,899	1,413
25+	Participation in higher education (older adults)	25,777	27,784	29,842	31,719	33,580	7,803
12-17	Secondary School enrolments	2,382	2,696	2,811	2,877	2,984	602
70+	Residential & home based aged care services	5,965	5,854	5,874	6,057	6,398	433
Total Population	**Total Population**	**35,575**	**38,516**	**41,215**	**43,527**	**45,794**	**10,219**
Dwellings	**Total Dwellings**	**13,903**	**14,640**	**15,726**	**16,726**	**17,726**	**3,823**

Source: Source: ASR Research using Whitehorse Population and household forecasts, 2021 to 2041, prepared by .id (informed decisions), June 2023

5. Summary of Key Findings & Conclusions

Based on the information presented and analysed in the previous sections of this report a summary of key findings and recommendations is summarised below.

5.1 Current Community Infrastructure Profile of the Tally Ho MAC and Surrounding Study Area

The existing community infrastructure profile of the Tally Ho MAC Structure Plan Area is limited to the Burwood East Reserve (a large municipal open space which contains both outdoor active and passive open space functions, an indoor recreation stadium and a community meeting space), The Peter James Centre (owned and operated by Eastern Health), two long day child care centres and a number of smaller passive open space reserves (including a number that include playspaces).

However, the surrounding Study Area (consisting of Burwood East, Forest Hill and Vermont South) including the 800-metre catchment area immediately surrounding the Tally Ho MAC has a very extensive and diverse array of community infrastructure.

5.2 Current and Projected Population of the Tally Ho MAC and Surrounding Study Area

According to the 2021 ABS Census, the Tally Ho MAC Structure Plan Area was home to 1,885 residents and accommodated 770 residential dwellings. This is a relatively small population for a Major Activity Centre considering the size of the Tally Ho MAC.

However, both the number of dwellings and population of the surrounding Study Area will increase by approximately 29% (approximately 3,800 additional dwellings) and 27% (approximately 10,000 additional residents) respectively between 2023 and 2041. In 2023, the Study Area was estimated to contain approximately 14,000 dwellings and had a residential population of approximately 35,600. By 2041, the Study Area will accommodate approximately 17,700 dwellings and be home to almost 46,000 people.

5.3 Main Community Infrastructure Findings

- Tally Ho's status as a Major Activity Centre requires consideration be given to both higher order community infrastructure and local community infrastructure needs.
- Although the Tally Ho MAC has some large community infrastructure items such as the Burwood East Reserve and the Peter James Centre, other higher order infrastructure needs are very well catered for in the surrounding catchment area within 5 kilometres of the Activity Centre.

- Tally Ho's role accommodating higher order community infrastructure such as hospitals and higher education facilities is potentially limited due to the proximity of Deakin University's Burwood Campus and Eastern Health's Watirna Health Precinct to the east and the Box Hill Health Precinct to the north west. Future investment from these two key players will most likely be directed to those existing sites. However, it will be important to confirm Eastern Health's future intentions for the Peter James Centre located within the Tally Ho MAC.
- Outside of these major higher order community infrastructure considerations, the Tally Ho MAC 800 metre catchment area and beyond (i.e. within 5 kilometres of the Tally Ho MAC) has a very strong and impressive community infrastructure profile.
- Some of the main features of this community infrastructure profile are summarised below:
    - There are 7 government primary schools, 2 government secondary schools, 1 Special School, 1 Catholic Primary and 1 Catholic Secondary all within 800 metres of the proposed new Tally Ho MAC Structure Plan boundary.
    - Indoor recreation facility provision in the Study Area is very satisfactory. The Burwood East Masterplan includes a proposal to convert the current 54 year-old 5-court venue into a brand-new 11-court stadium. Nearby Sportlink to the east (another Council facility) has an indoor stadium with four courts and four outdoor acrylic all-weather courts with a roof available for hire.
    - The nearest Council Aquatic Leisure Centre is Aqualink Nunawading is located only 2 kilometres north of the Springvale Road / Burwood Hwy intersection. Therefore, there is little likelihood that another aquatic leisure centre located in the Tally Ho MAC would be supported by Council.
    - Council has recently spent $78m redeveloping the Whitehorse Centre (now called The Round) which is the municipality's main arts and cultural facility located at 377-399 Whitehorse Rd, Nunawading VIC 3131. The facility is located about 5 kilometres north of the Springvale Road / Burwood Hwy intersection.
    - Given the proximity of existing Council higher order community facilities, there appears little prospect that one of these facilities being included in the Tally Ho MAC.
    - The nearest library is the Vermont South Library (built in 1990, but building is considered a bit dated and relatively small – approximately 850m2) is located only 1 kilometre east of the of the Springvale Road / Burwood Hwy intersection. It is located within the Vermont South Shopping Centre and is co-located with a range of other community infrastructure (kindergarten, aged care facilities, community house and learning centre, and sports facilities). Council's library strategic plan indicates that the facility is in need of a major upgrade.
    - Police Stations are well catered for in the form of the nearby Forest Hill Police Station – which is a large high quality complex located only 1 kilometre north of the Springvale Road / Burwood Hwy intersection.

5.4 Key Recommendations

- Given the impressive existing community infrastructure profile in the surrounding catchment area, there is strong justification for facilitating a much higher quantity of housing in the Tally Ho MAC (subject to all the other planning considerations).
- In the event that the forthcoming Tally Ho MAC Structure Plan actively facilitates a much higher quantity of residential development (e.g. 2,000 to 3,000 additional dwellings) the following recommendations are made:
  - That Council support the inclusion of a local multipurpose community centre to cater for the demands generated by the new population.
  - That Council assess the potential feasibility of relocating some of the existing nearby community infrastructure (e.g. the Vermont South Library) as part of a new Tally Ho Community Hub.
  - Improve links from the Tally Ho MAC to as many of the surrounding community infrastructure facilities / hubs as feasible.

Appendix 1 – Quantitative Demand & Supply Estimates for the Tally Ho Study Area: 2023 to 2041

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Source of measure	2023	2026	2031	2036	2041	Change from 2021 to 2041
Planning Scheme public open space contribution requirement	4.0%	Public open space contribution	Schedule to Clause 53.01 Whitehorse Planning Scheme - 4% minimum assumed for Tally Ho MAC. The subdivision of land on a strategic site (as defined by the Whitehorse Open Space Strategy or Council or State Government). Contribution rate greater than 4% subject to negotiation of a development plan.	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Organised Sport Facility & Participation Estimates									
Indoor and outdoor recreation facilities									
Indoor recreation centres / courts	10,000	Total population per court	Typical standard used by some Melbourne Growth Area Councils (note: individual LGAs vary on their views about the "desired" benchmark and some have no documented working benchmark).	3.6	3.9	4.1	4.4	4.6	1.0
Council aquatic leisure centre visits per annum	5.1	Number of visits per person per annum	Victorian Department of Jobs, Precincts & Regions, Know Your Council: 2018-2019 Dataset (All Victorian LGA average)	181,788	196,817	210,609	222,423	234,007	52,219
Council aquatic / leisure centres	90,000	Approximate total population per facility in Whitehorse (2023)	ASR Research calculation based on City of Whitehorse having 2 Council indoor aquatic leisure centre (2023).	0.4	0.4	0.5	0.5	0.5	0.1
Organised Sport Participation									
Participation in organisation/venue based activity: Adults (people aged 15 and over)									
Fitness/Gym	26.9%	% of people aged 15 years and over participating in organised physical activity or sport at least once per year	Australian Sports Commission, AusPlay Survey (AusPlay): January 2022 - December 2022 Victoria Data (Table 11)	8,135	8,822	9,500	10,066	10,613	2,477
Swimming	10.4%	As above	As above	3,151	3,417	3,679	3,899	4,110	960
Golf	5.1%	As above	As above	1,540	1,670	1,798	1,905	2,009	469

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Source of measure	2023	2026	2031	2036	2041	Change from 2021 to 2041
Athletics, track and field (includes jogging and running)	5.0%	As above	As above	1,505	1,632	1,757	1,862	1,963	458
Walking (Recreational)	4.7%	As above	As above	1,424	1,544	1,663	1,762	1,857	434
Pilates	4.7%	As above	As above	1,415	1,534	1,652	1,750	1,845	431
Tennis	4.3%	As above	As above	1,299	1,408	1,517	1,607	1,694	396
Basketball	4.0%	As above	As above	1,218	1,321	1,422	1,507	1,589	371
Yoga	3.9%	As above	As above	1,181	1,281	1,379	1,461	1,541	360
Australian football	3.9%	As above	As above	1,171	1,270	1,367	1,449	1,527	357
Netball	3.4%	As above	As above	1,030	1,117	1,203	1,275	1,344	314
Football/soccer	3.3%	As above	As above	993	1,077	1,160	1,229	1,296	302
Cricket	2.4%	As above	As above	719	780	840	890	938	219
Cycling	1.7%	As above	As above	518	562	605	641	676	158
Bush walking	1.7%	As above	As above	513	556	599	635	669	156
Organised participation by activity - top 10 activities (children aged 0 to 14)									
Swimming	37.9%	% of children aged 0-14 participating in organised physical activity or sport at least once per year	Australian Sports Commission, AusPlay Survey (AusPlay): January 2022 - December 2022 Victoria Data (Table 10)	1,455	1,561	1,581	1,634	1,698	243
Australian football	14.5%	As above	As above	557	597	605	625	650	93
Basketball	12.3%	As above	As above	471	505	512	529	550	79
Gymnastics	11.2%	As above	As above	430	461	467	483	502	72
Football/soccer	7.9%	As above	As above	302	323	328	339	352	50
Dancing (recreational)	7.7%	As above	As above	295	316	320	331	344	49
Netball	6.7%	As above	As above	256	275	278	288	299	43
Tennis	5.8%	As above	As above	223	239	242	250	260	37

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Source of measure	2023	2026	2031	2036	2041	Change from 2021 to 2041
Cricket	5.2%	As above	As above	200	215	218	225	234	33
Karate	4.5%	As above	As above	173	185	188	194	201	29
Early Years Services									
Kindergartens									
% of 3 and 4 year olds participating in Kindergarten programs	100.0%	% of all eligible children participating in 3 and 4 year old subsidised kindergarten	Based on 100% participation rate	638	671	728	758	784	146
Total number of enrolments in 4 year old sessional Kindergarten	62.0%	% of participating children (see above) enrolled at a Sessional Kindergarten service	Department of Education (2020 data)	199	211	231	241	249	50
Total number of enrolments in 3 year old sessional Kindergarten	75.0%	% of participating children (see above) enrolled at a 3 year old sessional Kindergarten service	As above	238	248	267	278	287	50
Total 3 & 4 year old enrolments attending sessional kindergarten				437	459	498	518	536	99
Number of sessional kindergarten rooms required under current kindergarten policy environment (15 hours per week for both three and four year old kindergarten)	*66*		*ASR constructed calculation*	*6.6*	*7.0*	*7.5*	*7.8*	*8.1*	*1.5*
Number of sessional kindergarten rooms required under current kindergarten policy environment (15 hours per week of three year old kindergarten and 30 hours of four year old kindergarten)	*66 enrolments for three year old kindergarten & 33 enrolments for four year old kindergarten.*		*ASR constructed calculation*	*9.6*	*10.1*	*11.0*	*11.5*	*11.9*	*2.3*

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Source of measure	2023	2026	2031	2036	2041	Change from 2021 to 2041
Maternal & Child Health									
Number of MCH Full-Time Nurses	120	1 FT nurse per 120 children 0 years	ASR Research estimate	2.1	2.4	2.6	2.7	2.8	0.7
Number of MCH consulting units	1	Number of MCH consulting units required per FT nurse	Based on above	2.1	2.4	2.6	2.7	2.8	0.7
Playgroup									
Number of 2 hr playgroup sessions per week	780	Total number of children aged 0-3 years required to generate demand for a 2 hour playgroup session per week	ASR Research constructed measure using Whitehorse City Council data for the Study Area - Burwood East, Forest Hill and Vermont South, (https://www.whitehorse.vic.gov.au/living-working/people-and-families/family-activities-and-resources/playgroups)	1.5	1.6	1.7	1.8	1.8	0.4
Occasional Child Care									
Number of occasional child care places	98	Total number people aged 0 to 4 years per licensed place	Department of Education, Register of Approved Children's Services in Victoria (City of Whitehorse data, 84 places) July 2023	15	16	17	18	19	3.7
Number of occasional child care centres	30	Total number of facilities required based on number of licensed places generated (see above)	ASR Research constructed measure based on a typical sized occasional child care facility.	0.5	0.5	0.6	0.6	0.6	0.1
Long Day Child Care Centres									
Number of Long Day Child Care places	8	Total number people aged 0 to 4 years per licensed place	Australian Children's Education and Care Quality Authority (ACECQA) National Register Data (Burwood East, Forest Hill and Vermont South data, 938 places), June 2023	184	198	213	221	229	45
Number of Long Day Child Care centres	120	Total number of facilities required based on number of licensed places generated (see above)	ASR Research constructed measure based on a typical large sized long day child care facility.	1.5	1.6	1.8	1.8	1.9	0.4

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Source of measure	2023	2026	2031	2036	2041	Change from 2021 to 2041
Community Centres, Meeting spaces, Neighbourhood Houses & Libraries									
Level 1 community centre	20,000	Population per Level 1 facility for a catchment of 60,000 people	VPA / ASR Research Growth Area Community Centre Planning Guideline	1.78	1.93	2.06	2.18	2.3	0.5
Level 2 community centre	30,000	Population per Level 2 facility for a catchment of 60,000 people	VPA / ASR Research Growth Area Community Centre Planning Guideline	1.19	1.28	1.37	1.45	1.5	0.3
Level 3 community centre	60,000	Population per Level 3 facility for a catchment of 60,000 people	VPA / ASR Research Growth Area Community Centre Planning Guideline	0.59	0.64	0.69	0.73	0.8	0.2
Neighbourhood Houses									
Number of Neighbourhood House users per week	3%	Percentage of population using a Neighbourhod House in a given week	Neighbourhood Houses Victoria, Neighbourhood Houses Survey 2017	1,067	1,155	1,236	1,306	1,374	307
Number of Neighbourhood Houses	22,500	Approximate total population per facility in the City of Whitehorse (2023)	2023 statistic based on 8 existing Neighbourhood House services and a municipal population of approximately 180,000 (2023 estimate)	1.58	1.71	1.83	1.93	2.0	0.5
Libraries									
Number of library loans annum	6.0	Total loans per person	Public Libraries Victoria Network, 2021-22 PLVN Annual Statistical Survey (2022), Whitehorse Manningham Library Service	213,450	231,096	247,290	261,162	274,764	61,314
Number of library visits per annum	1.7	Total visits per person	Public Libraries Victoria Network, 2021-22 PLVN Annual Statistical Survey (2022), Whitehorse Manningham Library Service	60,478	65,477	70,066	73,996	77,850	17,372
Number of library facilities	45,000	Approximate population per library facility	2023 statistic based on 6 branch libraries within the City of Whitehorse and a municipal population of approximately 180,000 (2023 estimate)	0.8	0.9	0.9	1.0	1.0	0.2

Tally Ho MAC Structure Plan: Review of Community Infrastructure Provision and Issues

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Source of measure	2023	2026	2031	2036	2041	Change from 2021 to 2041
Education Enrolment & Facility Estimates									
Primary Schools									
Govt Primary Enrolment	74%	% of 5-11 year old population	Australian Bureau of Statistics, 2021 Census of Population and Housing, based on data for City of Whitehorse LGA	1,982	2,050	2,087	2,172	2,251	269
Catholic Primary Enrolment	14%	% of 5-11 year old population	As above	364	377	384	399	414	49
Non Govt Primary Enrolment	9%	% of 5-11 year old population	As above	230	238	243	252	262	31
Total Primary Enrolment	96%	% of 5-11 year old population	As above	2,580	2,668	2,716	2,827	2,930	350
Govt Primary School	3,000	Total number of dwellings per facility	Department of Education	4.6	4.9	5.2	5.6	5.9	1.3
Secondary Schools									
Govt Secondary Enrolment	53%	% of 12-17 year old population	Australian Bureau of Statistics, 2021 Census of Population and Housing, based on data for City of Whitehorse LGA	1,263	1,429	1,490	1,525	1,582	319
Catholic Secondary Enrolment	19%	% of 12-17 year old population	As above	453	513	535	547	568	115
Non Gov Secondary Enrolment	22%	% of 12-17 year old population	As above	526	595	621	635	659	133
Total Secondary Enrolment	94%	% of 12-17 year old population	As above	2,243	2,538	2,647	2,709	2,809	567
Govt Secondary School	10,000	Total number of dwellings per facility	Department of Education	1.4	1.5	1.6	1.7	1.8	0.4
TAFE									
TAFE Full-Time Enrolment (15 to 24)	3.6%	% of 15-24 year old population	Australian Bureau of Statistics, 2021 Census of Population and Housing, based on data for City of Whitehorse LGA	161	181	197	206	212	51
TAFE Full-Time Enrolment (25+)	0.7%	% 25 + year old population	As above	179	193	207	220	233	54
TAFE Part-Time Enrolment (15 to 24)	1.9%	% of 15-24 year old population	As above	85	96	105	109	112	27

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Source of measure	2023	2026	2031	2036	2041	Change from 2021 to 2041
TAFE Part-Time Enrolment (25+)	0.8%	% 25 + year old population	As above	210	227	244	259	274	64
Total TAFE Enrolments				636	696	752	793	831	195
Universities									
University Full-Time Enrolment (15 to 24)	38.2%	% of 15-24 year old population	Australian Bureau of Statistics, 2021 Census of Population and Housing, based on data for City of Whitehorse LGA	1,714	1,923	2,101	2,189	2,254	540
University Full-Time Enrolment (25+)	2.6%	% 25 + year old population	As above	658	710	762	810	858	199
University Part-Time Enrolment (25 to 24)	2.7%	% of 15-24 year old population	As above	119	134	146	152	157	38
University Part-Time Enrolment (25+)	1.6%	% 25 + year old population	As above	419	452	486	516	546	127
Total University Enrolments				2,911	3,218	3,495	3,667	3,815	904
Primary & Acute Health Services									
Number of public and private hospital beds	3.55	Number of public and private beds per 1,000 people	Australian Institute of Health & Welfare, Hospital resources 2017–18: Australian hospital statistics	126	137	146	155	163	36
Number of public hospital beds	2.34	Number of public beds per 1,000 people	Australian Institute of Health & Welfare, Hospital resources 2017–18: Australian hospital statistics	83	90	96	102	107	24
Community health clients	3%	Proportion of population that is a registered community health client	Victorian Auditor-General's report, Community Health Program (June 2018)	1,021	1,105	1,183	1,249	1,314	293
Allied health service sites	1.1	Number of allied health service sites per 1,000 people (Victoria)	Department of Health and Human Services, City of Whitehorse Health Profile 2015 (https://www2.health.vic.gov.au/about/reporting-planning-data/gis-and-planning-products/geographical-profiles)	39	42	45	48	50	11
General practices	0.30	Number of general practice clinics per 1,000 people (Victoria)	Department of Health and Human Services, City of Whitehorse Health Profile 2015 (https://www2.health.vic.gov.au/about/reporting-planning-data/gis-and-planning-products/geographical-profiles)	10.7	11.6	12.4	13.1	14	3

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Source of measure	2023	2026	2031	2036	2041	Change from 2021 to 2041
Dental services	0.40	Number of dental service sites per 1,000 people (Victoria)	Department of Health and Human Services, City of Whitehorse Health Profile 2015 (https://www2.health.vic.gov.au/about/reporting-planning-data/gis-and-planning-products/geographical-profiles)	14.2	15.4	16.5	17.4	18	4
Pharmacies	0.20	Number of pharmacies per 1,000 people (Victoria)	Department of Health and Human Services, City of Whitehorse Health Profile 2015 (https://www2.health.vic.gov.au/about/reporting-planning-data/gis-and-planning-products/geographical-profiles)	7.1	7.7	8.2	8.7	9	2
Projected hospital admissions	507.1	Hospital inpatient separations per 1,000 people (Victoria). Note: projected to increase by 1.6 % per annum until 2026/27.	Department of Health and Human Services, City of Whitehorse Health Profile 2015 (https://www2.health.vic.gov.au/about/reporting-planning-data/gis-and-planning-products/geographical-profiles)	18,040	19,531	20,900	22,073	23,222	5,182
Emergency presentations	192.2	Emergency department presentations per 1,000 people (Victoria). Note: projected to increase by 2.9% per annum until 2026/27	Department of Health and Human Services, City of Whitehorse Health Profile 2015 (https://www2.health.vic.gov.au/about/reporting-planning-data/gis-and-planning-products/geographical-profiles)	6,838	7,403	7,922	8,366	8,802	1,964
Drug & alcohol clients	3.4	Number of registered Alcohol & Drug Treatment clients per 1,000 people (Victoria)	Department of Health and Human Services, City of Whitehorse Health Profile 2015 (https://www2.health.vic.gov.au/about/reporting-planning-data/gis-and-planning-products/geographical-profiles)	121	131	140	148	156	35
Mental health clients	8.6	Number of registered mental health clients per 1,000 people (Victoria)	Department of Health and Human Services, City of Whitehorse Health Profile 2015 (https://www2.health.vic.gov.au/about/reporting-planning-data/gis-and-planning-products/geographical-profiles)	306	331	354	374	394	88
Aged Care									
Aged Care									

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Source of measure	2023	2026	2031	2036	2041	Change from 2021 to 2041
Number of aged care places (residential and home care)	123	Number of aged care places per 1000 people aged 70 years +	Australian Government Planning Ratio 2019	734	720	723	745	787	53
Short Term Restorative Care Programme	2	Number of STRC places per 1000 people aged 70 years +	Australian Government Planning Ratio by 2019	12	12	12	12	13	1
Arts & Cultural Activities									
Type of arts / cultural activity participated in (people aged 15 and over)									
Performing in a drama, comedy, musical or variety act	6.2%	% of 15+ population participating in activity	Australian Bureau of Statistics, Participation in Selected Cultural Activities, Australia, 2017–18 (Catalogue Number 4921.0)	1,876	2,035	2,191	2,322	2,448	571
Singing or playing a musical instrument	4.3%	As above	As above	1,301	1,411	1,520	1,610	1,698	396
Dancing	4.8%	As above	As above	1,453	1,575	1,696	1,797	1,895	442
Writing	2.8%	As above	As above	847	919	990	1,049	1,105	258
Visual art activities	1.9%	As above	As above	575	624	671	711	750	175
Craft activities	1.8%	As above	As above	545	591	636	674	711	166
Designing websites, computer games or interactive software	2.8%	As above	As above	847	919	990	1,049	1,105	258
Fashion, interior or graphic design	5.7%	As above	As above	1,725	1,871	2,014	2,134	2,250	525
Type of arts / cultural activity participated in (children aged 0 to 14)									
Drama activities	8%	% of 0-14 population participating in activity	Australian Bureau of Statistics, Participation in Selected Cultural Activities, Australia, 2017–18 (Catalogue Number 4921.0)	303	325	330	341	354	51

Community Infrastructure Category	Provision ratio / participation Rate	Description of measure	Source of measure	2023	2026	2031	2036	2041	Change from 2021 to 2041
Singing or playing a musical instrument	23%	As above	As above	883	947	960	992	1,031	147
Dancing	17%	As above	As above	638	684	693	716	744	106
Art and craft activities	39%	As above	As above	1,490	1,598	1,619	1,673	1,739	248
Creative writing	23%	As above	As above	864	927	939	970	1,008	144
Creating digital content	17%	As above	As above	634	680	689	712	739	106
Screen based activities	90%	As above	As above	3,468	3,719	3,768	3,895	4,046	578
Reading for pleasure	79%	As above	As above	3,015	3,233	3,276	3,386	3,518	502

Appendix 2 – Audit of Existing & Planned Community Infrastructure in Study Area

Figure 5 - Location of Nearest Early Years Services

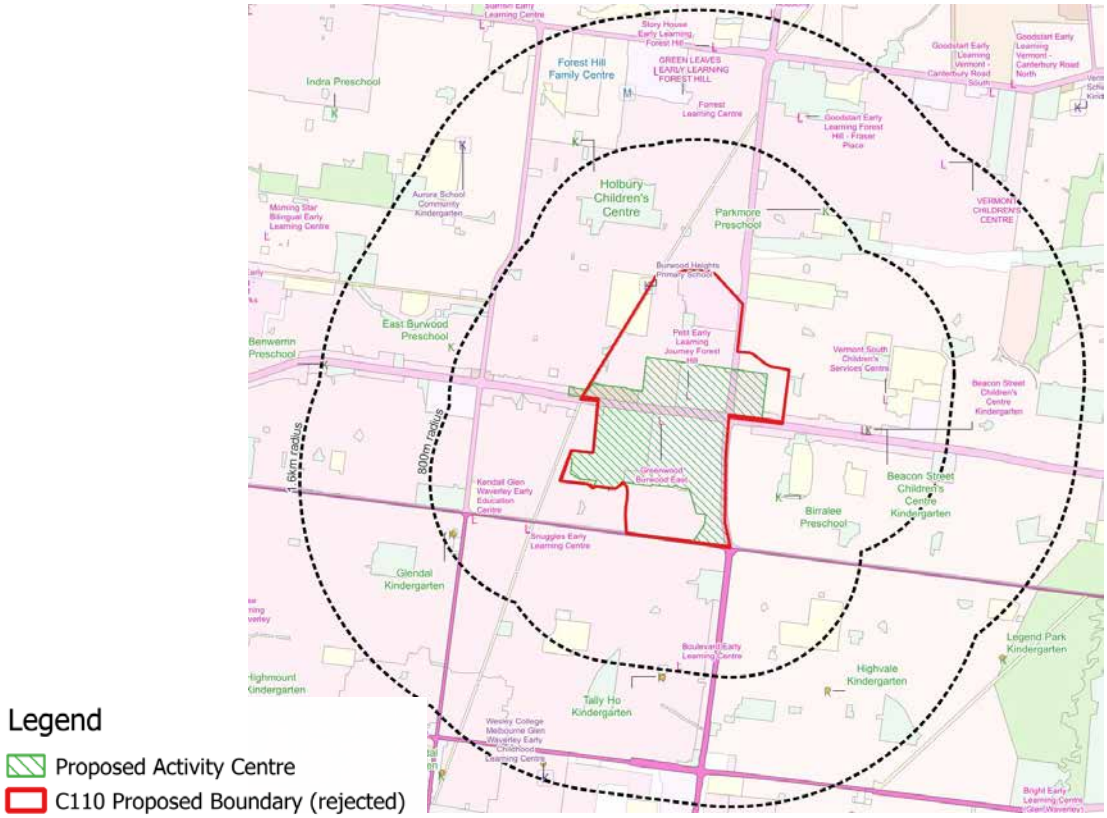


Figure 6 – Location of Nearest Education Facilities

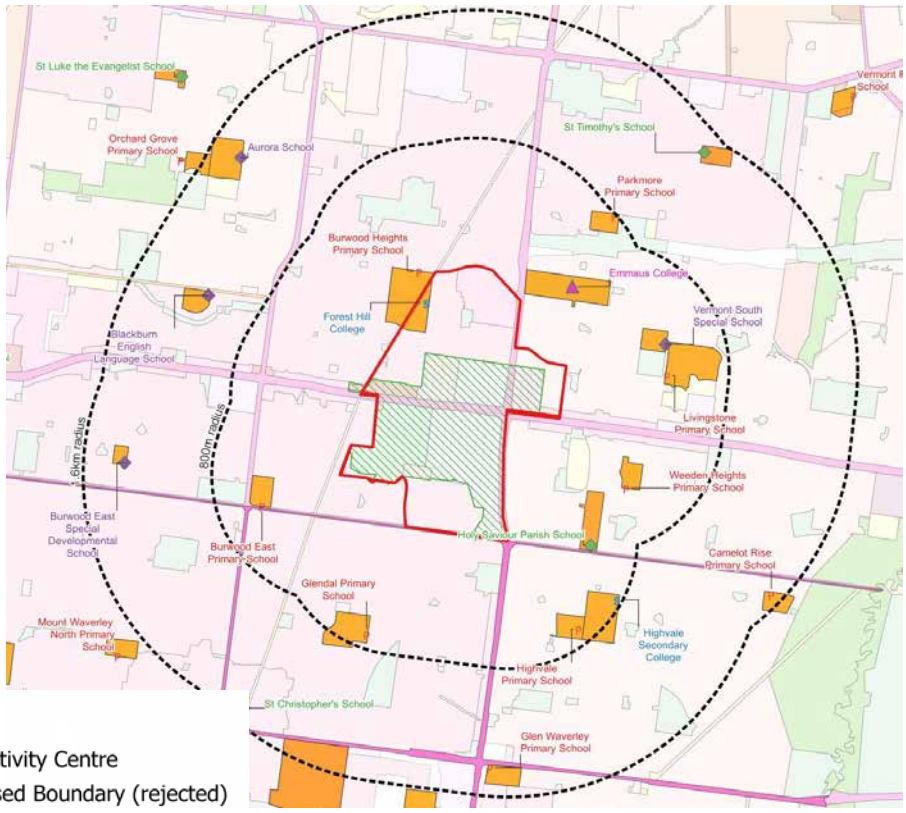


Figure 7 - Location of Nearest Open Spaces

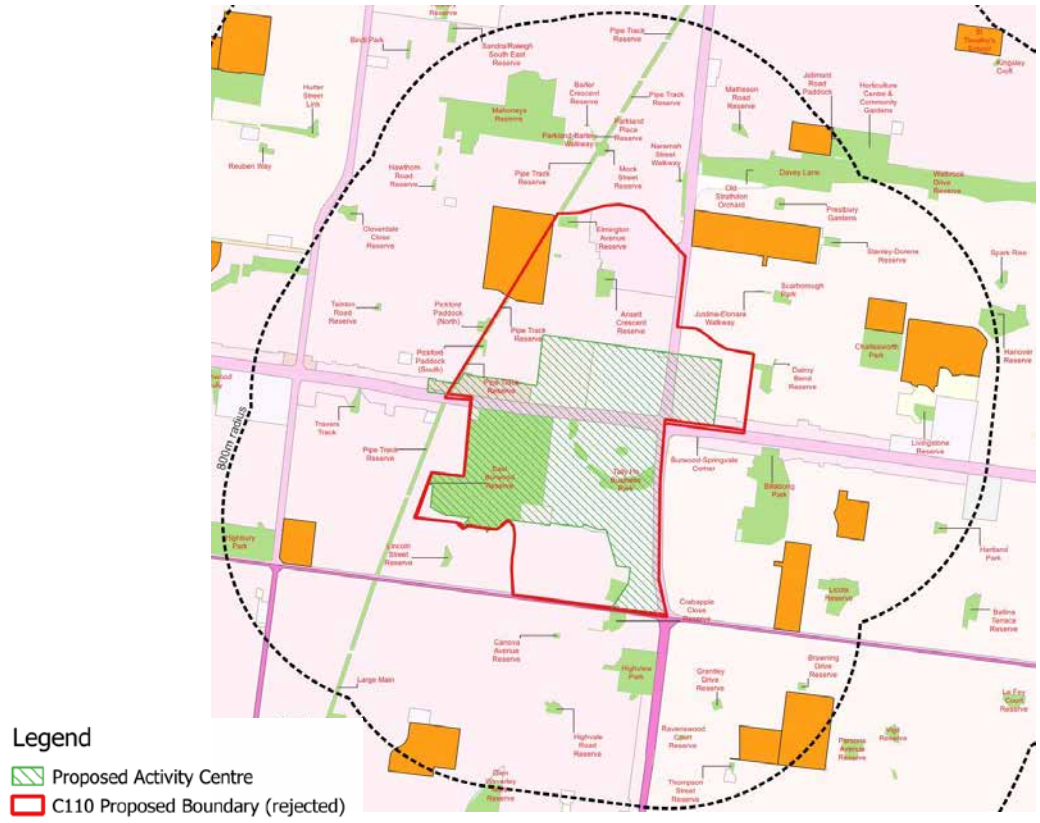


Figure 8 - Location of Nearest Active Open Spaces and Indoor Recreation Facilities

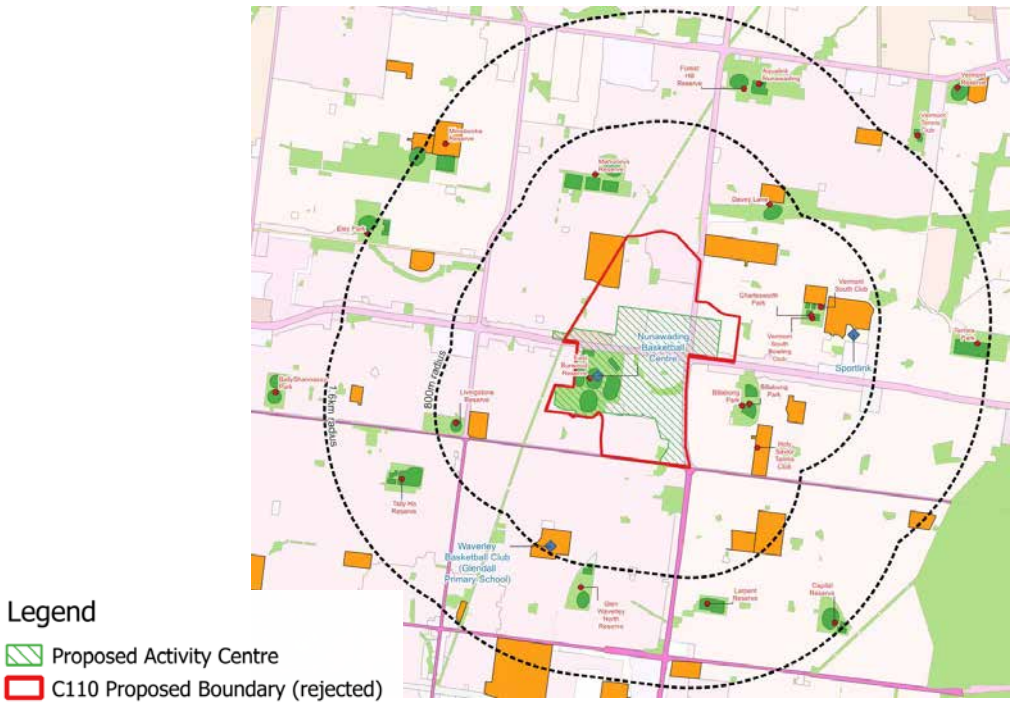


Figure 9 - Location of Nearest Existing Libraries, Neighbourhood Houses, Community Centres and Meeting Spaces

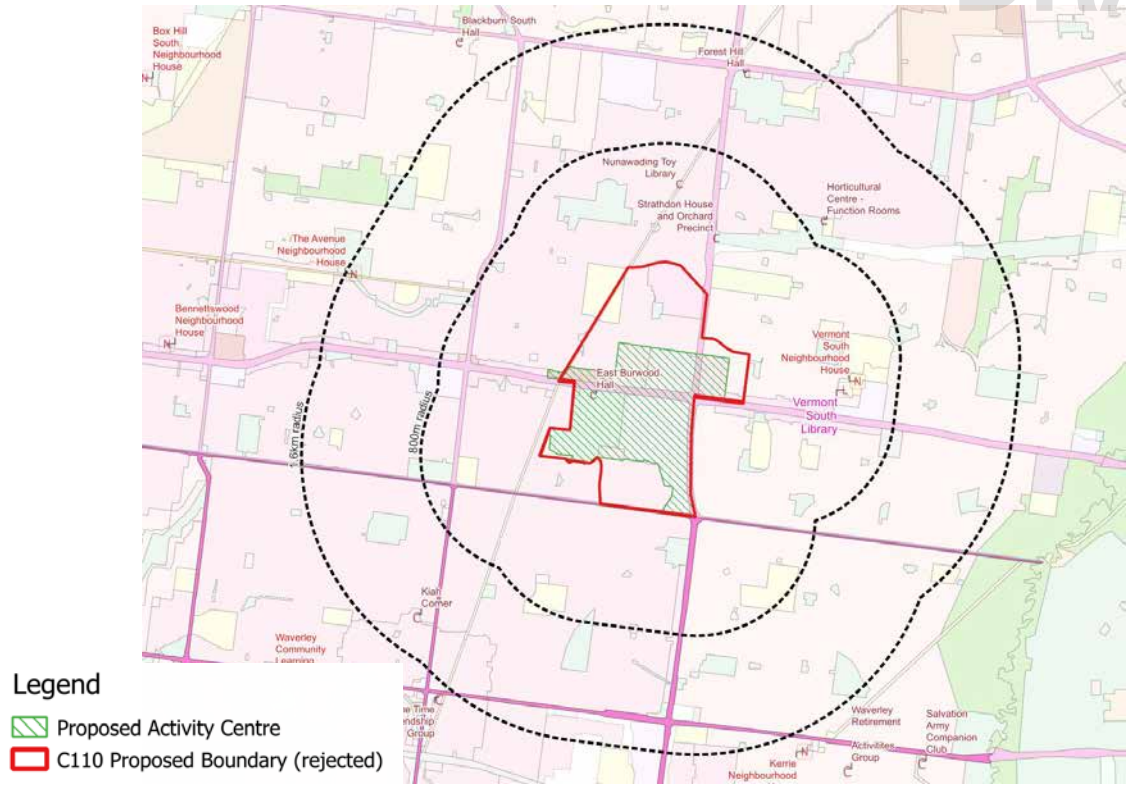


Figure 10 - Location of Nearest Acute & Community Health Facilities

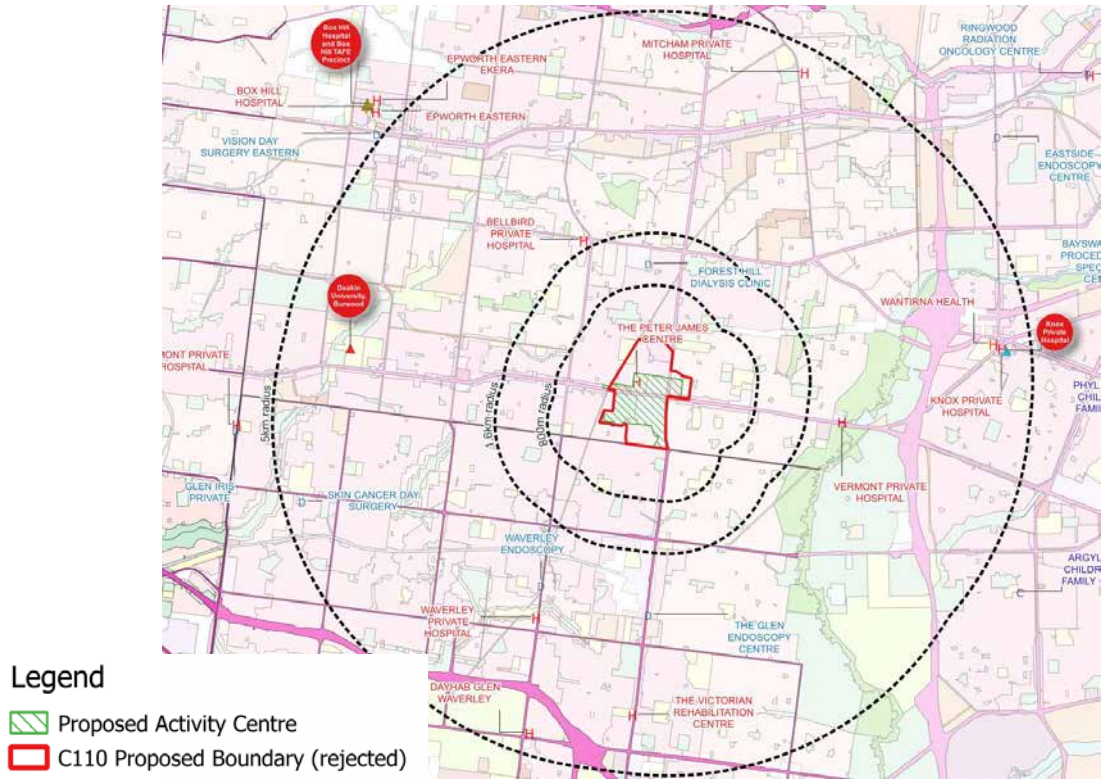


Figure 11 - Nearest Justice, Police & Emergency Services

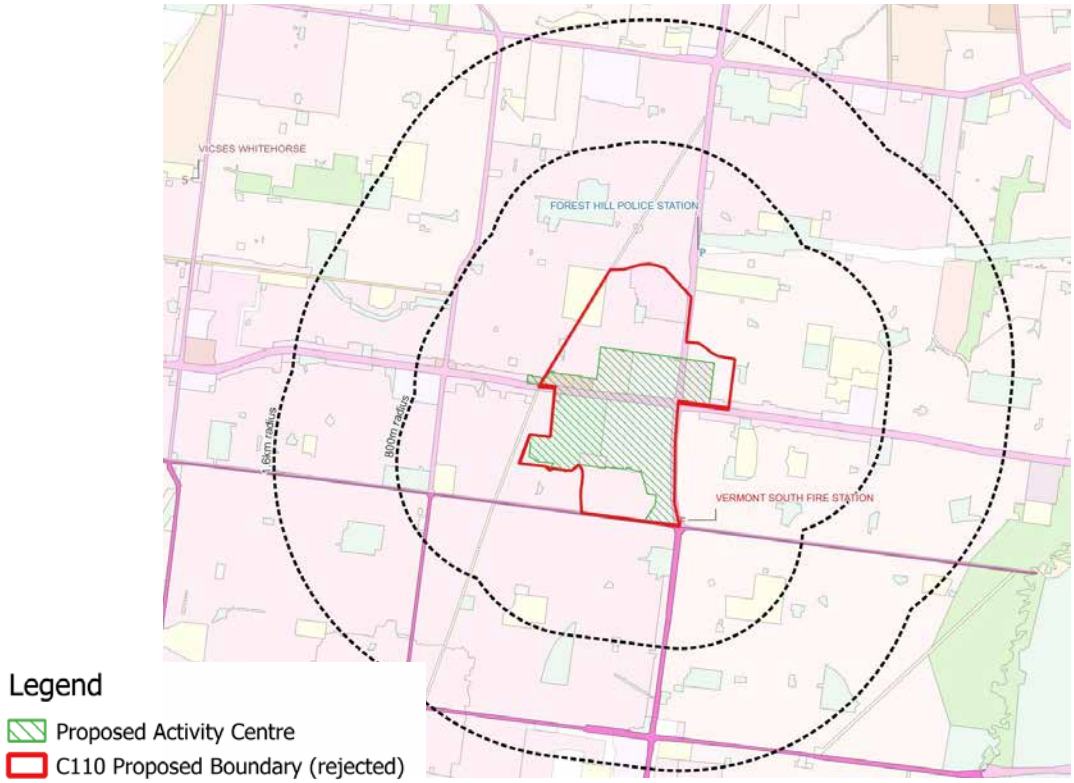
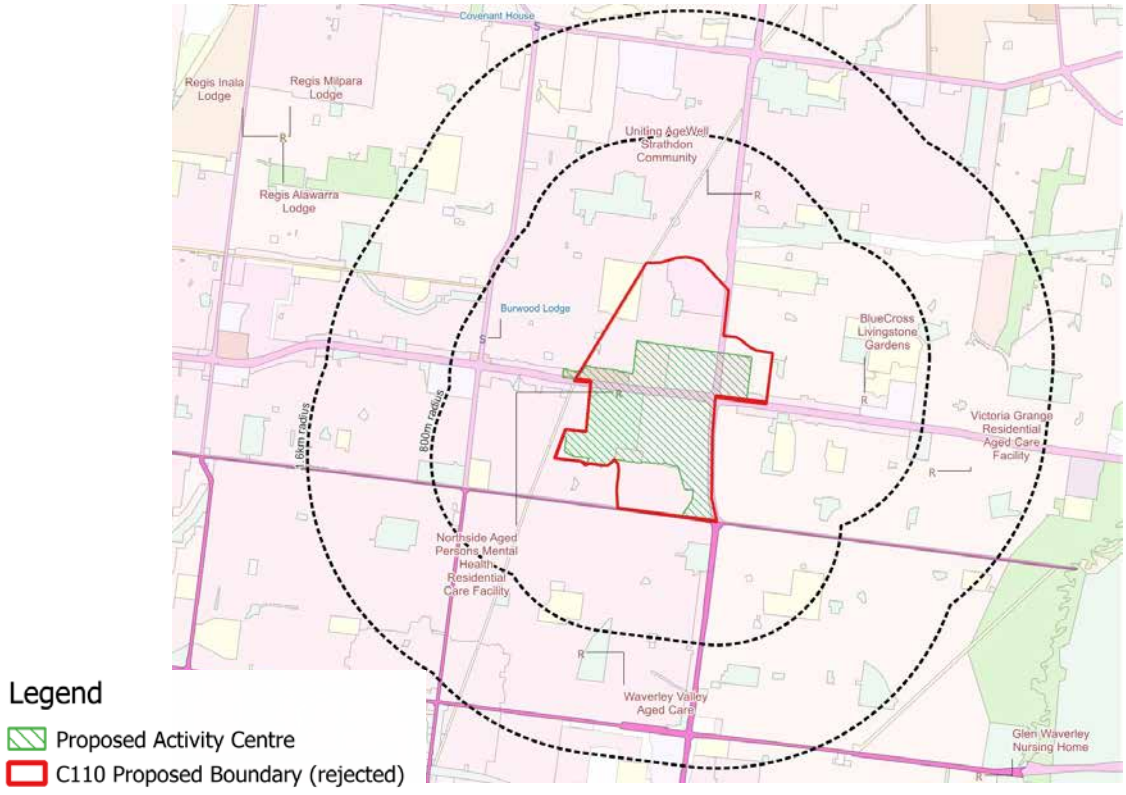
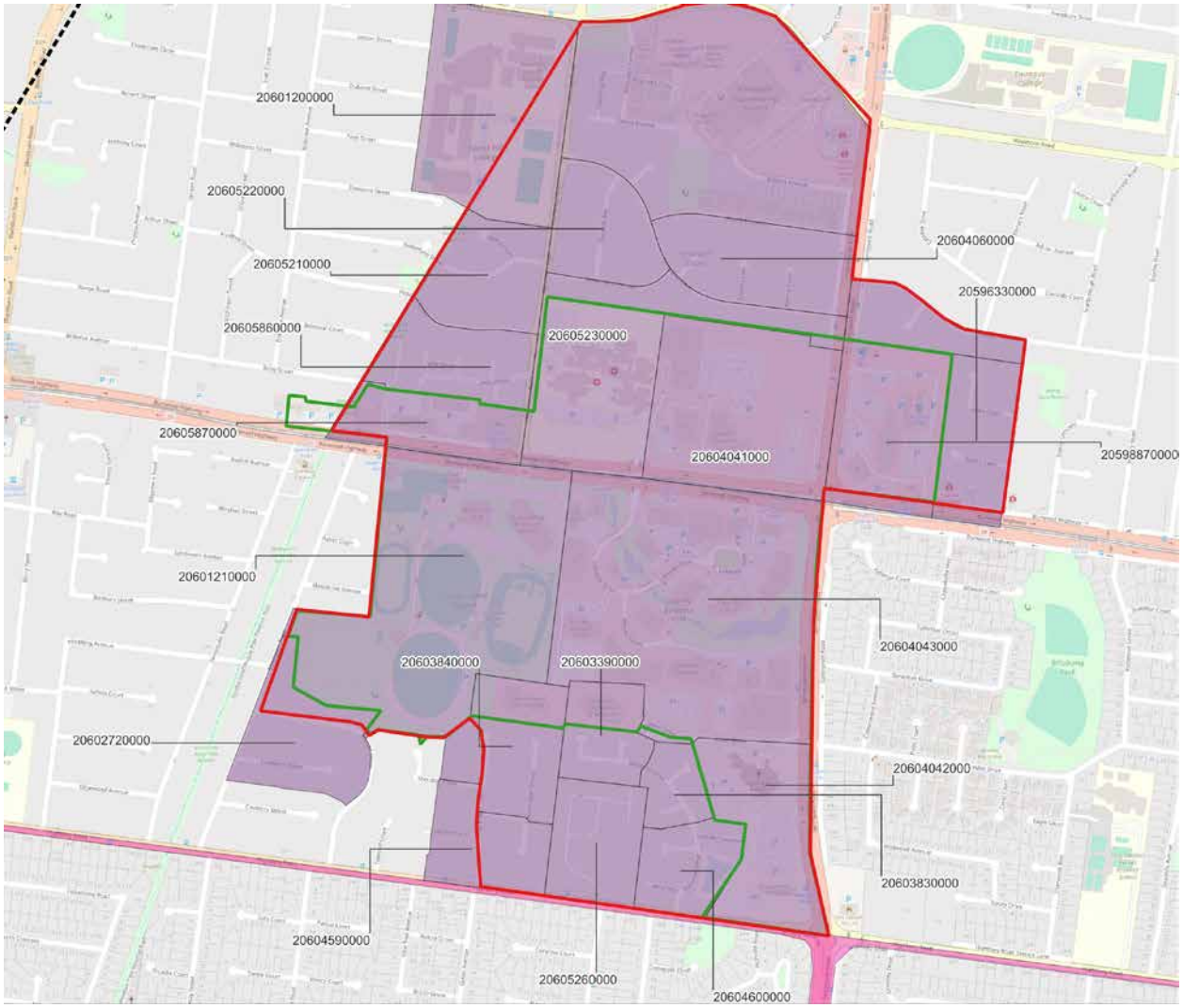


Figure 12 - Location of Nearest Residential Aged Care Services and Supported Residential Services (SRS)

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Tally Ho MAC Structure Plan

Issues and Opportunities - Transport

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6 February 2024

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Prepared by	JJB	**Reviewed by**	SV

one*mile****grid*** *operates from Wurundjeri Woiworung Country of the Kulin nation. We acknowledge and extend our appreciation to the Wurundjeri People, the Traditional Owners of the land. We pay our respects to leaders and Elders past, present and emerging for they hold the memories, the traditions, the culture, and the hopes of all Wurundjeri Peoples.*

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1 INTRODUCTION

onemile**grid** has been requested by MGS Architects to assist with the traffic engineering and transport planning aspects of the Tally Ho Major Activity Centre (MAC) Structure Plan.

This report outlines the site context and identifies key transport issues and opportunities to inform the preparation of the Structure Plan.

As part of this assessment, the context and relevant background information of the MAC study area have been reviewed, and traffic and crash statistic data has been sourced and collated.

2 SITE LOCATION

The Tally Ho MAC (study area) is generally located along the northern and southern sides of Burwood Road near Springvale Road, as shown in Figure 1. A broader study area which has previously been considered and for which traffic data has been collected and assessed is also shown.

Figure 1 Tally Ho Major Activity Centre

Copyright Nearmap

Land uses within the study area vary, and include a number of commercial, health and recreational, such as the Tally Ho Business Park, the Peter James Centre, and the Burwood East Reserve, in addition to some residential uses, including Burwood Terrace retirement village.

3 TRANSPORT CONTEXT

3.1 Road Network Hierarchy

Burwood Highway and **Springvale Road** are declared arterial roads that run east-west and north-south (respectively) through the Tally Ho MAC.

Burwood Highway comprises a divided carriageway with three traffic lanes in either direction, separated by a designated central tram way. Additional lanes are provided at signalised intersections. An 80 km/h speed limit applies to Burwood Highway within the study area.

Springvale Road comprises a divided carriageway with three traffic lanes in either direction, with additional lanes provided at key intersections. An 80 km/h speed limit applies to Springvale Road within the study area.

Mahoneys Road is a Council controlled connector road that extends north from Burwood Highway near the western boundary of the MAC. Mahoneys Road provides a single wide traffic lane in both directions, with kerbside parallel parking permitted on both sides of the road, subject to restrictions. A 50 km/h speed limit applies to Mahoneys Road.

The remaining roads within the study area are local access roads managed by Council. These roads generally facilitate two-way traffic movements and bear 50 km/h speed limits. Kerbside parking is permitted on the majority of these local access roads, with roads in the more commercial areas bearing parking restrictions to manage turnover rates.

3.2 Crash Statistics

Crash history information for the study area was obtained through VicRoads CrashStats (the Victorian accident statistics and mapping program) for the period of 2015 – 2020 inclusive. A summary of the crash history is provided in Appendix A, with Figure 2 below illustrating the location of the crashes recorded within the study area.

The data indicates the majority of accidents occurring in the area happen along Burwood Highway or Springvale Road. It is noted that of the 82 accidents that occurred, 1 involved a cyclist, 4 involved pedestrians, 1 resulted in a fatality and 30 involved a vehicle rear ending another.

Figure 2 Study Area Crash History

3.3 Traffic Volumes

In order to ascertain recent and accurate data, **one**mile**grid** commissioned Trans Traffic Surveys to conduct traffic movement counts for the following intersections, as detailed below and shown in Figure 3:

Signalised Intersections

- Hawthorn Road / Springvale Road;
- Highbury Road / Springvale Road;
- Woodvale Court / Lakeside Drive / Burwood Highway; and
- Springvale Road / Burwood Highway.

Unsignalised Intersections

- Mahoneys Road / Burwood Highway; and
- Weeden Drive / Vision Drive / Springvale Road.

Figure 3 Intersection Turning Movement Counts

Copyright Nearmap

The counts were undertaken and recorded in 15-minute blocks on Thursday 13th October 2023 from 6:30 am – 9:30 am and 2:30 pm – 7:00 pm, with the results of the surveys during the AM and PM peak hours summarised below and also provided in Figure 4 and Figure 5 respectively.

Figure 4 AM Peak Hour Traffic Volumes

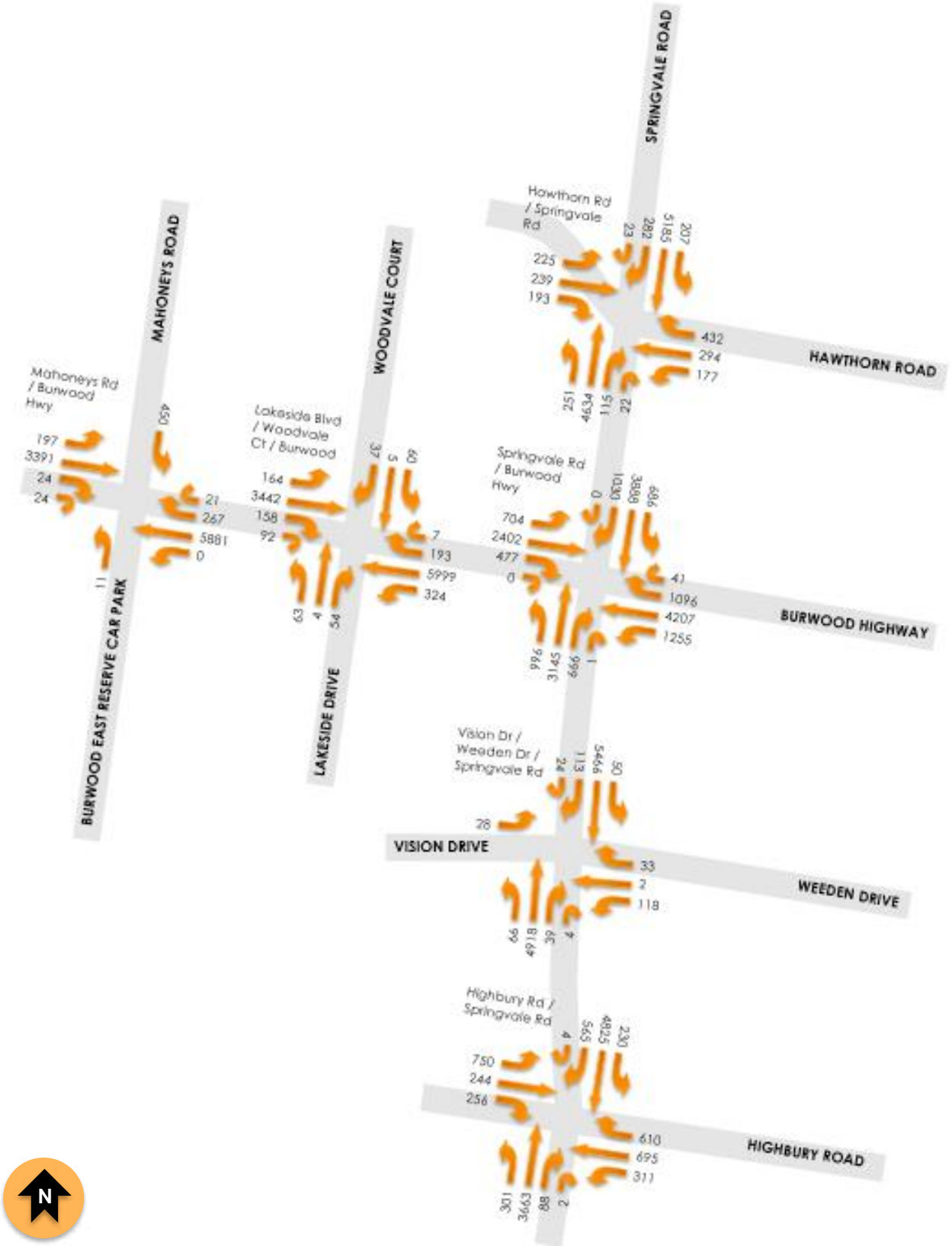
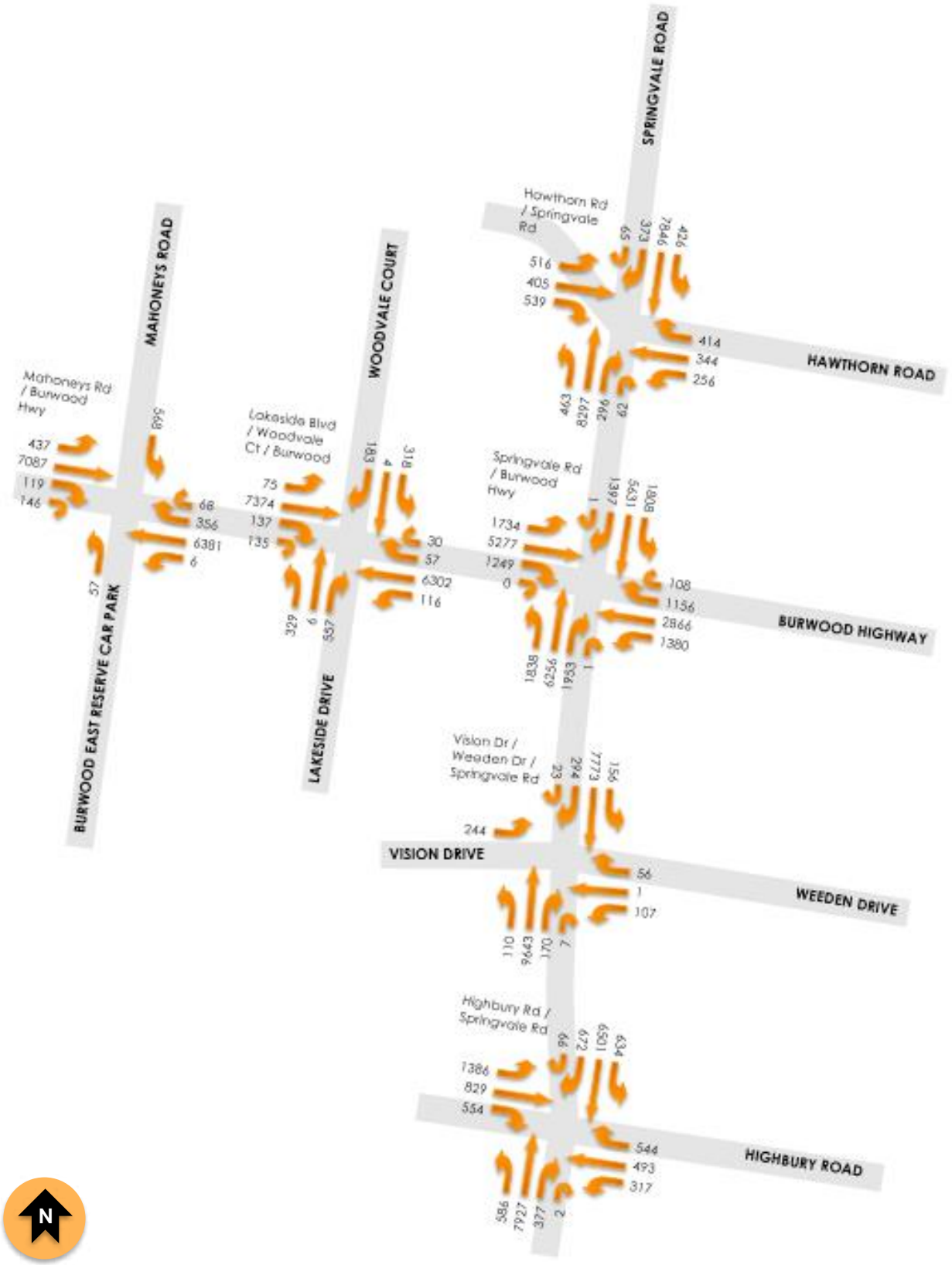


Figure 5 PM Peak Hour Traffic Volumes



3.4 Intersection Operations

To assess the operation of the existing intersections, the traffic volumes have been input into SIDRA Intersection, a traffic modelling software package, which has been developed to provide information on the capacity of an intersection with regard to a number of parameters.

Those parameters considered relevant are the Degree of Saturation (DoS), 95th Percentile Queue, and Average Delay as described below.

Table 1 SIDRA Intersection Parameters

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>Degree of Saturation (DoS)</td><td>The DoS represents the ratio of the traffic volume making a particular movement compared to the maximum capacity for that particular movement. The value of the DoS has a corresponding rating depending on the ratio as shown below.
<table>
<tr><th>Degree of Saturation</th><th>Rating</th></tr>
<tr><td>Up to 0.60</td><td>Excellent</td></tr>
<tr><td>0.61 – 0.70</td><td>Very Good</td></tr>
<tr><td>0.71 – 0.80</td><td>Good</td></tr>
<tr><td>0.81 – 0.90</td><td>Fair</td></tr>
<tr><td>0.91 – 1.00</td><td>Poor</td></tr>
<tr><td>Above 1.00</td><td>Very Poor</td></tr>
</table>
It is noted that whilst the range of 0.91 – 1.00 is rated as ‘poor’, it is acceptable for critical movements at an intersection to be operating within this range during high peak periods, reflecting actual conditions in a significant number of suburban signalised intersections.</td></tr>
<tr><td>Average Delay (seconds)</td><td>Average delay is the time delay that can be expected for all vehicles undertaking a particular movement in seconds.</td></tr>
<tr><td>95th Percentile (95%ile) Queue</td><td>95%ile queue represents the maximum queue length in metres that can be expected in 95% of observed queue lengths in the peak hour</td></tr>
</table>

The results of the analysis are provided in Table 2 and Table 3 as well as in Appendix B.

Table 2 SIDRA Results – AM Peak Hour

Intersection	DoS	Queue (m)	Avg. Delay (sec)
Signalised Intersections			
Hawthorn Rd / Springvale Rd	0.921	311.9	62.3
Highbury Rd / Springvale Rd	0.971	274.3	59.5
Woodvale Crt / Lakeside Dr / Burwood Hwy	0.717	233.6	22.9
Springvale Rd / Burwood Hwy	0.878	223.7	47.6
Unsignalised Intersections			
Mahoneys Rd / Burwood Hwy	>1.00*	57.3*	5.2*
Weeden Dr / Vision Dr / Springvale Rd	>1.00*	348.5*	102.9*

**Queueing and delay analysis for intersections with a DoS greater than 1.00 becomes inaccurate.*

Table 3 SIDRA Results – PM Peak Hour

Intersection	*DoS*	*Queue (m)*	*Avg. Delay (sec)*
Signalised Intersections			
Hawthorn Rd / Springvale Rd	0.896	342.8	48.9
Highbury Rd / Springvale Rd	0.957	403.3	56.1
Woodvale Crt / Lakeside Dr / Burwood Hwy	0.559	157.0	16.4
Springvale Rd / Burwood Hwy	0.980	286.5	58.3
Unsignalised Intersections			
Mahoneys Rd / Burwood Hwy	>1.00*	197.2*	24.2*
Weeden Dr / Vision Dr / Springvale Rd	>1.00*	456.4*	431.6*

**Queueing and delay analysis for intersections with a DoS greater than 1.00 becomes inaccurate.*

The results of the SIDRA analysis above indicate that a number of the major intersections within the MAC are operating near capacity, with long queues experienced during both the AM and PM peak periods.

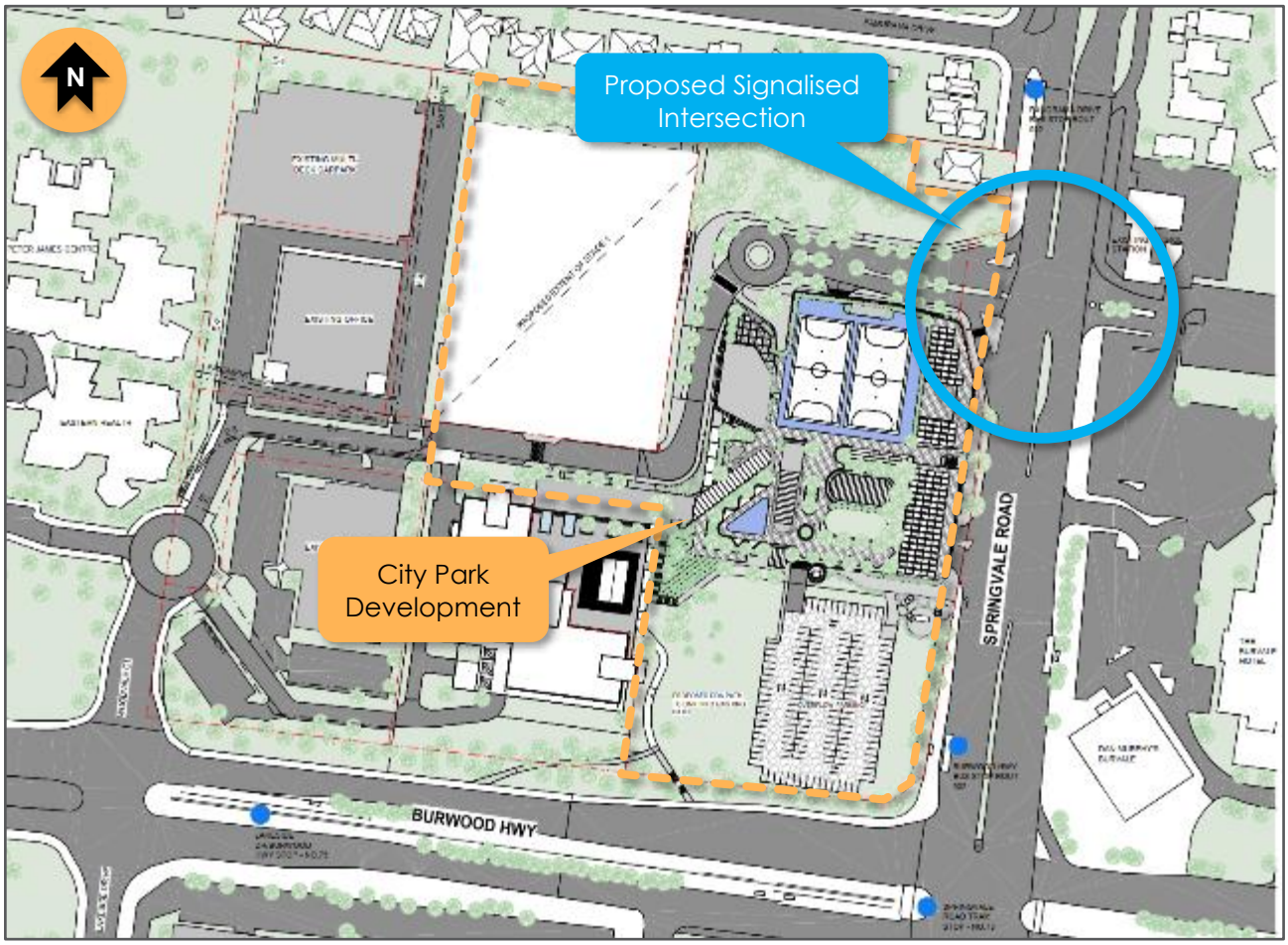
The results also indicated that both of the unsignalised intersections are currently operating with a Degree of Saturation greater than 1.00 in some movements, which suggests that drivers may be undertaking riskier movements and taking smaller gaps when using these intersections. It should be recognised that queuing and delays cannot be accurately assessed for scenarios where the degree of saturation is greater than 1.0.

3.5 Future Intersection Works

The proposed City Park Development is located the north-western corner of the Burwood Highway and Springvale Road, with frontages of approximately 200 m to both roads. Currently, Planning Permits have been approved for Stage 1 and Stage 2 of the development, which involves the construction of two six (6) storey buildings and alterations of access to a Road Zone 1, and the construction of a mixed use shopping centre in a multi storey building constructed above three levels of car parking partly in basement form.

The alterations of the access to a Road Zone 1 involve the provision of a signalised intersection to Springvale Road in the north east corner of the site, opposite the existing northern access to the Burvale Hotel, as shown in Figure 6.

Figure 6 Proposed Signalised Intersection



The above signals will provide additional opportunities for pedestrian and cyclists to cross Springvale Road, in addition to facilitating entry and exit vehicle movements for the proposed development.

Furthermore, the endorsed Traffic Engineering Assessment prepared by Traffix Group for the proposed development plan at 2-18 & 27-29 Vision Drive and 709 Highbury Road, Burwood East (Ref: 14854R#4, dated 17/06/2019) suggested potential mitigation works to improve the performance of right turn movements into Vision Drive from Springvale Road.

The potential mitigation works included a set of pedestrian operated signals at Vision Drive, and/or a metred signal for the right turn lane into Vision Drive from Springvale Road. The potential layout of the pedestrian and metered signals is shown below in Figure 7.

Provision of the pedestrian operated signals would increase the safety for pedestrians crossing Springvale Road between the SmartBus bus stops in this location, and would also provide additional gaps in the northbound traffic on Springvale Road.

Figure 7 Possible Vision Drive Works

3.6 Issues and Opportunities

3.6.1 Issues/Constraints

It is considered that the following matters are issues or constraints in relation to traffic provisions within or around the Tally Ho MAC:

- The SIDRA assessment identified that key intersections are at or near capacity, particularly the unsignlaised intersections where turning movements are uncontrolled.
- The lack of spare capacity at intersections, particularly at the unsignalised intersections, will be a limiting factor in how much additional development can be accommodated within the Tally Ho MAC, unless mitigating works are undertaken.
- The unsiganlised right turn movements across three lanes of 80 km/h traffic at intersections such as Burwood Highway / Mahoneys Road and Springvale Road / Vision Drive / Weeden Drive present a safety risk.
- The majority of traffic volumes on Burwood Highway and Springvale Road are through moving vehicles, not originating in or destined for the Tally Ho MAC. This is in keeping with the classification and purpose of these roads.

3.6.2 Opportunities

The following opportunities should be considered with regard to traffic matters within and around the Tally Ho MAC:

- The proposed City Park development includes a new signalised intersection on Springvale Road. This intersection will remove potentially unsafe unsignlised right turns and replace them with safer controlled right turn movements.
- The Burwood Highway / Lakeside Drive / Woodvale Court intersection was found to operate with spare capacity, which would allow for some increases in future traffic volumes, and therefore future development, on Lakeside Drive and Woodvale Court (note: additional traffic volumes from the future City Park Development have not been considered at this stage).
- Improvements in alterative transport mode use and associated infrastructure (i.e. public transport, walking, cycling etc.) to the area, will help to reduce the impact that current and future developments will have on the operation of these roads.

4 CAR PARKING CONTEXT

4.1 Overview

Car parking within the Tally Ho MAC generally takes the form of on-street public car parking, or off-street private car parking (albeit much of it publicly accessible) which is associated with land uses within the precinct. The closest public off-street car parking is located at the East Burwood Reserve to the West of the MAC.

Much of the private parking is provided in at-grade open-air car parks, which can be quite expansive. There are currently two private multi-deck car parks.

Figure 8 outlines the locations of public on-street parking, and the private multi-deck car parks. The remaining parking within the Tally Ho MAC is provided in the form of at-grade off-street car parks.

Figure 8 Existing Car Parking Provisions

Updated car parking occupancy surveys are not part of the scope of this study, however previous car parking surveys undertaken in 2004 identified that many car parking areas reached capacity.

The Tally Ho MAC is located within the Principal Public Transport Network Area, and as such car parking requirements for new developments are the 'Column B' rates of Clause 52.06 of the Whitehorse Planning Scheme.

4.2 Issues and Opportunities

4.2.1 Issues/Constraints

It is considered that the following matters are issues or constraints in relation to car parking provisions within the Tally Ho MAC:

- Much of the existing car parking supply within the MAC is provided in the form of open air at grade car parking. Parking of this nature is generally not an efficient use of space.
- Public car parking opportunities within the MAC are limited to a few on-street locations, albeit that many of the land uses include privately managed but publicly accessible visitor parking.

4.2.2 Opportunities

It is considered that the following opportunities with regard to car parking could be further explored for the Tally Ho MAC:

- Private staff car parking could be better integrated into built forms to improve efficiency of land use, and to provide better and more active interfaces with public streetscapes.
- Opportunities for shared parking facilities could be considered to consolidate parking locations, which could further open up development opportunities if it is not necessary to provide as much private car parking on each site.
- A Parking Overlay and/or a Cash In Lieu of Parking scheme could be considered to help fund shared parking provisions or other transport projects across the MAC, although it should be acknowledged that such a scheme could discourage development if priced too high.
- Lower car parking provisions/requirements could be considered as a means to make private car travel to the centre less attractive and encourage update of alternative transport modes.

5 PUBLIC TRANSPORT CONTEXT

5.1 Existing Public Transport Services

5.1.1 Overview

The full public transport provision in the vicinity of the study area is shown in Figure 9, and further detailed in Table 4.

Tram route 75 operates along Burwood Highway in a designated central tramway. These services provide connections to/from Burwood railway station, which is located around 8.0 km to the west of the Tally Ho MAC.

Smart Bus route 902 services operate along Springvale Road and provide connections to/from Glen Waverley railway station approximately 2.8 km to the south of the Tally Ho MAC, and to/from Nunawading railway station which is located around 3.8 km to the north.

Figure 9 Public Transport Provision

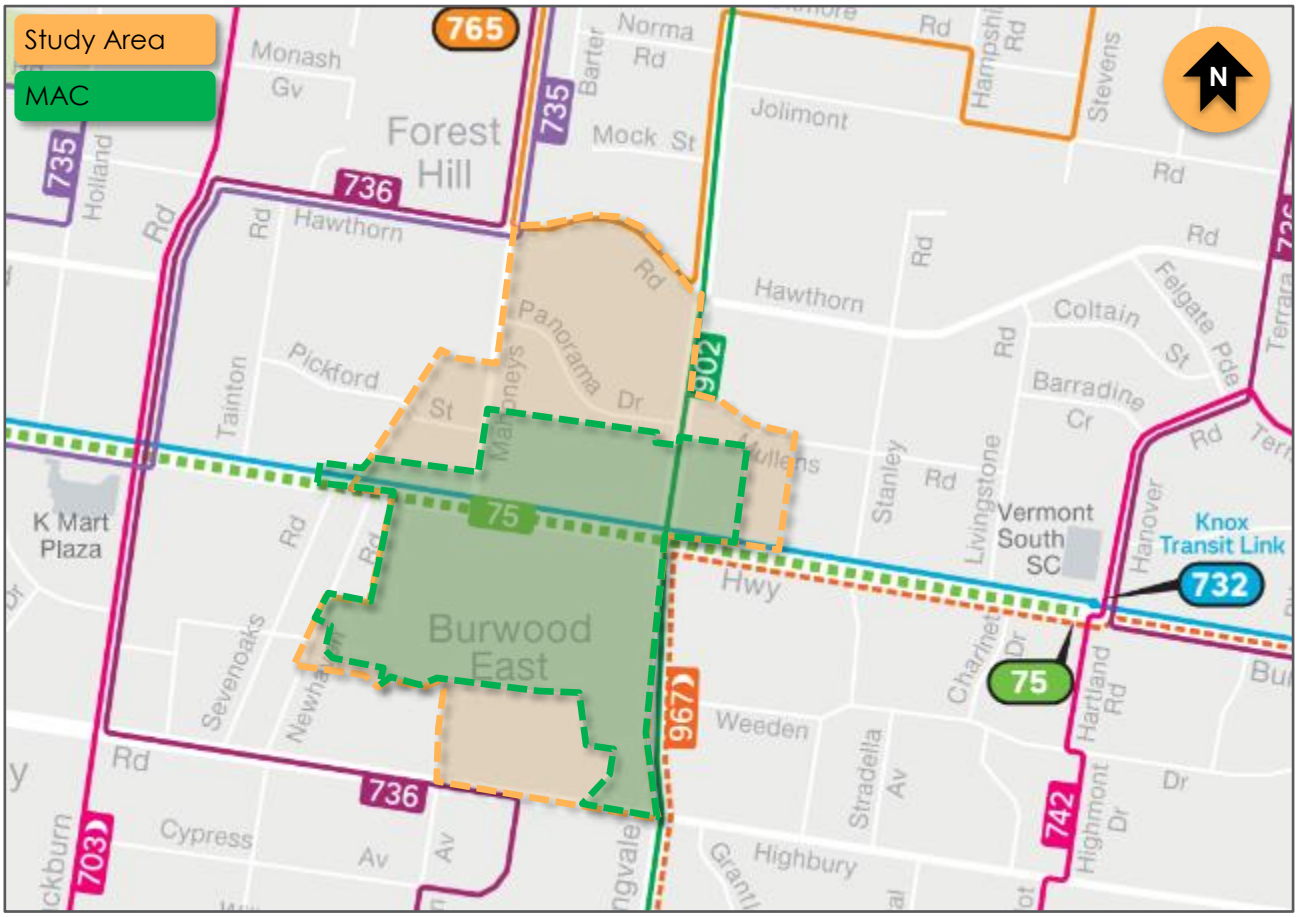


Table 4 Public Transport Provision

Mode	Route No.	Route Description	Approx. Peak Hour Frequency
Tram	75	Vermont South - Central Pier Docklands	10 minutes
Bus	902	Chelsea Railway Station - Airport West Shopping Centre (SMARTBUS Service)	15 minutes
	732	Box Hill - Upper Ferntree Gully via Vermont South & Knox City & Mountain Gate	20 minutes
	967	Glen Waverley Station - Croydon Station via Knox City	Night Bus
	736	Mitcham - Blackburn via Vermont South & Glen Waverley & Forest Hill	30 minutes
	735	Box Hill to Nunawading	30 minutes
	765	Mitcham - Box Hill via Brentford Square & Forest Hill & Blackburn	30 minutes

5.1.2 Smart Bus

SMART Bus Route 902 (Chealsea Railway Station – Airport West Shopping Centre) travels through the MAC study area along Springvale Road, with five stops currently provided within or proximate to the Tally Ho MAC study area, as shown below in Figure 10, and further detailed in Table 5, noting, stops are currently provided on both sides of the road at each of these locations.

Figure 10 SMART Bus Stops

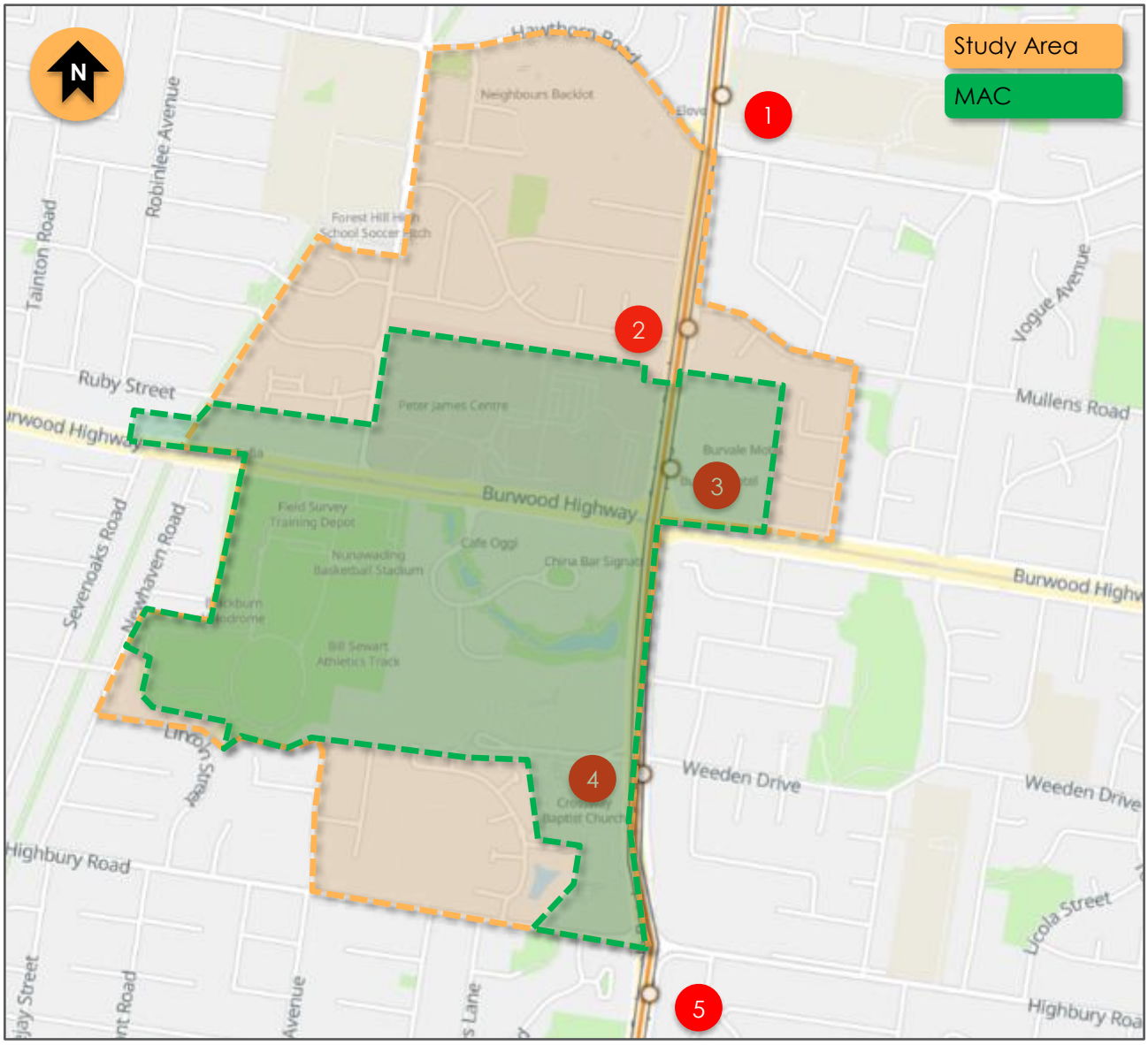


Table 5 Bus Stops

No.	Stops
1	Hawthorn Rd / Springvale Rd
2	Panorama Dr / Mullens Rd / Springvale Rd
3	Burwood Hwy / Springvale Rd
4	Vision Dr / Weeden Dr / Springvale Rd
5	Highbury Rd / Springvale Rd

It is noted that convenient pedestrian connectivity to the Tally Ho MAC is provided for the stops located proximate to signalised intersections. For stops located midway between the intersections however, such as the Panorama Dr / Mullen Rd / Springvale Rd (Stop 2) stops and Vision Dr / Weeden Dr / Springvale Rd (Stop 4) stops, there is limited pedestrian connectivity across Springvale Road.

Pedestrians are forced to cross a minimum 6 lanes of traffic unassisted (see example in Figure 11 below), or walk to the nearest signalised intersection, which are between 300 m and 450 m away from mid-block bus stops, in order to cross Springvale Road.

Figure 11 Weeden Dr/Vision Dr/Springvale Rd

It is noted that for Stop 1, construction of the proposed signalised intersection on Springvale Road at the Burvale Hotel would provide opportunity for pedestrians to cross Springvale Road.

Smart Bus stops within the Tally Ho MAC are generally provided with a shelter and seating, an example of which is shown in Figure 12. This is not true, however, of the northbound stop at the Highbury Road / Springvale Road intersection, which is shown in Figure 13.

Figure 12 Burwood Hwy / Springvale Rd (northbound) Bus Stop & Shelter

Figure 13 Highbury Rd/Springvale Road (northbound) Bus Stop

Powered passenger information displays (PIDs) are currently only provided at the Springvale Road / Hawthorn Road stops. These displays provide real time information about bus arrival times.

5.1.3 Other Bus Services

Bus stop infrastructure for other bus services in or adjacent to the broader study area vary from shelters and seating to simple flags to indicate the stop location. Examples of both of these treatments are shown in Figure 14. In this example, while there is limited scope to provide a shelter and seating on the southern side due to the limited verge width, small upgrades such as a hardstand and tactile ground surface indicators (TGSIs) would improve accessibility for people with disabilities.

Figure 14 Burwood Ret Village/Highbury Rd Bus Stop Infrastructure

5.1.4 Tram Services

The Route 75 Tram (Vermont South – Central Pier Docklands) travels through the MAC study area along the Burwood Highway, with three stops currently provided within or proximate to the MAC area, as shown below in Figure 10 and further detailed in Table 6.

Figure 15 Route 75 Tram Stops

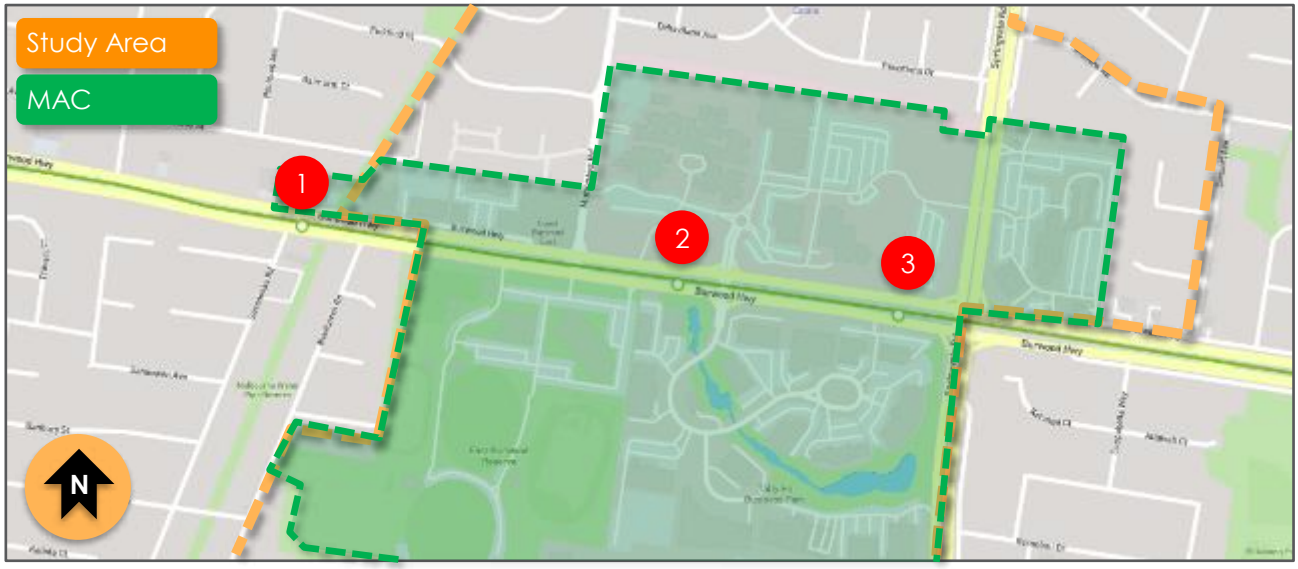


Table 6 Tram Stops

No.	Stops
1	Sevenoaks Rd / Burwood Hwy
2	Lakeside Dr / Burwood Hwy
3	Springvale Rd / Burwood Hwy

Appropriate infrastructure is provided at each of the stops mentioned above, with seating, shelters, lighting, and signage/information provided. Furthermore, pedestrian accessibility to the tram stops is assisted by the proximity to signalised intersections.

Further to the west, it is noted that the existing tram stop at Deakin University is currently provided with pedestrian access via an underpass which connects to both the northern and southern sides of the Burwood Highway. The underpass can be accessed via both stairs and ramps, however access to the tram stop is only possible via a single narrow flight of stairs. As such, the tram stop is not considered accessible.

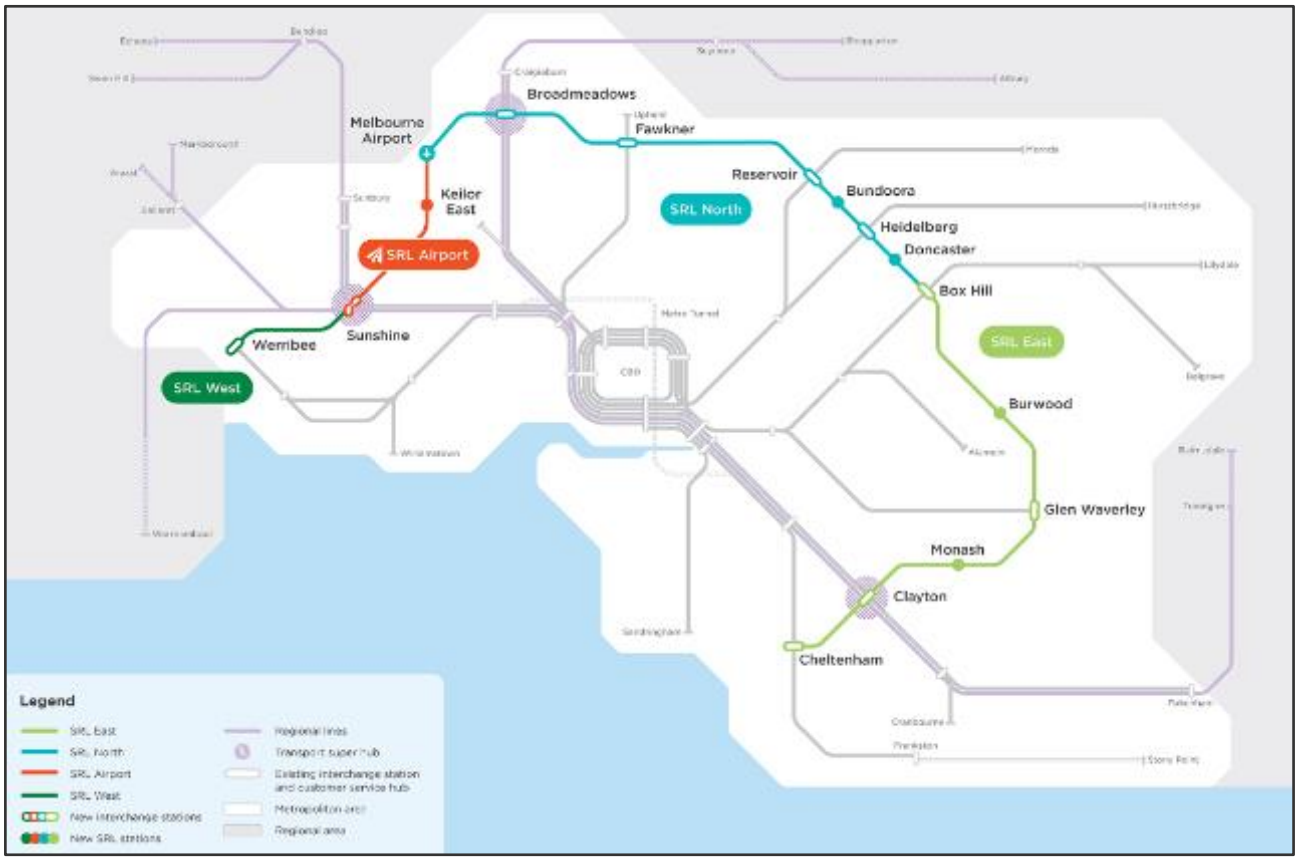
Figure 16 Deakin University / Burwood Hwy Tram Stop

It is noted that this tram stop is not located within the Tally Ho MAC, however, given the connection to the University and the future SRL stop, it is considered important from connectivity perspective for the MAC.

5.2 Suburban Rail Loop

The Suburban Rail Loop (SRL) is a proposed 90 km rail line, which will link Melbourne's major metropolitan rail lines from Werribee Station, on the Werribee Line, to Cheltenham Station on the Frankston Line, via the Melbourne Airport, as shown in Figure 1 below.

Figure 17 SLR Map



As indicated above, the SRL project is divided into four stages, which are described as follows:

- SRL West – Werribee Station to Sunshine Station;
- SRL Airport – Sunshine Station to Melbourne Airport;
- SRL North – Melbourne Airport to Box Hill Station; and
- SRL East – Box Hill Station to Cheltenham Station.

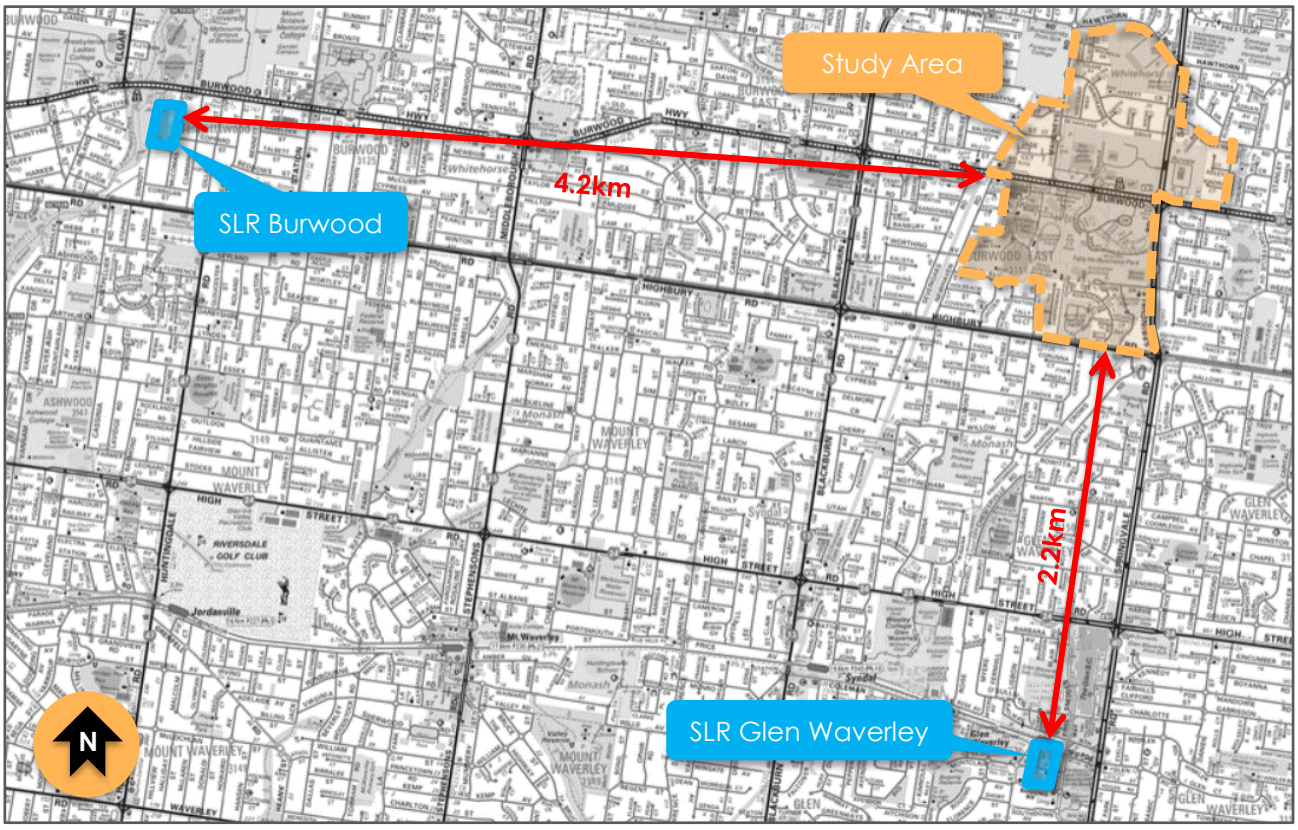
Construction the SRL East stage, which is most relevant to Tally Ho, has already commenced, with works planned to be completed by 2035. Early works on SRL Airport stage are underway, however a review of infrastructure investment is currently being undertaken by the government, and no further contracts are to be awarded during the review period. The SRL North stage has an estimated completion by 2053, whilst completion of the SRL West stage has yet to be determined.

Each of SRL stages will provide a number of new and upgraded stations, with the SRL East stage proposed to provide new underground stations at Cheltenham, Clayton, Monash, Glen Waverley, Burwood and Box Hill, which will provide opportunity to enhance the surrounding neighbourhoods, and allow improved transport connections for housing, employment, health and education.

Proximate to the study area, the proposed Glen Waverly SRL Station is to be located adjacent to the existing Glen Waverley Station, approximately 2.2 km south of the Tally Ho Major Activity Centre (MAC). Furthermore, the proposed Burwood SRL Station is to be located approximately 4.2 km to the west of the Tally Ho MAC, on the southern side of the Burwood Highway, adjacent to Gardiners Creek and opposite Deakin University.

The location of the proposed SRL Stations in relation to the Tally Ho MAC are shown in Figure 18 below.

Figure 18 Proposed Nearby SRL Station Locations



In addition to new rail infrastructure, the SRL is to be in integrated transport and precincts project whereby transit orientated development within a 1.6 km neighbourhood will be encouraged, increasing living and employment options close to the new transport infrastructure.

Though the Tally Ho MAC is located outside of these precincts for both the Glen Waverly and Burwood SRL Stations, it is anticipated that both stations will provide significant improvement to the accessibility of the Tally Ho MAC.

The existing Glen Waverley station is already provided with a bus interchange, that services several bus routes, including the Route 902 Smart Bus, which travels through the Tally Ho Mac.

The proposed Burwood SRL Station will also be integrated with the existing public transport in the area, including a new tram stop proposed outside the station on the Burwood Highway, which will service the Route 75 Tram that travels through the Tally Ho MAC. In addition, a new bus interchange is also proposed adjacent to the station on Sinnott Street, which would service existing bus routes, such as Route 732, which travels along the Burwood Highway through the Tally Ho MAC, in addition to other potential future routes.

Furthermore, bicycle parking is proposed to be provided at both stations, in addition to new and upgraded cycling paths, to provide better connection with the surrounding areas.

5.3 Issues and Opportunities

5.3.1 Issues/Constraints

It is considered that the following matters are issues or constraints in relation to public transport provisions within or around the Tally Ho MAC:

- No bus shelter is currently provided for the northbound bus stop at Highbury Road / Springvale Road.
- Midblock bus stops along Springvale Road have poor pedestrian connectivity to the Tally Ho MAC, requiring pedestrians to cross up to 6 lanes of traffic unassisted.
- Some more minor bus stops on the periphery of the study area feature only a flag to denote the stop location. A hard stand with tactile ground surface indicators would improve access for people with disabilities.
- Some bus services operate a low frequencies, even during peak periods, making them a less attractive option than they would be if frequencies were increased.
- Significant investment by the Department of Transport and Planning (DTP) would be required to upgrade existing public transport infrastructure along Springvale Road and the Burwood Highway.

5.3.2 Opportunities

The following opportunities should be considered with regard to public transport connections to and around the Tally Ho MAC:

- The proposed City Park development includes a new signalised intersection on Springvale Road. This intersection will provide opportunity for pedestrian connectivity to the southbound bus stop at Mullens Road / Springvale Road.
- The potential mitigation options for the intersection of Springvale Road and Vision Drive, could also assist with providing pedestrian connectivity to the southbound bus stop at Weeden Drive / Springvale Road.
- Improvements to existing facilities at tram/bus stops, including shelters, seating, lighting, and potentially powered information displays can be made, to further encourage use of public transport and make public transport infrastructure more accessible for people with disabilities.
- The new suburban rail loop stations at Burwood and Glen Waverley would improve rail access to the precinct, via connecting tram and bus services. Although not necessarily part of the Suburban Rail Loop project, there could be an opportunity to increase the frequency of these connecting services to make travel to/from the site by public transport a more attractive option and to encourage uptake.
- Council could provide an advocacy role to the Department of Transport and Planning (DTP) for improvements to public transport, given the size, nature, and importance of the MAC.

6 PEDESTRIAN CONTEXT

6.1 General

Pedestrian connectivity within the Tally Ho MAC is generally facilitated through footpaths provided on both sides of roads, as well as some separate off-street pedestrian paths such as those around Tally Ho Lake.

However, there are some locations within the study area where footpaths are not provided, such as a small section on the northern side of Lakeside Drive, as shown in Figure 19, and provision of pedestrian facilities should be considered, given it appears pedestrians are currently walking along this side of the road, as indicated in Figure 20.

Figure 19 Lakeside Drive

Figure 20 Evidence of Pedestrian Use

Additionally, there are areas such as near the northbound bus stop on Springvale Road just north of Burwood Highway, where the pedestrian pathway is too narrow and would be an obstruction to users with prams or wheelchairs. This location is shown in Figure 21.

Figure 21 Springvale Road Narrow Footpath

Furthermore, there are some locations where pedestrian connections are lacking, or require pedestrians to walk through private land for a convenient connection.

One such example of this is along the eastern side of the Tally Ho Business Park, with footpath access only provided from Springvale Road at Vision Drive. There appears to be opportunity to provide an external connection at the Tally Ho Lake, to the north of Wesley Court, which would help to provide safe and convenient access to a number of the uses within the Tally Ho Business Park. A possible location for an additional pedestrian connection is shown in Figure 22.

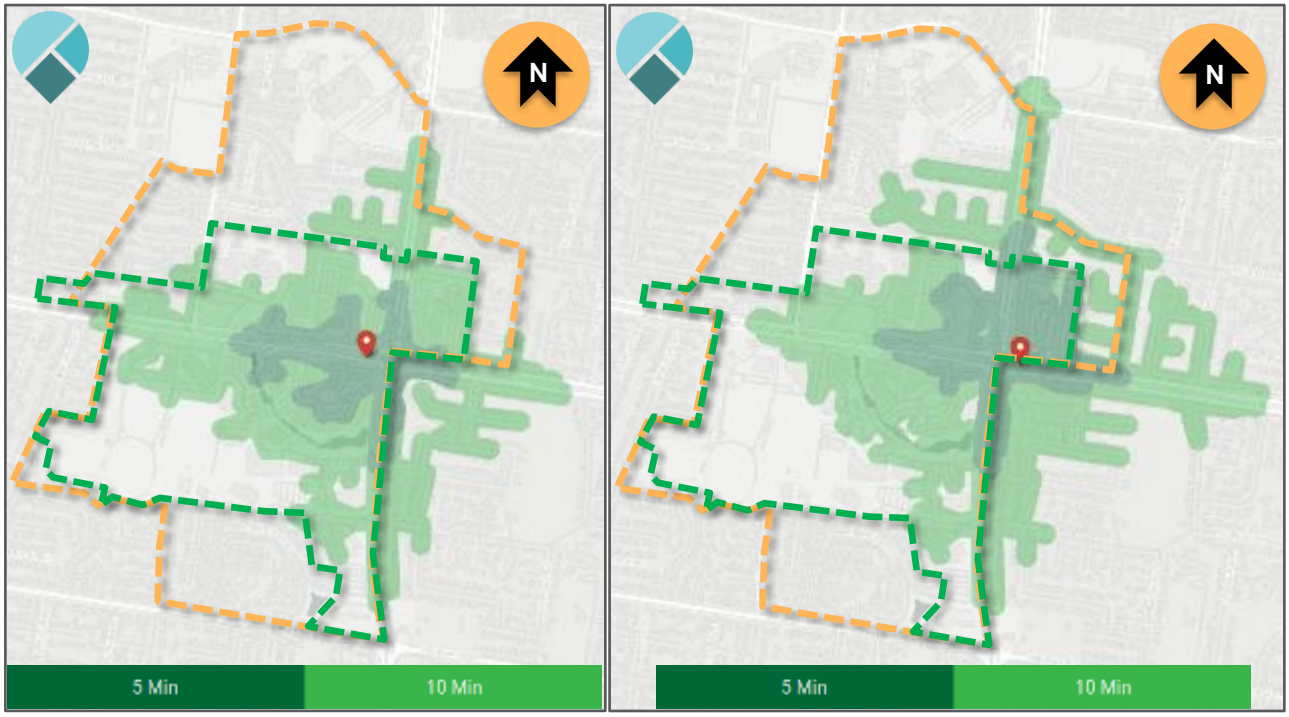
Figure 22 Potential Tally Ho Lake – Springvale Road Pedestrian Connection

Another such example is at the western side of the Tally Ho business park, where the pedestrian connection from Lakeside Drive to the East Burwood Sporting Grounds is provided through private land as shown in Figure 23. This connection is not particularly apparent when walking through the area, and is the only connection apart from the footpath along the Burwood Highway.

Figure 23 Lakeside Drive – Sporting Ground Pedestrian Connection

The following figures have been prepared to demonstrate the walkability (5-10 minute walk) from a number of the public transport stops within or proximate to the Tally Ho MAC.

Figure 24 Springvale Rd/Burwood Hwy Tram Station

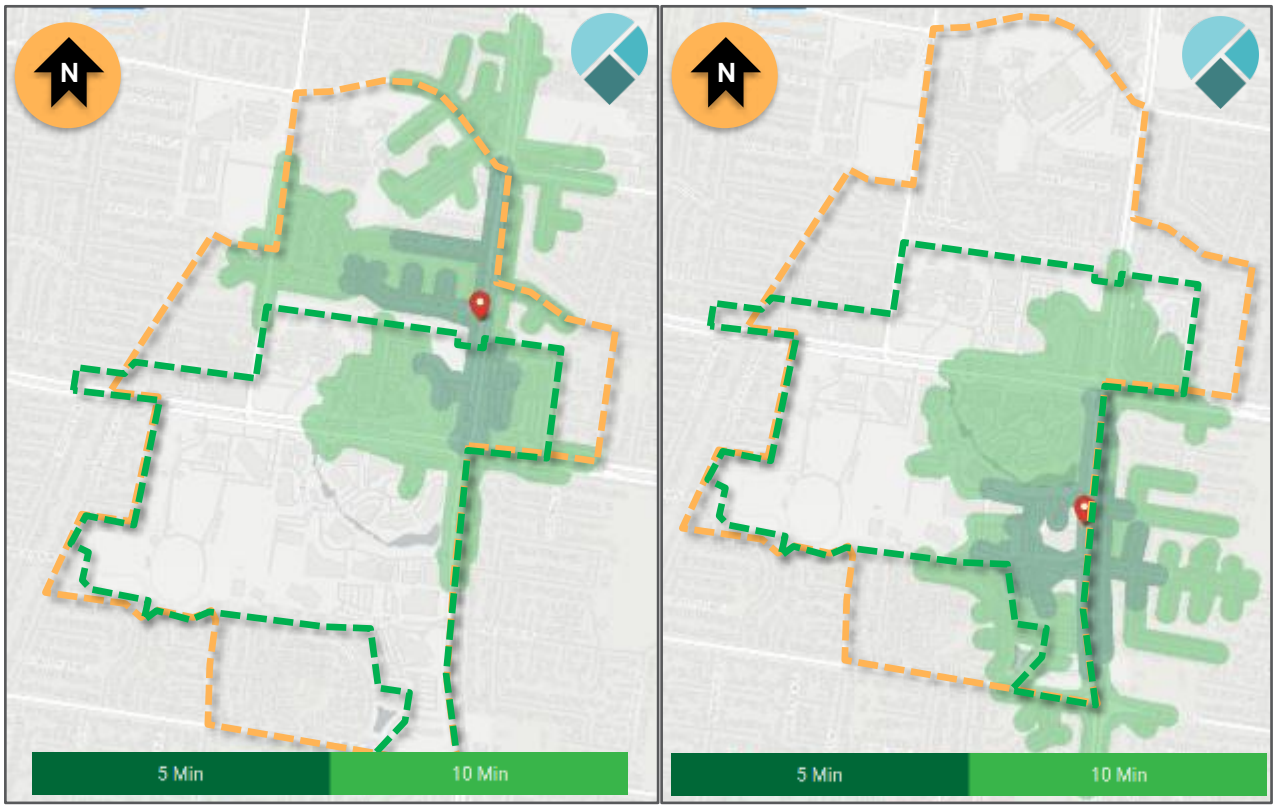


Courtesy of Targomo

Figure 25 Lakeside Dr/Burwood Hwy Tram Station

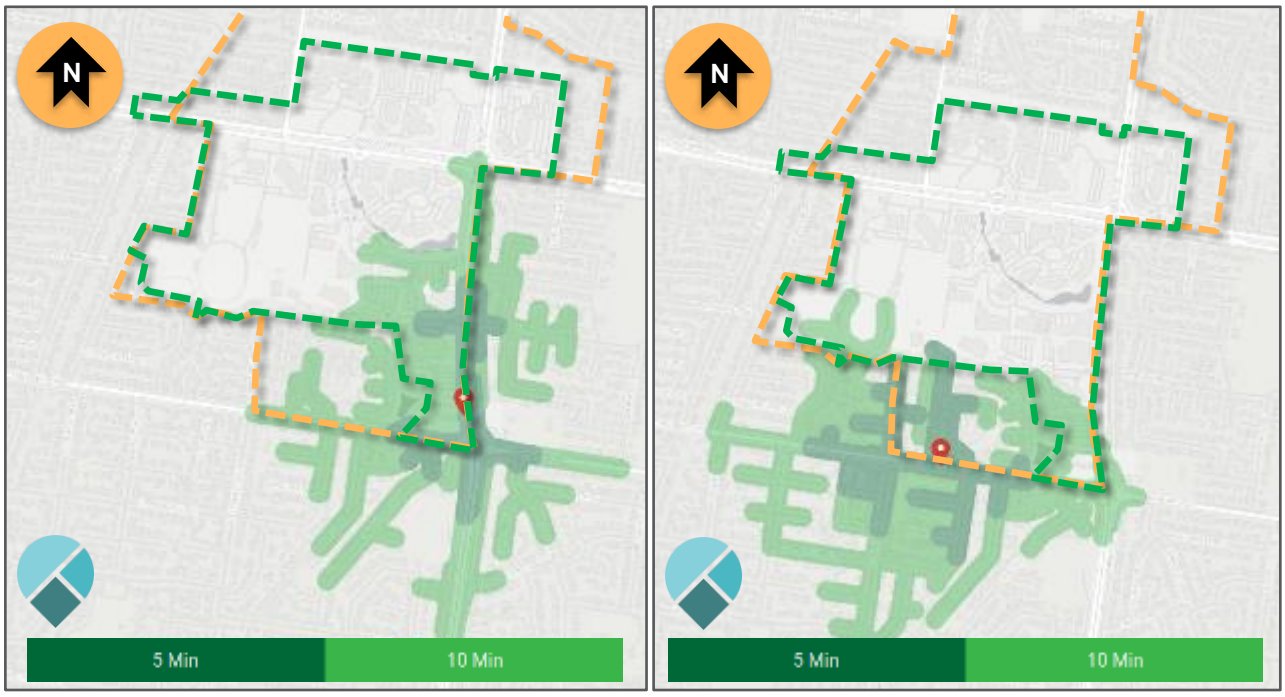
Courtesy of Targomo

Figure 26 Panorama Dr / Springvale Rd and Vision Dr / Springvale Rd Bus Stops



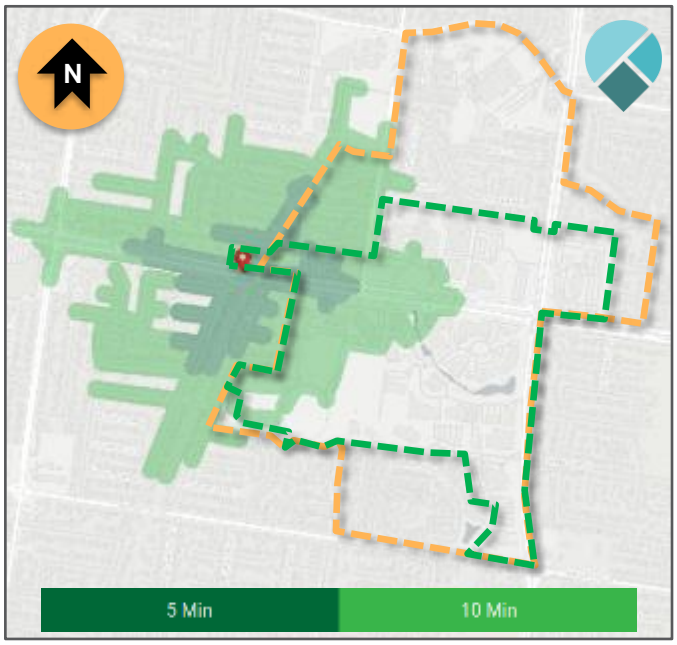
Courtesy of Targomo

Figure 27 Highbury Rd / Springvale Rd and Burwood Ret Village / Highbury Rd Bus Stops



Courtesy of Targomo

Figure 28 Sevenoaks Rd/Burwood Hwy Tram Station



Courtesy of Targomo

As shown, walkability within the study area is constrained by the Burwood Highway and Springvale Road, which are barriers to pedestrian connectivity, in addition to the existing large sites located to the north and south of the Burwood Highway, which limit the ability for both vehicle and pedestrian connectivity.

It is also noted that the topography of the study area also acts a constraint given there are significant level difference across the study area, in both the north-south and east-west direction.

An opportunity that was considered to help improve pedestrian connectivity across the Burwood Highway, involved the removal of the slip lanes at the intersection with Woodvale Court/Lakeside Drive, to reduce the crossing distance for pedestrians.

Due the function and existing operation of the Burwood Highway, as detailed in Section 3, it is recommended that any modifications/improvements to the existing intersections along the Burwood Highway (and Springvale Road) consider the implications on vehicle traffic too.

To assess the impact that this would have on vehicle traffic, the proposed layout was assessed using SIDRA and compared against the existing layout of the intersection, as assessed in Section 3.4, with a summary of the comparison detailed below in Table 7.

Table 7 Woodvale Court / Lakeside Drive / Burwood Highway

Intersection	*DoS*	*Queue (m)*	*Avg. Delay (sec)*
AM Peak Hour			
Existing (Slip Lanes)	0.717	233.6	22.9
Proposed (No Slip Lanes)	0.721	235.6	25.2
Change	**+0.004**	**+2.0**	**+2.3**
PM Peak Hour			
Existing (Slip Lanes)	0.559	157.0	16.4
Proposed (No Slip Lanes)	0.712	211.2	33.8
Change	**+0.153**	**+54.0**	**+17.4**

As indicated above, the removal of the slip lanes would have a detrimental impact on the operation of the intersection from vehicle perspective, although the intersection would still operate within capacity under current traffic volumes. This impact to vehicle capacity is greatest during the PM peak periods, when the majority of movements from the side streets are typically outbound (i.e. accessing the Burwood Highway), and the slip lanes provide additional opportunity for left turning movements.

There is however still opportunity for improvement at this intersection, as it is noted that each of the slip lanes currently provide pedestrian priority in the form of zebra crossing, apart from the slip lane in the northeast from Woodvale Court. It is noted that zebra crossings are currently utilised within all signalised intersections with slip lanes that are located within and proximate to the study area.

As such, to assist with pedestrian connectivity in both the north/south and east/west direction, provision of a zebra crossing in this location, as indicatively shown in Figure 29, should be considered.

Figure 29 Woodvale Court Slip Lane

6.2 Issues and Opportunities

6.2.1 Issues/Constraints

It is considered that the following matters are issues or constraints in relation to pedestrian provisions within or around the Tally Ho MAC:

- There are currently some locations within the study area where additional pedestrian facilities are lacking. These include a small section along the north side of Lakeside Drive, along the eastern side of the Tally Ho Business Park, and between Lakeside Drive and the sports complex to the west. Additionally, pedestrian facilities on the western side of Springvale Road north of Burwood Highway are in a state of disrepair with a pinch point that would be difficult for users with prams or wheelchairs.
- Springvale Road and Burwood Highway pose barriers to pedestrian connectivity east-west and north-south through the MAC respectively.
- Any provision of new or modification of existing pedestrian paths along Springvale Road or the Burwood Highway will require consideration by the Department of Transport and Planning (DTP).

6.2.2 Opportunities

The following opportunities exist for pedestrian facilities within and around the Tally Ho MAC:

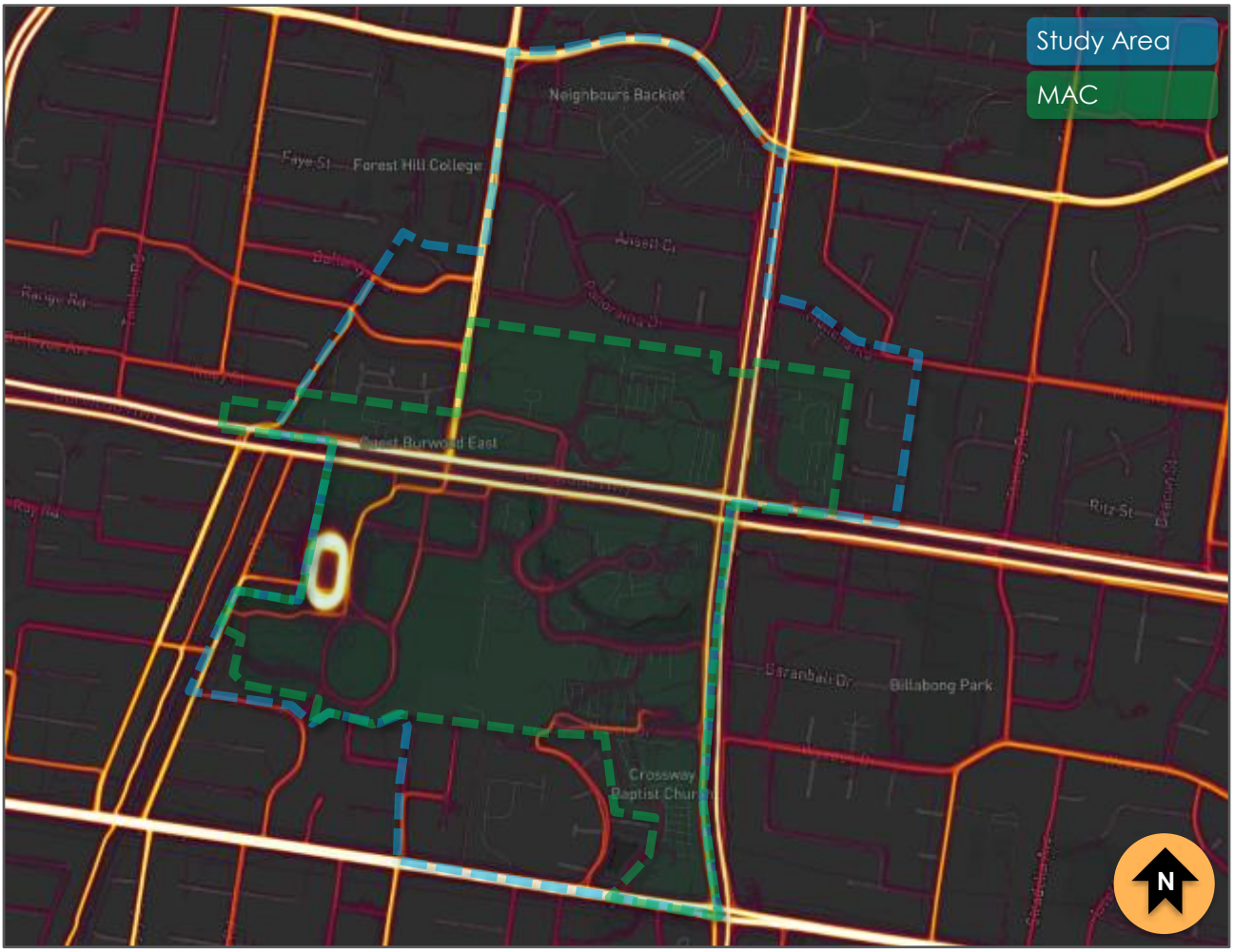
- Improvements to existing pedestrian network, including provision of additional footpaths within the MAC and additional external connections, will help to promote active transport and provide connectivity between the existing and future uses. These include the aforementioned connections on Lakeside Drive, a connection from Springvale Road to Tally Ho Lake, and fixes to issues along the Springvale Road footpath.
- Removal of the existing slip lanes at the intersection of the Burwood Highway and Lakeside Drive / Woodvale Court, could reduce pedestrian crossing distances and improve amenity, however it would negatively impact the operation of the intersection from a traffic perspective. An alternative would be to provide a zebra crossing for the slip lane Woodvale Court to Burwood Highway, which will reinforce the pedestrian priority and assist with pedestrian connectivity across and along Burwood Highway.
- Provision of new traffic signals on Springvale Road associated with future development in the area would provide more pedestrian crossing opportunities over what is currently a significant barrier for east-west pedestrian travel through the precinct.

7 CYCLING CONTEXT

7.1 Overview

A view of the cycling heatmap in proximity to the study area is provided below in Figure 30, with data sourced from Strava's "Global Heatmap" tool. It is noted that routes of higher usage are brighter in colour.

Figure 30 Strava Heatmap - Cycling



Copyright Strava

As shown above, the primary route in and out of the study area appears to be along Highbury Road, along the south of the study area. Other routes within the study area which are heavily utilised by cyclists, albeit to a slightly lesser extent, are Burwood Highway, Mahoneys Road, and Hawthorn Road. Some cycling activity is shown to be present internally within the MAC, however, fewer movements were recorded than on the aforementioned routes.

Bicycle routes are often judged in their entirety by the most stressful portion of the journey, and to encourage cycling, every effort should be made to ensure a safe, continuous, low stress and comfortable bicycle route, suitable for use by cyclist of all ages and abilities.

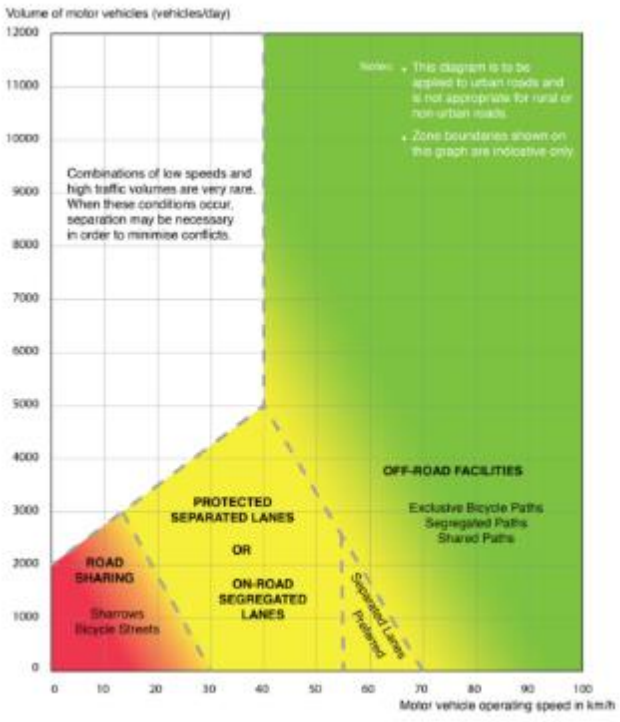
A low-stress and comfortable route will ensure cycling is an attractive prospect and will encourage growth in cycling street usage by facilitating:

- Maintenance of speed when cycling;
- Safe passing distances by drivers;

- Space to ride two abreast;
- Space to ride clear of hazards (e.g., car doors opening, gutters); and
- Smooth riding surfaces.

Shared use of the carriageway by a bicycle is typically acceptable for 85th percentile traffic speeds up to 30 km/h and volumes generally up to 1,500-3,000 vehicles per day. Higher speeds or traffic volumes warrant provision of separated or off-road facilities top manage risks of collisions and rider comfort as per the Austroads figure below.

Figure 31 Cycling Aspects of Austroads Guide (Austroads, 2017)

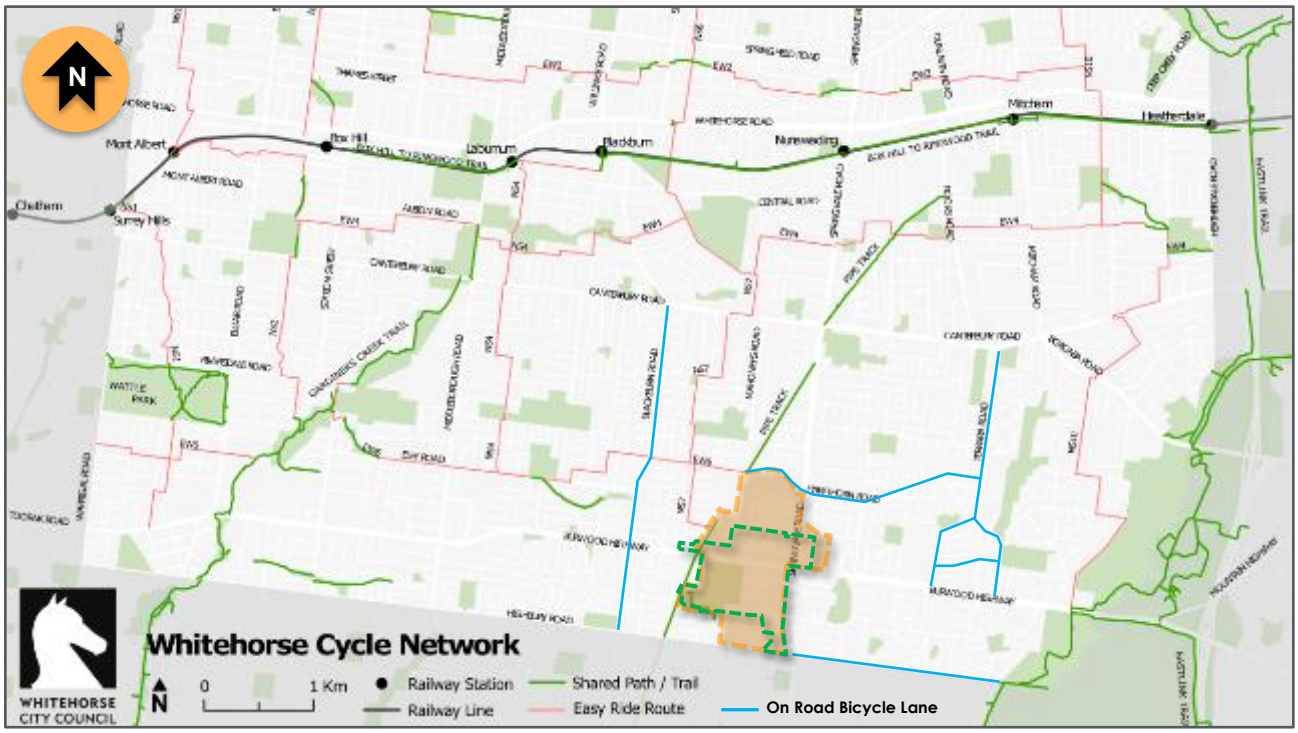


It is noted that all of the roads mentioned previously, that accommodate the majority of cyclist to and from the MAC would warrant separated cycling facilities, based on the above.

Both the Burwood Highway and Springvale Road have limited opportunity for providing on-road or off-road bicycle lanes / shared paths, considering the volume and speed of traffic, and the existing verge widths.

Furthermore, the Cycle Network within Whitehorse, as outlined in Figure 31 below, indicates the off-road paths/trails and 'Easy Ride Routes' in the vicinity of the study area. The Linear Pipe Track runs along the western boundary of the MAC, and provides disconnected access to the north and south, and there are a couple 'Easy Ride Routes' which terminate at the north east corner of the study area.

Figure 32 Whitehorse Cycle Network



onemile**grid** has further reviewed the road network proximate to the study area and have marked up the above plan to demonstrate existing roads with dedicated bicycle lanes, that are not considered part of Whitehorse City Council's Easy Ride Routes.

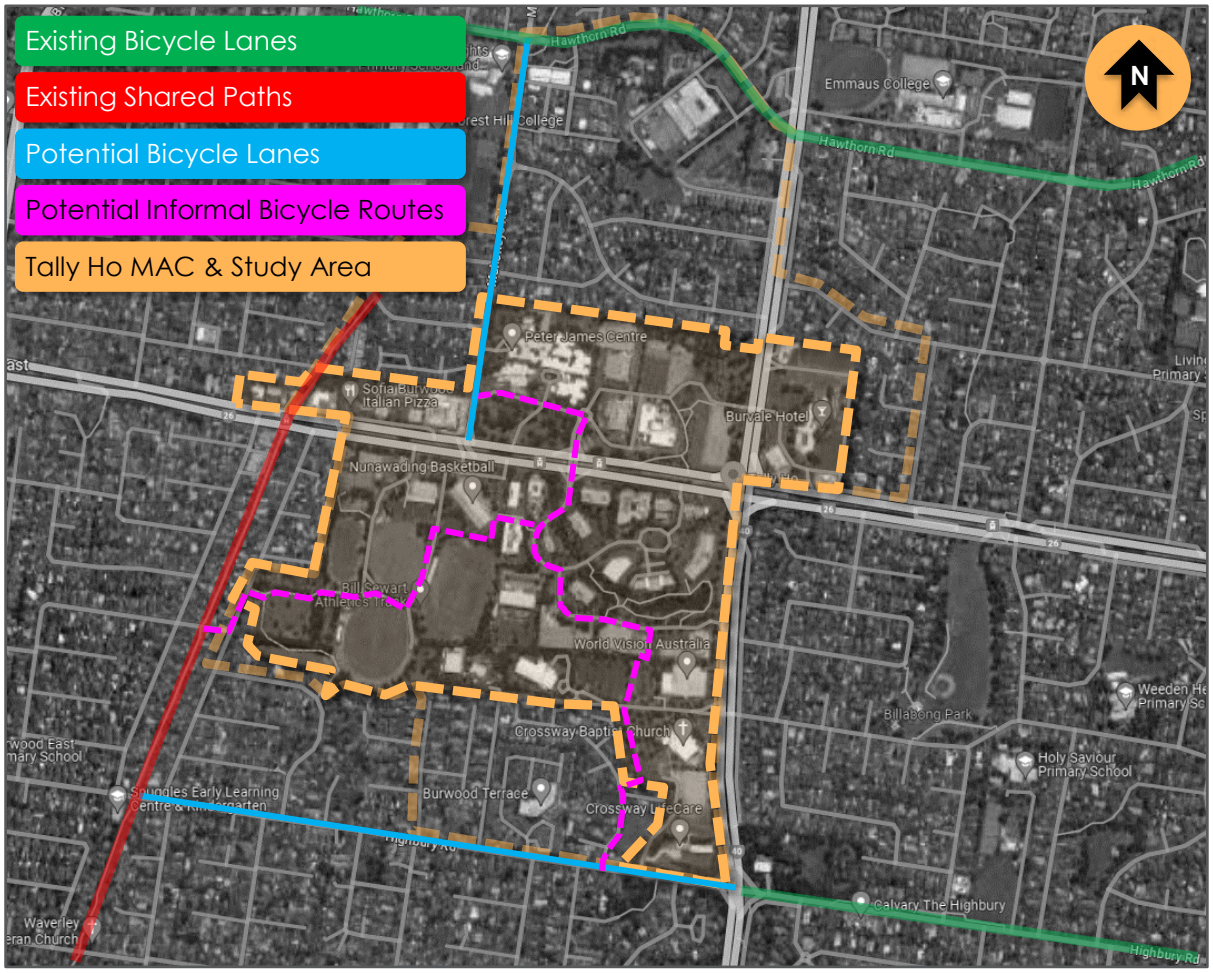
As indicated, Hawthorn Road along the northern boundary of the study area, Highbury Road to the east of Springvale Road, and Blackburn Road to the west of the study area, are all provided with shared on-road bicycle / kerbside parking lanes.

The on-street bicycle lanes on Highbury Road, as shown below in Figure 33, provides connection through to the Dandenong Creek Trail in the east, whilst Hawthorn Road and the 'Easy Ride Route' EW6, which runs along Eley Road, provides connection to the Gardiners Creek Trail in the west.

Figure 33 Highbury Road Layout (looking east)

As such, it is recommended that provision for new and improved cycling connections be considered for the Tally MAC and surrounding areas. This could include, as indicated in Figure 34 below, the extension of the bicycle lanes on Highbury Road along the southern boundary of the study area, and provision of dedicated bicycle lanes along Mahoneys Road, in addition to internal connections throughout the Tally Ho MAC, utilising the local roads and new/existing shared paths.

Figure 34 Cycling Connections



7.2 Issues and Opportunities

7.2.1 Issues/Constraints

It is considered that the following matters are issues or constraints in relation to pedestrian provisions within or around the Tally Ho MAC:

- There are currently limited bicycle facilities (i.e. on-street or off-street lanes/paths) within the MAC or the surrounding area.
- Additionally, the bicycle network beyond the MAC study area is somewhat disjointed, meaning continuous connections to major cycling routes are lacking. This makes it difficult for cyclists on the more casual end of the spectrum to use cycling as a viable travel mode to/from the precinct.

7.2.2 Opportunities

The following opportunities for improvements to cyclist access and connectivity could be considered.

- Extension of the bicycle lanes on Highbury Road along the southern side of the study area, will provide better connectivity to the east.
- Provision of dedicated bicycle lanes along Mahoneys Road, along the western side of the study area will provide better connectivity to the broader bicycle network to the north and west.
- A connection through the Burwood East Sports Precinct to between Lakeside Drive and the linear park to the west would be beneficial.

Table 8 Crash Statistics

Road / Intersection	Severity	Accident Type	DCA Code	Cyclists	Peds	Year
Vision Dr	Serious	Struck Pedestrian	Ped far side, hit by vehicle from the left		1	2016
Hawthorn Rd	Serious	Struck Pedestrian	Ped near side, hit by vehicle from right		1	2017
Hawthorn Rd / Mahoneys Rd	Serious	Collision with vehicle	Cross traffic			2018
Highbury Rd / Robinson Dr	Serious	Collision with vehicle	With vehicle parked on left of road			2018
Highbury Rd / Canova Dr	Other	Collision with vehicle	Rear end (same lane)			2017
Highbury Rd / Carrington Ct	Other	Collision with vehicle	Right rear			2018
	Other	Collision with vehicle	Right far			2019
Springvale Rd	Other	Collision with vehicle	Rear end (same lane)			2015
	Serious	Collision with vehicle	Vehicle strikes another while emerging from driveway			2016
	Serious	Collision with a fixed object	Right off carriageway into object			2016
	Other	Collision with vehicle	Rear end (same lane)			2016
	Serious	Collision with vehicle	Lane change right (not overtaking)			2016
	Other	Collision with vehicle	Rear end (same lane)			2016
	Other	Collision with vehicle	Rear end (same lane)			2016
	Other	Collision with vehicle	Rear end (same lane)			2018
	Serious	Collision with vehicle	Lane change right (not overtaking)			2018
	Other	Collision with vehicle	Right through			2018
	Serious	Collision with vehicle	Rear end (same lane)			2018
	Serious	Collision with vehicle	Rear end (same lane)			2019
	Serious	Collision with vehicle	Left through			2019
	Other	Collision with a fixed object	Right off carriageway into object			2019
	Other	Collision with vehicle	Right through			2019
	Other	Vehicle overturned (no collision)	Out of control on carriageway			2019
	Other	Collision with vehicle	Rear end (same lane)			2020
Springvale Rd / Hawthorn Rd	Other	Collision with vehicle	Rear end (same lane)			2016
	Other	Collision with vehicle	Right through			2017
	Serious	Collision with vehicle	Rear end (same lane)			2018

Road / Intersection	Severity	Accident Type	DCA Code	Cyclists	Peds	Year
	Other	Collision with vehicle	Left rear			2019
Springvale Rd / Vision Dr	Other	Collision with vehicle	Right far			2017
	Other	Vehicle overturned (no collision)	Other accidents-off straight			2019
Springvale Rd / Highbury Rd	Serious	Collision with vehicle	Right through			2015
	Serious	Collision with vehicle	Rear end (same lane)			2015
	Serious	Collision with a fixed object	Right off carriageway into object			2015
	Other	Collision with vehicle	Rear end (same lane)			2015
	Other	Collision with vehicle	Rear end (same lane)			2015
	Other	Collision with vehicle	Rear end (same lane)			2016
	Other	Collision with vehicle	Right through	1		2016
	Serious	Collision with vehicle	Rear end (same lane)			2016
	Other	Collision with vehicle	Right near			2017
	Other	Struck Pedestrian	Ped far side, hit by vehicle from the left		1	2018
	Other	Collision with vehicle	Rear end (same lane)			2018
	Other	Struck Pedestrian	Ped near side, hit by vehicle from right		1	2019
	Other	Collision with vehicle	Rear end (same lane)			2019
	Serious	Collision with vehicle	Rear end (same lane)			2019
	Other	Collision with vehicle	Rear end (same lane)			2020
Burwood Rd	Other	No collision and no object struck	Off carriageway to left			2015
	Serious	Collision with vehicle	Vehicle strikes another while emerging from driveway			2015
	Other	Collision with vehicle	Rear end (same lane)			2015
	Serious	Collision with vehicle	Head on (not overtaking)			2016
	Other	Collision with a fixed object	Left off carriageway into object			2016
	Other	Collision with vehicle	Rear end (same lane)			2016
	Serious	Collision with a fixed object	Left off carriageway into object			2017
	Other	Collision with a fixed object	Right off carriageway into object			2018
	Serious	Collision with vehicle	Rear end (same lane)			2019
	Other	Collision with vehicle	Rear end (same lane)			2019
	Other	Vehicle overturned (no collision)	Out of control on carriageway			2019
	Other	Collision with vehicle	Rear end (same lane)			2019

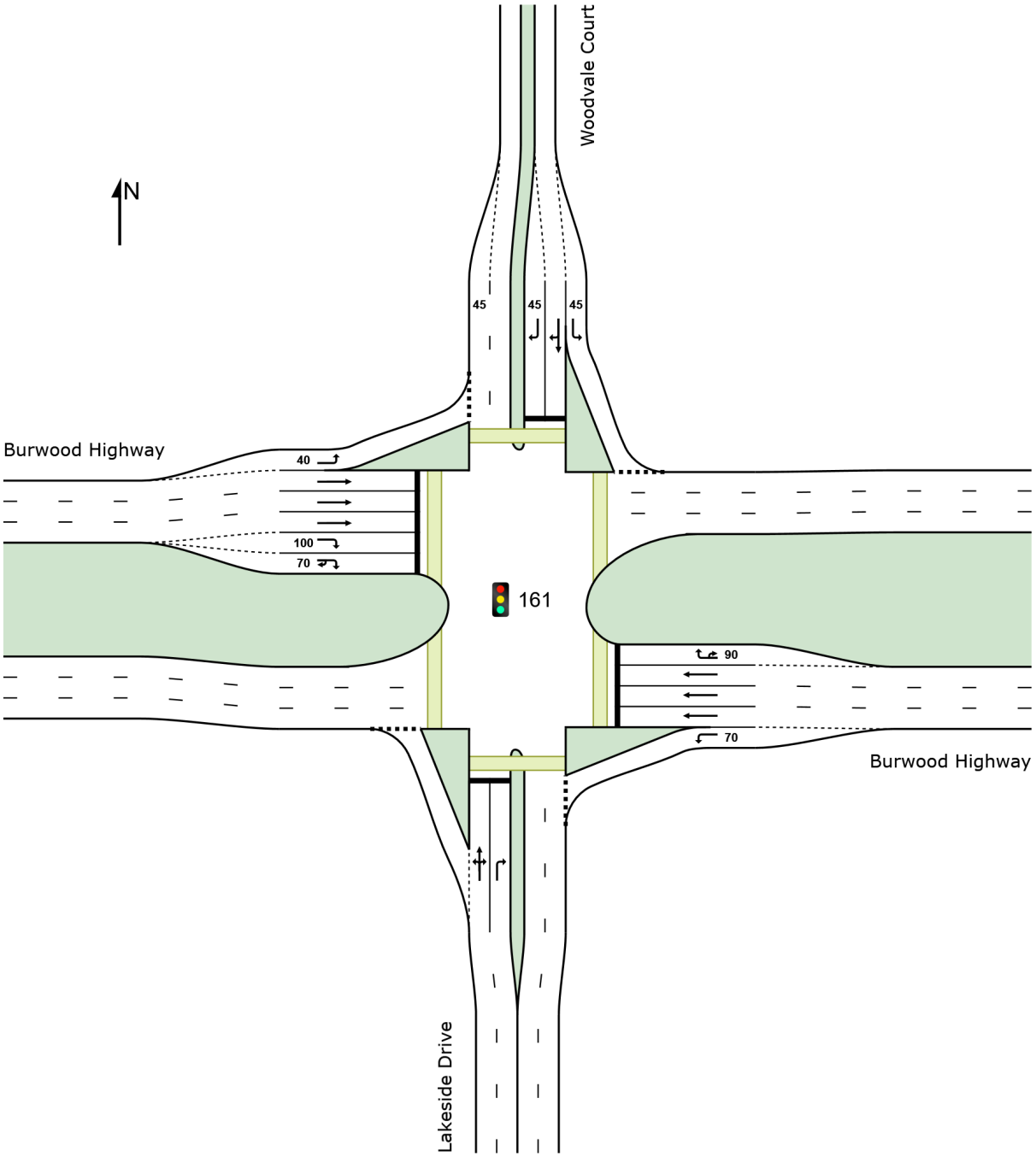
Road / Intersection	Severity	Accident Type	DCA Code	Cyclists	Peds	Year
	Other	Collision with vehicle	Rear end (same lane)			2019
	Other	Collision with vehicle	U turn			2020
	Fatal	Collision with a fixed object	Left off carriageway into object			2020
Burwood Rd / Springvale Rd	Other	Collision with vehicle	Right through			2015
	Other	Collision with vehicle	Left rear			2015
	Serious	Collision with vehicle	Right through			2015
	Other	Collision with vehicle	Lane change right (not overtaking)			2016
	Other	collision with some other object	Load struck vehicle			2016
	Other	Collision with vehicle	Rear end (same lane)			2016
	Serious	Collision with vehicle	Right through			2016
	Other	Collision with vehicle	Left rear			2016
	Other	Collision with vehicle	Rear end (same lane)			2016
	Serious	Collision with vehicle	Rear end (same lane)			2017
	Serious	Collision with vehicle	Right through			2018
	Serious	Collision with vehicle	Right near			2018
	Serious	Collision with vehicle	Cross traffic			2019
	Other	Collision with vehicle	Left near			2019
	Other	Vehicle overturned (no collision)	Off carriageway to left			2019
Burwood Rd / Mahoneys Rd	Other	Collision with vehicle	U turn			2016
	Serious	Collision with vehicle	Right through			2016
	Other	Collision with vehicle	Right through			2019
	Serious	Collision with vehicle	Rear end (same lane)			2019
	Other	Collision with vehicle	Right through			2019
Burwood Rd / Lakeside Dr	Other	Collision with vehicle	Rear end (same lane)			2017
Whitehorse Club Car Park	Other	Fall from or in moving vehicle	Fell in/from vehicle			2016

SITE LAYOUT

Site: 161 [BurwLakeWoodAMExE (Site Folder: Existing Conditions)]

Burwood Highway/Lakeside Drive/Woodvale Court
AM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Created: Wednesday, 7 February 2024 9:47:27 AM
Project: N:\Projects\2023\230657\Sidra\230657SID002A - Burwood&Lakside&Woodvale.sip9

PHASING SUMMARY

Site: 161 [BurwLakeWoodAMExE (Site Folder: Existing Conditions)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Burwood Highway/Lakeside Drive/Woodvale Court
AM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Green Split Priority has been specified
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, C, E, G1*, G2*, G3*
Output Phase Sequence: A, C, E, G1*
Reference Phase: Phase A
(* Variable Phase)

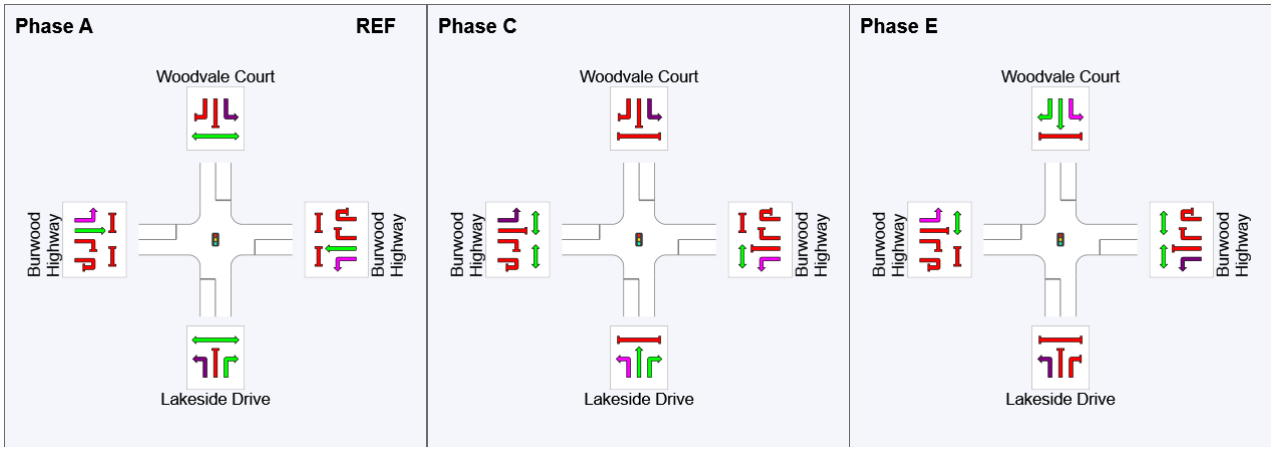
Phase Timing Summary

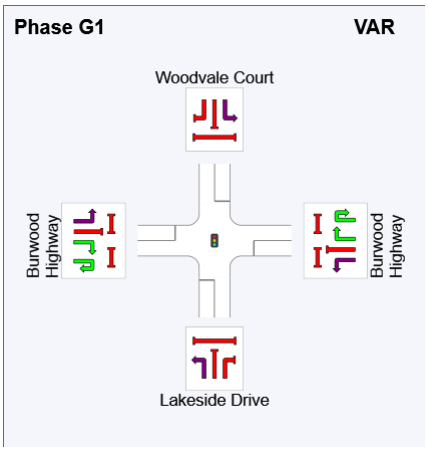
Phase	A	C	E	G1
Phase Change Time (sec)	0	76	90	104
Green Time (sec)	70	8	8	10
Phase Time (sec)	76	14	14	16
Phase Split	63%	12%	12%	13%
Phase Frequency (%)	100.0[4]	100.0[4]	100.0[4]	100.0[4]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

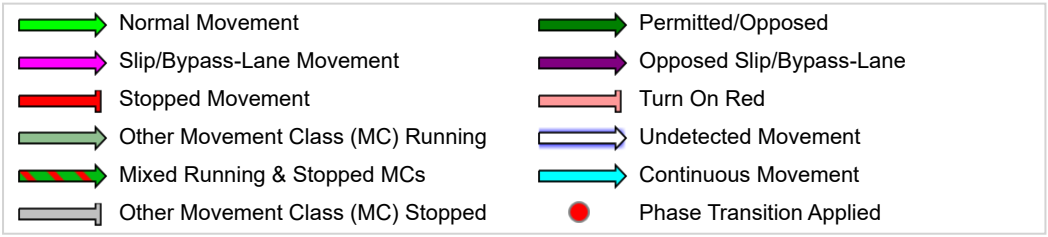
4 Phase Frequency specified by the user (phase times not specified).

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

DRAFT

Site: 161 [BurwLakeWoodAMExE (Site Folder: Existing Conditions)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Burwood Highway/Lakeside Drive/Woodvale Court
AM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lakeside Drive															
1	L2	All MCs	29	10.7	29	10.7	0.080	11.6	LOS B	0.8	5.8	0.53	0.65	0.53	46.1
2	T1	All MCs	3	0.0	3	0.0	* 0.080	50.8	LOS D	0.8	5.8	0.53	0.65	0.53	32.9
3	R2	All MCs	24	8.7	24	8.7	0.020	10.0	LOS A	0.4	3.1	0.32	0.54	0.32	45.2
Approach			57	9.3	57	9.3	0.080	13.1	LOS B	0.8	5.8	0.44	0.60	0.44	45.2
East: Burwood Highway															
4	L2	All MCs	180	2.3	180	2.3	0.117	14.9	LOS B	1.1	7.9	0.17	0.65	0.17	49.2
5	T1	All MCs	2255	2.7	2255	2.7	* 0.717	22.8	LOS C	32.6	233.6	0.78	0.71	0.78	54.7
6	R2	All MCs	104	0.0	104	0.0	* 0.712	76.9	LOS E	6.6	46.1	1.00	0.84	1.12	14.6
6u	U	All MCs	3	0.0	3	0.0	0.712	77.1	LOS E	6.6	46.1	1.00	0.84	1.12	21.9
Approach			2542	2.6	2542	2.6	0.717	24.6	LOS C	32.6	233.6	0.74	0.71	0.75	48.4
North: Woodvale Court															
7	L2	All MCs	33	0.0	33	0.0	0.047	3.3	LOS A	0.4	3.0	0.29	0.22	0.29	38.5
8	T1	All MCs	4	0.0	4	0.0	* 0.090	58.8	LOS E	0.6	4.5	0.97	0.66	0.97	18.8
9	R2	All MCs	18	0.0	18	0.0	0.090	58.8	LOS E	0.6	4.5	0.97	0.66	0.97	23.1
Approach			55	0.0	55	0.0	0.090	25.7	LOS C	0.6	4.5	0.56	0.40	0.56	27.6
West: Burwood Highway															
10	L2	All MCs	104	0.0	104	0.0	0.068	15.2	LOS B	0.6	4.5	0.17	0.69	0.17	51.2
11	T1	All MCs	1603	3.0	1603	3.0	0.501	17.5	LOS B	18.6	133.8	0.63	0.57	0.63	58.0
12	R2	All MCs	82	26.0	82	26.0	0.513	68.1	LOS E	3.9	33.5	1.00	0.77	1.00	30.2
12u	U	All MCs	44	0.0	44	0.0	0.513	69.9	LOS E	3.6	26.8	1.00	0.77	1.00	34.2
Approach			1834	3.8	1834	3.8	0.513	20.9	LOS C	18.6	133.8	0.63	0.59	0.63	52.0
All Vehicles			4487	3.1	4487	3.1	0.717	22.9	LOS C	32.6	233.6	0.69	0.66	0.69	49.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE	Prop. Que	Eff. Stop	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		[Ped ped	Dist] m		Rate	sec	m	m/sec
South: Lakeside Drive											
P1 Full	45	47	10.0	LOS B	0.1	0.1	0.41	0.41	26.7	20.0	0.75
East: Burwood Highway											
P21 Stage 1	50	53	39.3	LOS D	0.1	0.1	0.81	0.81	56.0	20.0	0.36
P22 Stage 2	50	53	51.5	LOS E	0.2	0.2	0.93	0.93	68.1	20.0	0.29
North: Woodvale Court											
P3 Full	50	53	10.0	LOS B	0.1	0.1	0.41	0.41	26.7	20.0	0.75
West: Burwood Highway											
P41 Stage 1	50	53	39.3	LOS D	0.1	0.1	0.81	0.81	56.0	20.0	0.36
P42 Stage 2	50	53	51.5	LOS E	0.2	0.2	0.93	0.93	68.1	20.0	0.29
All Pedestrians	295	311	34.0	LOS D	0.2	0.2	0.72	0.72	50.7	20.0	0.39

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

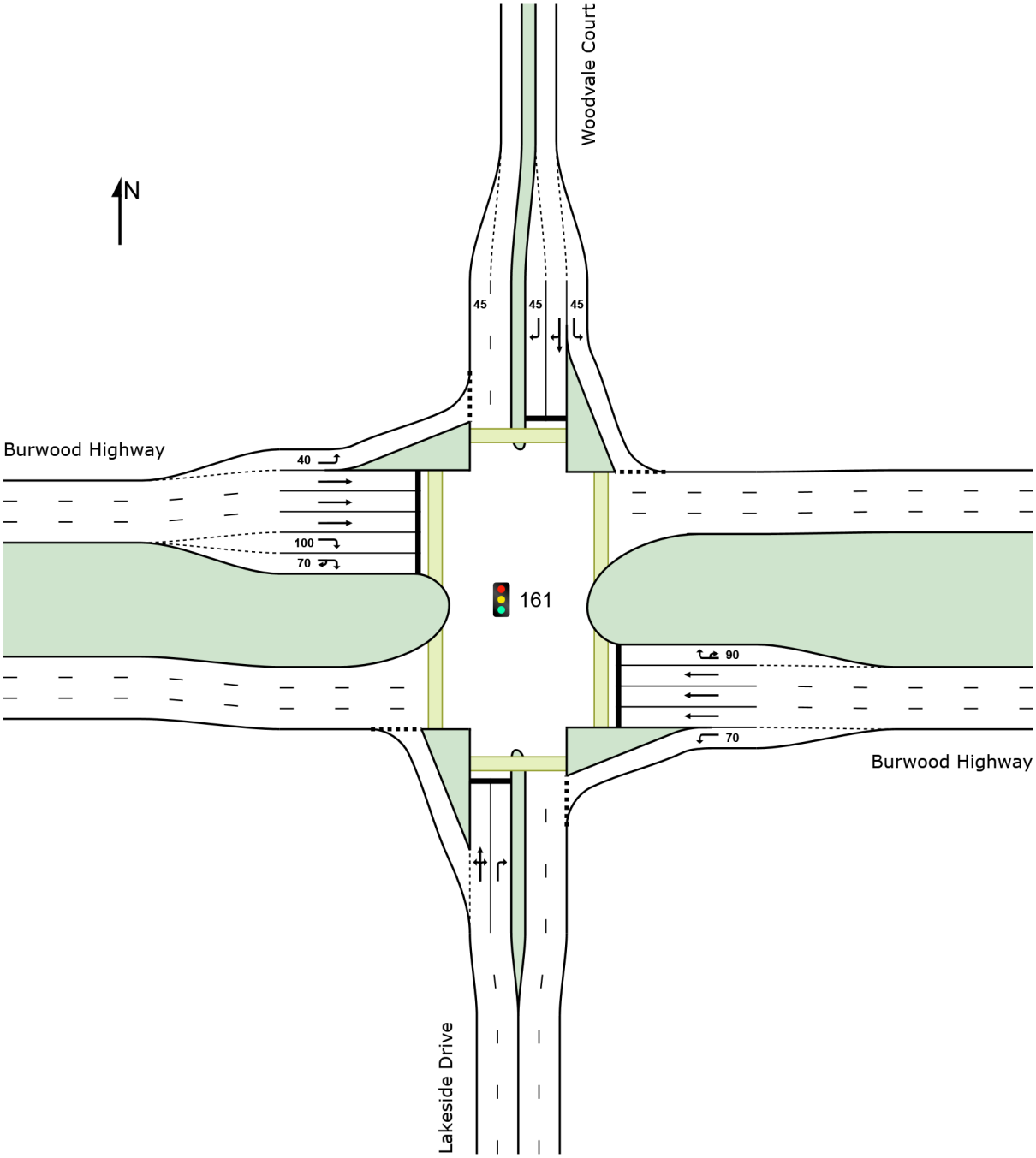
SITE LAYOUT

DRAFT

Site: 161 [BurwLakeWoodPMExE (Site Folder: Existing Conditions)]

Burwood Highway/Lakeside Drive/Woodvale Court
PM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Created: Wednesday, 7 February 2024 9:49:26 AM
Project: N:\Projects\2023\230657\Sidra\230657SID002A - Burwood&Lakside&Woodvale.sip9

PHASING SUMMARY

Site: 161 [BurwLakeWoodPMExE (Site Folder: Existing Conditions)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Burwood Highway/Lakeside Drive/Woodvale Court
PM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Green Split Priority has been specified
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, C, E, G1*, G2*, G3*
Output Phase Sequence: A, C, E, G1*
Reference Phase: Phase A
(* Variable Phase)

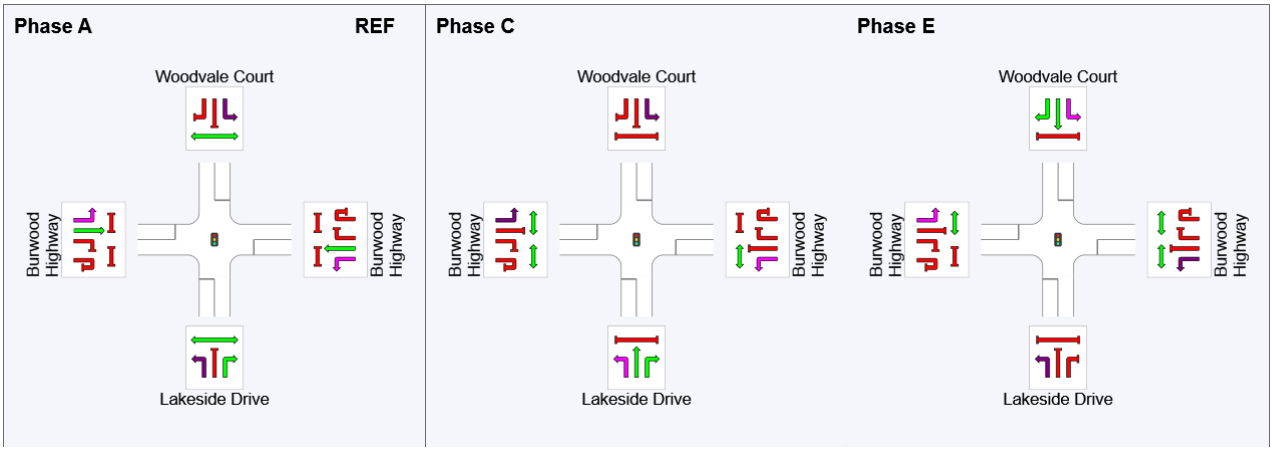
Phase Timing Summary

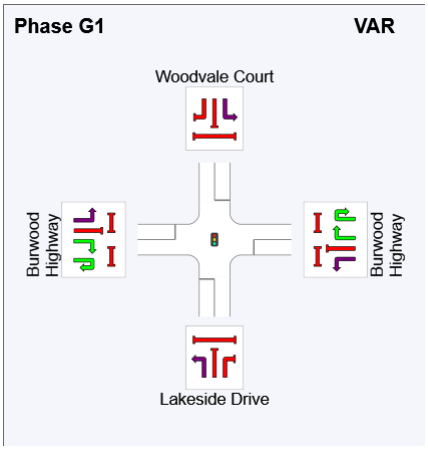
Phase	A	C	E	G1
Phase Change Time (sec)	0	80	94	108
Green Time (sec)	74	8	8	6
Phase Time (sec)	80	14	14	12
Phase Split	67%	12%	12%	10%
Phase Frequency (%)	100.0[4]	100.0[4]	100.0[4]	100.0[4]

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

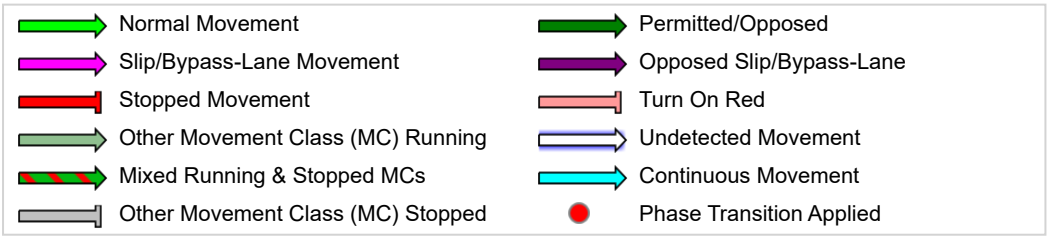
4 Phase Frequency specified by the user (phase times not specified).

Output Phase Sequence





REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

Site: 161 [BurwLakeWoodPMExE (Site Folder: Existing Conditions)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Burwood Highway/Lakeside Drive/Woodvale Court
PM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Lakeside Drive															
1	L2	All MCs	112	10.7	112	10.7	0.135	5.6	LOS A	3.2	24.5	0.40	0.62	0.40	47.7
2	T1	All MCs	3	0.0	3	0.0	* 0.135	187.8	LOS F	3.2	24.5	0.40	0.62	0.40	34.5
3	R2	All MCs	206	8.7	206	8.7	0.135	11.0	LOS B	3.2	24.5	0.33	0.57	0.33	45.3
Approach			321	9.3	321	9.3	0.135	10.8	LOS B	3.2	24.5	0.35	0.59	0.35	46.2
East: Burwood Highway															
4	L2	All MCs	37	2.3	37	2.3	0.023	7.8	LOS A	0.1	1.1	0.12	0.63	0.12	49.4
5	T1	All MCs	1555	2.7	1555	2.7	0.445	12.8	LOS B	15.7	112.7	0.57	0.51	0.57	60.9
6	R2	All MCs	21	0.0	21	0.0	0.338	73.4	LOS E	1.7	12.1	1.00	0.72	1.00	14.4
6u	U	All MCs	7	0.0	7	0.0	0.338	73.5	LOS E	1.7	12.1	1.00	0.72	1.00	21.7
Approach			1620	2.6	1620	2.6	0.445	13.8	LOS B	15.7	112.7	0.57	0.52	0.57	59.2
North: Woodvale Court															
7	L2	All MCs	108	0.0	108	0.0	0.196	5.0	LOS A	1.9	13.4	0.37	0.31	0.37	36.7
8	T1	All MCs	3	0.0	3	0.0	* 0.302	60.5	LOS E	2.2	15.2	0.99	0.72	0.99	18.6
9	R2	All MCs	71	0.0	71	0.0	0.302	60.5	LOS E	2.2	15.2	0.99	0.72	0.99	22.8
Approach			182	0.0	182	0.0	0.302	27.5	LOS C	2.2	15.2	0.62	0.48	0.62	27.3
West: Burwood Highway															
10	L2	All MCs	18	0.0	18	0.0	0.011	15.8	LOS B	0.1	0.4	0.11	0.67	0.11	51.7
11	T1	All MCs	1938	3.0	1938	3.0	* 0.559	16.7	LOS B	21.9	157.0	0.63	0.57	0.63	59.4
12	R2	All MCs	33	26.0	33	26.0	* 0.411	72.6	LOS E	2.0	16.7	1.00	0.73	1.00	29.3
12u	U	All MCs	27	0.0	27	0.0	0.411	74.7	LOS E	1.8	12.4	1.00	0.73	1.00	32.9
Approach			2016	3.3	2016	3.3	0.559	18.4	LOS B	21.9	157.0	0.64	0.58	0.64	55.0
All Vehicles			4139	3.4	4139	3.4	0.559	16.4	LOS B	21.9	157.0	0.59	0.55	0.59	54.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE	Prop. Que	Eff. Stop	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		[Ped ped	Dist] m	Rate		sec	m	m/sec
South: Lakeside Drive											
P1 Full	45	47	8.5	LOS A	0.1	0.1	0.38	0.38	25.1	20.0	0.80
East: Burwood Highway											
P21 Stage 1	50	53	39.3	LOS D	0.1	0.1	0.81	0.81	56.0	20.0	0.36
P22 Stage 2	50	53	51.5	LOS E	0.2	0.2	0.93	0.93	68.1	20.0	0.29
North: Woodvale Court											
P3 Full	50	53	8.5	LOS A	0.1	0.1	0.38	0.38	25.1	20.0	0.80
West: Burwood Highway											
P41 Stage 1	50	53	39.3	LOS D	0.1	0.1	0.81	0.81	56.0	20.0	0.36
P42 Stage 2	50	53	51.5	LOS E	0.2	0.2	0.93	0.93	68.1	20.0	0.29
All Pedestrians	295	311	33.5	LOS D	0.2	0.2	0.71	0.71	50.1	20.0	0.40

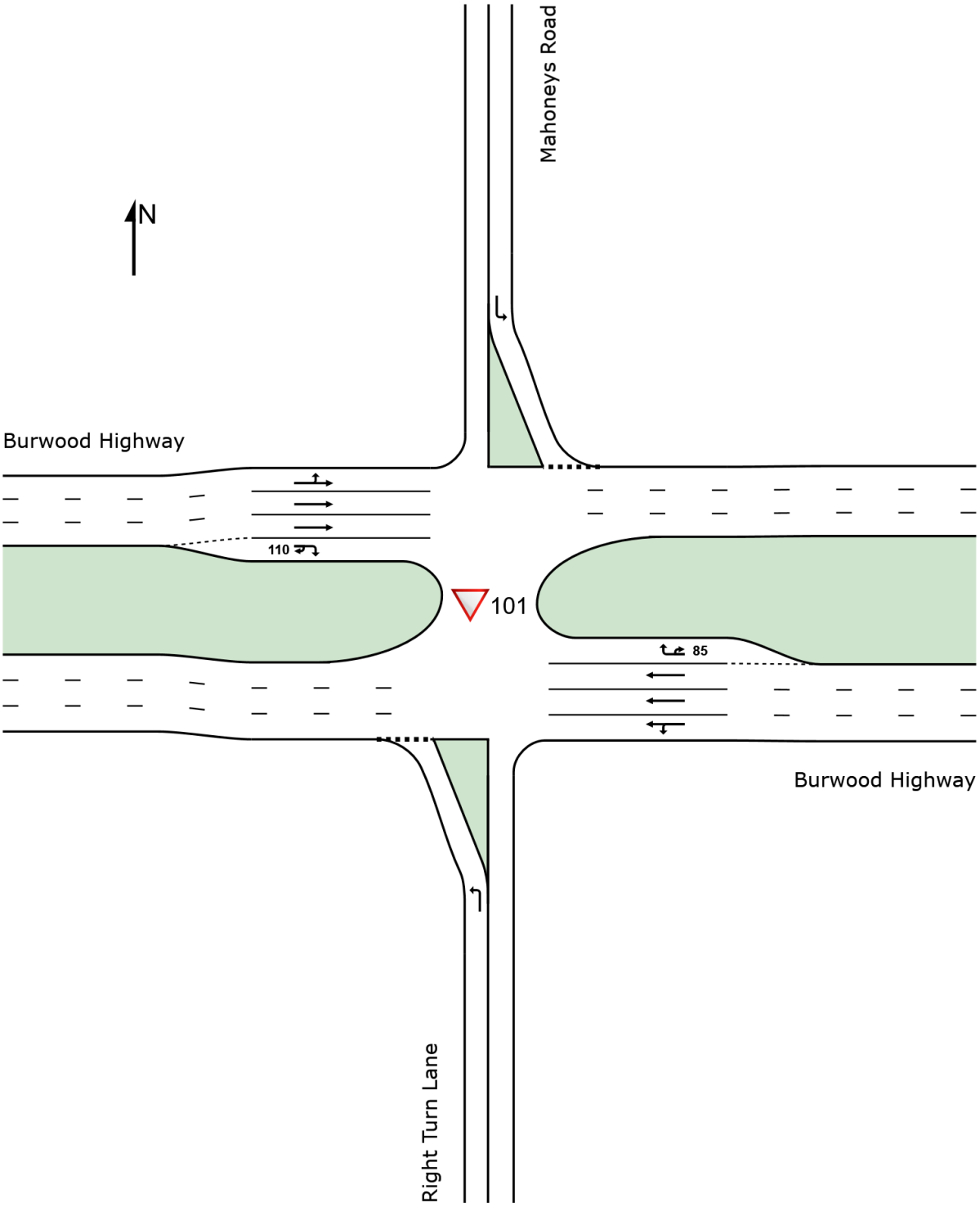
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [BurwMahoAMExE (Site Folder: General)]

Burwood Highway / Mahoneys Road
AM peak, Existing Geometry, Existing Volumes
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

DRAFT

Site: 101 [BurwMahoAMExE (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Burwood Highway / Mahoneys Road
AM peak, Existing Geometry, Existing Volumes
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Right Turn Lane															
1	L2	All MCs	2	0.0	2	0.0	0.003	8.6	LOS A	0.0	0.1	0.56	0.60	0.56	50.8
Approach			2	0.0	2	0.0	0.003	8.6	LOS A	0.0	0.1	0.56	0.60	0.56	50.8
East: Burwood Highway															
4	L2	All MCs	1	0.0	1	0.0	0.381	7.0	LOS A	0.0	0.0	0.00	0.00	0.00	73.3
5	T1	All MCs	2185	2.8	2185	2.8	0.381	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
6	R2	All MCs	107	1.0	107	1.0	1.036	138.1	LOS F	8.1	57.3	1.00	1.50	3.69	18.3
6u	U	All MCs	5	9.0	5	9.0	1.036	198.5	LOS F	8.1	57.3	1.00	1.50	3.69	19.1
Approach			2299	2.7	2299	2.7	1.036	7.0	NA	8.1	57.3	0.05	0.07	0.18	68.3
North: Mahoneys Road															
7	L2	All MCs	235	1.3	235	1.3	0.277	7.2	LOS A	1.2	8.6	0.52	0.68	0.53	51.5
Approach			235	1.3	235	1.3	0.277	7.2	LOS A	1.2	8.6	0.52	0.68	0.53	51.5
West: Burwood Highway															
10	L2	All MCs	108	1.0	108	1.0	0.299	7.0	LOS A	0.0	0.0	0.00	0.13	0.00	71.0
11	T1	All MCs	1578	2.8	1578	2.8	0.299	0.1	LOS A	0.0	0.0	0.00	0.04	0.00	79.1
12	R2	All MCs	11	16.6	11	16.6	0.686	178.1	LOS F	1.5	11.5	0.99	1.04	1.26	14.2
12u	U	All MCs	7	0.0	7	0.0	0.686	231.2	LOS F	1.5	11.5	0.99	1.04	1.26	14.9
Approach			1704	2.8	1704	2.8	0.686	2.6	NA	1.5	11.5	0.01	0.05	0.01	75.0
All Vehicles			4240	2.7	4240	2.7	1.036	5.2	NA	8.1	57.3	0.06	0.10	0.13	69.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Processed: Thursday, 9 November 2023 3:03:36 PM
Project: N:\Projects\2023\230657\Sidra\230657SID005A - Burwood&Mahoneys.sip9

MOVEMENT SUMMARY

Site: 101 [BurwMahoPMExE (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

Burwood Highway / Mahoneys Road
PM peak, Existing Geometry, Existing Volumes
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Right Turn Lane															
1	L2	All MCs	24	0.0	24	0.0	0.042	9.3	LOS A	0.2	1.1	0.59	0.73	0.59	50.3
Approach			24	0.0	24	0.0	0.042	9.3	LOS A	0.2	1.1	0.59	0.73	0.59	50.3
East: Burwood Highway															
4	L2	All MCs	3	0.0	3	0.0	0.404	7.0	LOS A	0.0	0.0	0.00	0.00	0.00	73.3
5	T1	All MCs	1684	0.6	1684	0.6	0.404	1.4	LOS A	3.4	24.0	0.06	0.06	0.07	77.4
6	R2	All MCs	76	0.0	76	0.0	1.199	264.2	LOS F	13.1	92.6	1.00	1.75	5.07	11.0
6u	U	All MCs	18	5.9	18	5.9	1.199	330.2	LOS F	13.1	92.6	1.00	1.75	5.07	11.3
Approach			1781	0.6	1781	0.6	1.199	15.9	NA	13.1	92.6	0.11	0.15	0.33	58.5
North: Mahoneys Road															
7	L2	All MCs	124	0.0	124	0.0	0.159	7.6	LOS A	0.7	4.7	0.53	0.69	0.53	51.5
Approach			124	0.0	124	0.0	0.159	7.6	LOS A	0.7	4.7	0.53	0.69	0.53	51.5
West: Burwood Highway															
10	L2	All MCs	101	1.0	101	1.0	0.348	7.0	LOS A	0.0	0.0	0.00	0.10	0.00	71.4
11	T1	All MCs	1883	1.2	1883	1.2	0.348	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	79.2
12	R2	All MCs	32	0.0	32	0.0	1.084	188.0	LOS F	7.8	54.3	1.00	1.42	3.30	13.6
12u	U	All MCs	42	0.0	42	0.0	1.084	233.3	LOS F	7.8	54.3	1.00	1.42	3.30	14.1
Approach			2058	1.1	2058	1.1	1.084	8.1	NA	7.8	54.3	0.04	0.08	0.12	67.2
All Vehicles			3987	0.9	3987	0.9	1.199	11.6	NA	13.1	92.6	0.09	0.14	0.23	62.4

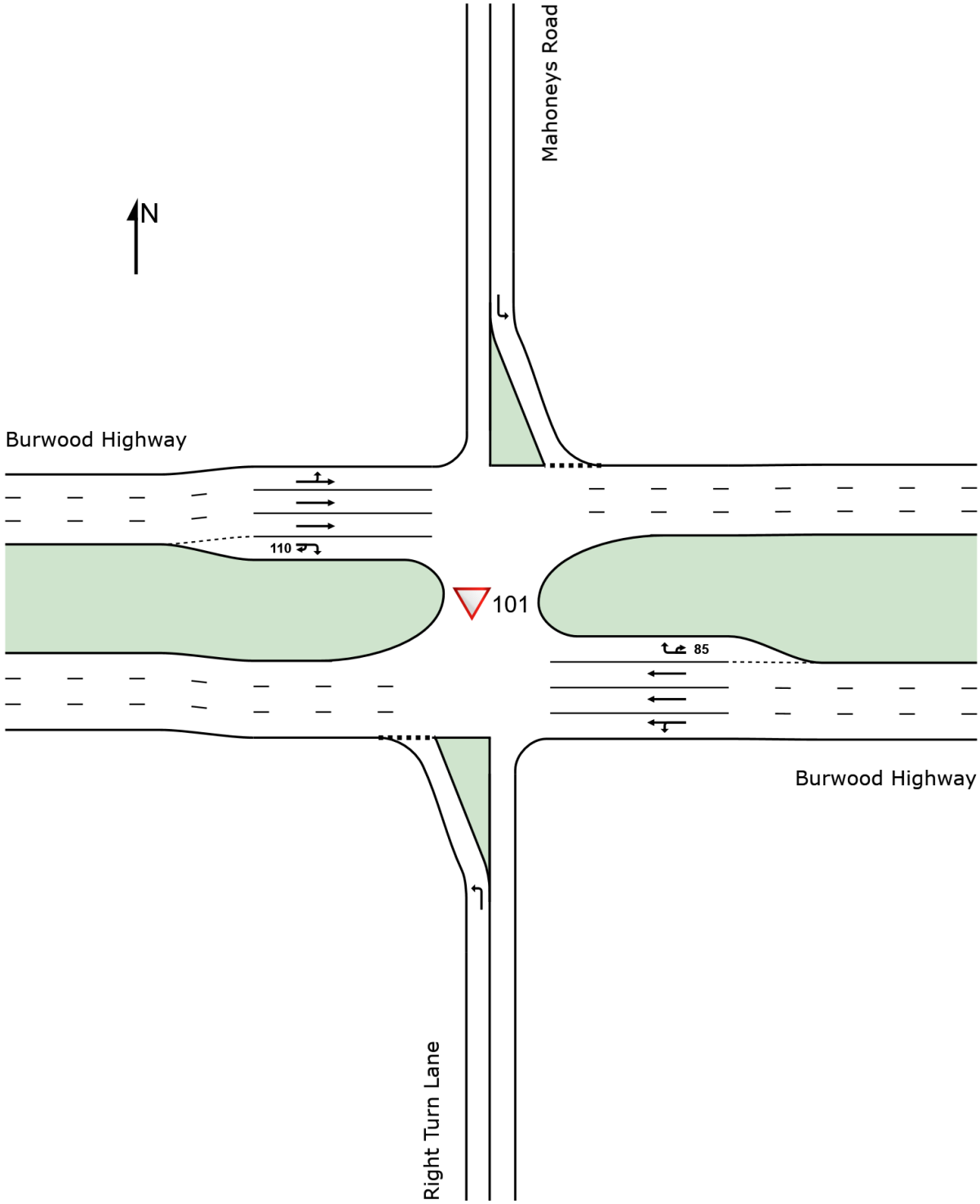
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 101 [BurwMahoPMExE (Site Folder: General)]

Burwood Highway / Mahoneys Road
PM peak, Existing Geometry, Existing Volumes
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.

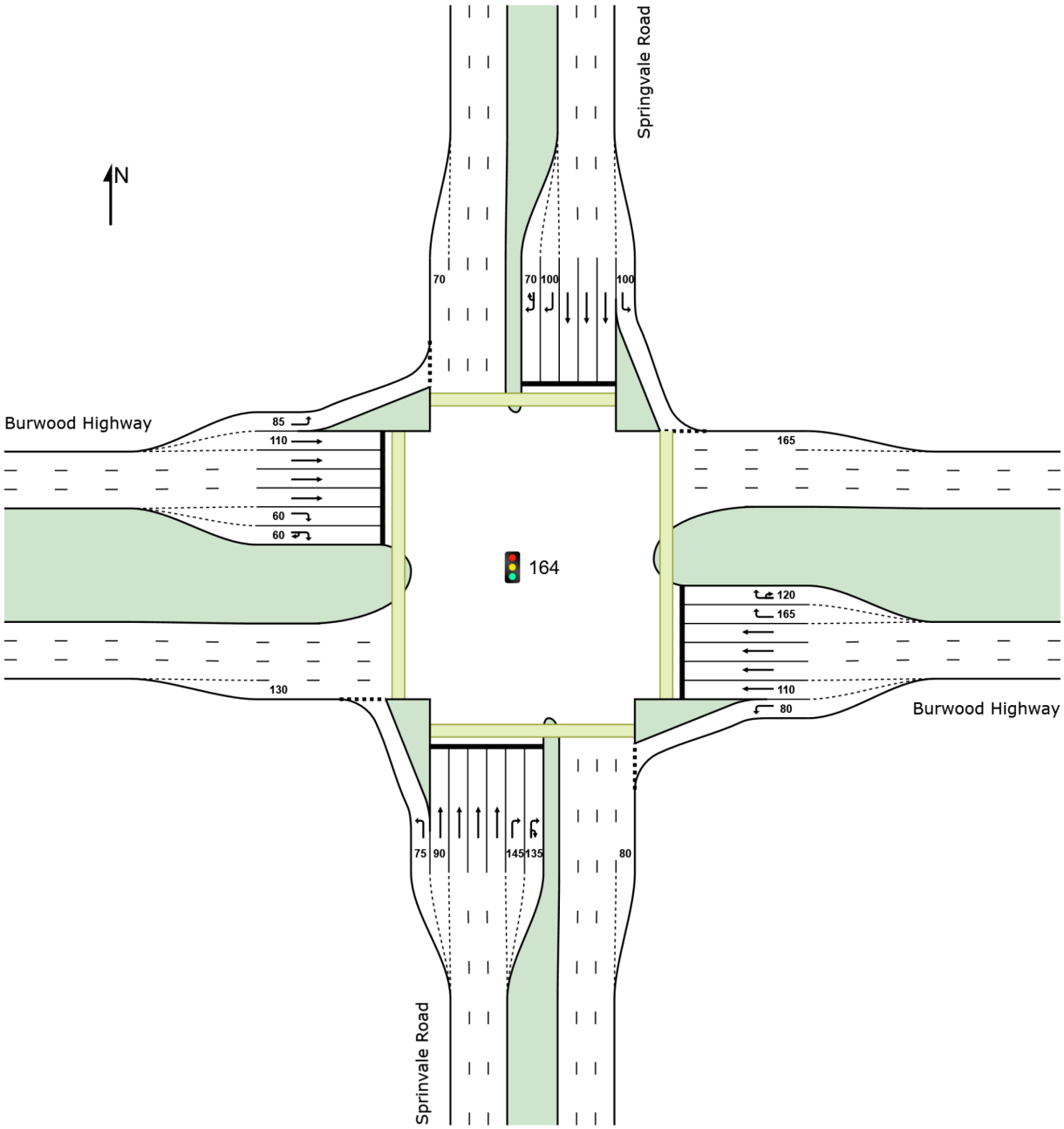


SITE LAYOUT

Site: 164 [BurwSpriAMExE (Site Folder: Burwood/Springvale)]

Burwood Highway/Springvale Road
AM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Created: Wednesday, 7 February 2024 9:53:56 AM
Project: N:\Projects\2023\230657\Sidra\230657SID001A - Burwood&Springvale.sip9

PHASING SUMMARY

Site: 164 [BurwSpriAMExE (Site Folder: Burwood/Springvale)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Burwood Highway/Springvale Road
AM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Input Phase Sequence: A, B2, C1*, C2*, C3*, D, F1*, F2*, F3*
Output Phase Sequence: A, B2, C1*, D, F3*
Reference Phase: Phase A
(* Variable Phase)

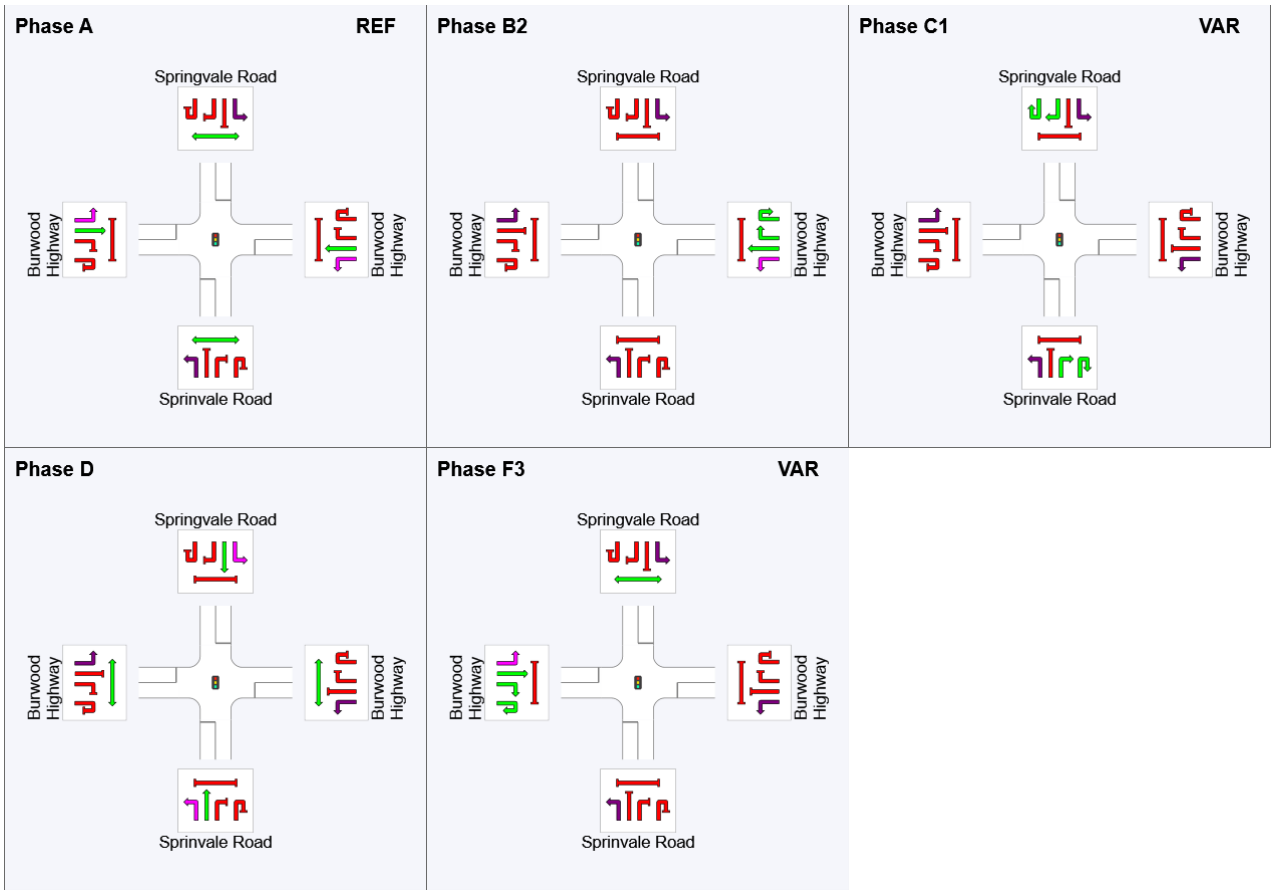
Phase Timing Summary

Phase	A	B2	C1	D	F3
Phase Change Time (sec)	0	15	39	61	103
Green Time (sec)	8	17	15	36	9
Phase Time (sec)	15	24	21	44	16
Phase Split	13%	20%	18%	37%	13%
Phase Frequency (%)	100.0[4]	100.0[4]	100.0[4]	100.0[4]	100.0[4]

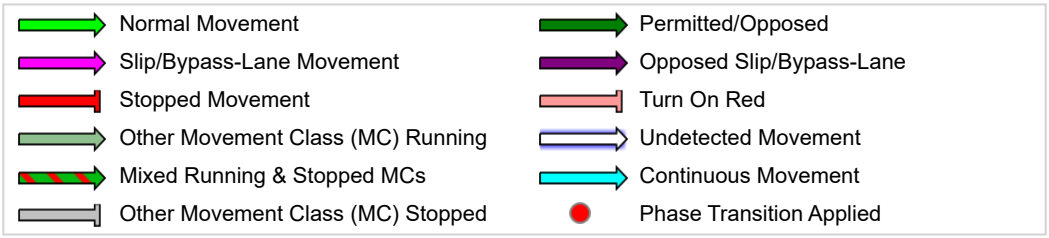
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

4 Phase Frequency specified by the user (phase times not specified).

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

DRAFT

Site: 164 [BurwSpriAMExE (Site Folder: Burwood/Springvale)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Burwood Highway/Springvale Road
AM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Sprinvale Road															
1	L2	All MCs	498	1.1	498	1.1	0.580	30.4	LOS C	19.6	138.3	0.78	0.83	0.78	43.9
2	T1	All MCs	1238	4.9	1238	4.9	0.622	38.8	LOS D	17.5	127.8	0.90	0.78	0.90	44.1
3	R2	All MCs	318	3.0	318	3.0	0.713	65.5	LOS E	9.5	68.2	1.00	0.86	1.08	32.3
3u	U	All MCs	1	0.0	1	0.0	0.713	66.5	LOS E	9.5	68.0	1.00	0.86	1.09	32.3
Approach			2055	3.7	2055	3.7	0.713	40.9	LOS D	19.6	138.3	0.89	0.80	0.90	41.4
East: Burwood Highway															
4	L2	All MCs	573	2.5	573	2.5	0.571	23.1	LOS C	18.7	133.8	0.69	0.80	0.69	51.6
5	T1	All MCs	1511	3.3	1511	3.3	0.788	46.5	LOS D	22.5	161.8	0.98	0.88	1.03	36.1
6	R2	All MCs	415	4.1	415	4.1	* 0.870	72.5	LOS E	14.3	103.3	1.00	0.98	1.27	30.3
6u	U	All MCs	18	0.0	18	0.0	0.870	74.5	LOS E	13.9	100.8	1.00	0.98	1.28	30.4
Approach			2516	3.2	2516	3.2	0.870	45.7	LOS D	22.5	161.8	0.92	0.88	1.00	37.6
North: Springvale Road															
7	L2	All MCs	261	5.2	261	5.2	0.324	26.5	LOS C	8.5	62.3	0.64	0.77	0.64	49.7
8	T1	All MCs	1458	2.5	1458	2.5	* 0.878	54.5	LOS D	31.3	223.7	1.00	1.00	1.16	37.8
9	R2	All MCs	384	3.3	384	3.3	* 0.863	74.6	LOS E	12.5	90.1	1.00	0.97	1.28	26.6
9u	U	All MCs	1	0.0	1	0.0	0.863	74.0	LOS E	12.5	89.9	1.00	0.97	1.28	30.3
Approach			2104	3.0	2104	3.0	0.878	54.7	LOS D	31.3	223.7	0.95	0.96	1.12	35.9
West: Burwood Highway															
10	L2	All MCs	301	4.9	301	4.9	0.376	19.3	LOS B	8.2	59.5	0.57	0.76	0.57	49.5
11	T1	All MCs	1156	3.1	1156	3.1	0.772	53.2	LOS D	17.0	121.9	1.00	0.89	1.08	33.6
12	R2	All MCs	216	0.5	216	0.5	* 0.795	74.8	LOS E	6.9	48.4	1.00	0.89	1.23	26.5
12u	U	All MCs	1	0.0	1	0.0	0.795	75.2	LOS E	6.9	48.2	1.00	0.89	1.23	21.8
Approach			1674	3.1	1674	3.1	0.795	49.9	LOS D	17.0	121.9	0.92	0.87	1.01	34.1
All Vehicles			8348	3.2	8348	3.2	0.878	47.6	LOS D	31.3	223.7	0.92	0.88	1.01	37.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed
		ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Sprinvale Road												
P1	Full	45	47	51.4	LOS E	0.1	0.1	0.93	0.93	68.1	20.0	0.29
East: Burwood Highway												
P2	Full	50	53	28.8	LOS C	0.1	0.1	0.69	0.69	45.4	20.0	0.44
North: Springvale Road												
P3	Full	50	53	37.7	LOS D	0.1	0.1	0.79	0.79	54.4	20.0	0.37
West: Burwood Highway												
P4	Full	50	53	28.8	LOS C	0.1	0.1	0.69	0.69	45.4	20.0	0.44
All Pedestrians		195	205	36.3	LOS D	0.1	0.1	0.77	0.77	53.0	20.0	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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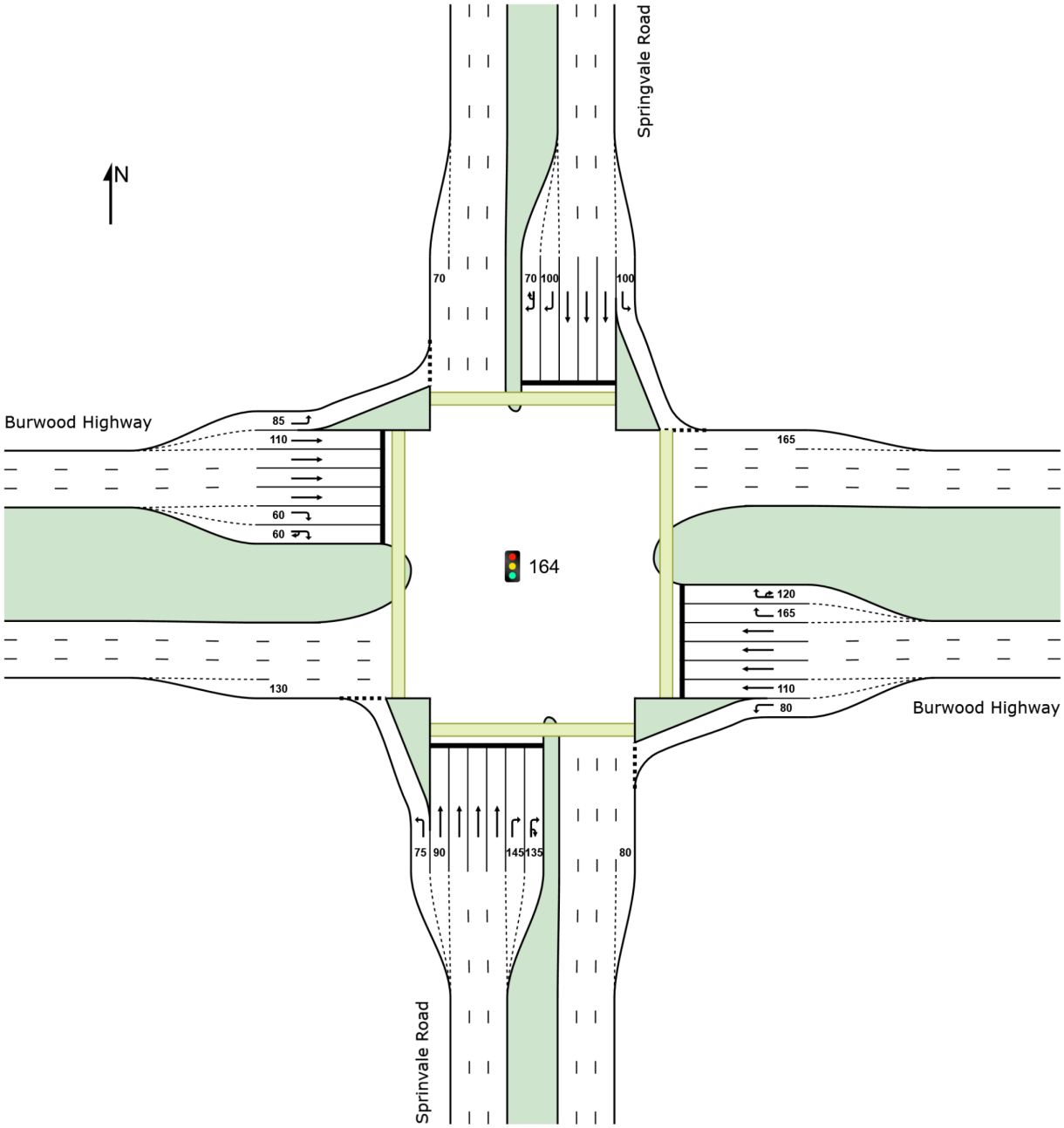
Project: N:\Projects\2023\230657\Sidra\230657SID001A - Burwood&Springvale.sip9

SITE LAYOUT

Site: 164 [BurwSpriPMExE (Site Folder: Burwood/Springvale)]

Burwood Highway/Springvale Road
PM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



PHASING SUMMARY

Site: 164 [BurwSpriPMExE (Site Folder: Burwood/Springvale)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Burwood Highway/Springvale Road
PM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Green Split Priority has been specified
Phase Sequence: Variable Phasing
Input Phase Sequence: A, B2, C1*, C2*, C3*, D, F1*, F2*, F3*
Output Phase Sequence: A, B2, C1*, D, F3*
Reference Phase: Phase A
(* Variable Phase)

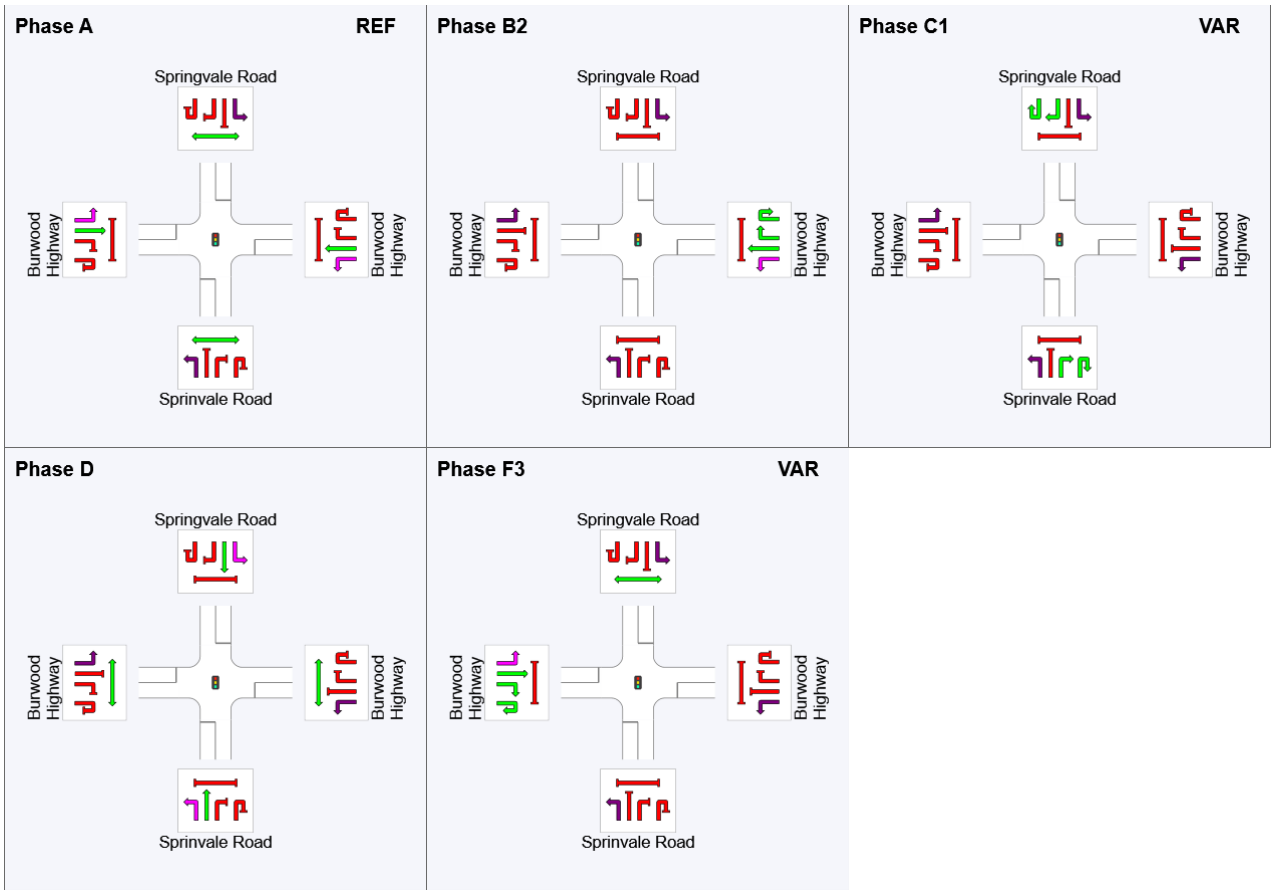
Phase Timing Summary

Phase	A	B2	C1	D	F3
Phase Change Time (sec)	0	15	33	60	99
Green Time (sec)	8	11	20	33	13
Phase Time (sec)	15	18	26	41	20
Phase Split	13%	15%	22%	34%	17%
Phase Frequency (%)	100.0[4]	100.0[4]	100.0[4]	100.0[4]	100.0[4]

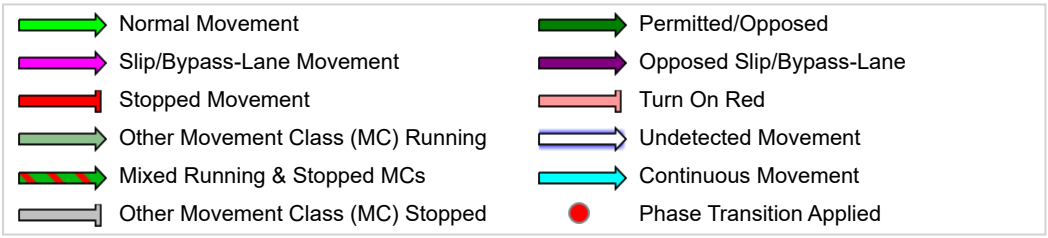
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

4 Phase Frequency specified by the user (phase times not specified).

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Processed: Thursday, 9 November 2023 1:17:00 PM
Project: N:\Projects\2023\230657\Sidra\230657SID001A - Burwood&Springvale.sip9

MOVEMENT SUMMARY

Site: 164 [BurwSpriPMExE (Site Folder: Burwood/Springvale)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Burwood Highway/Springvale Road
PM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Sprinvale Road															
1	L2	All MCs	484	0.4	484	0.4	0.479	18.0	LOS B	13.5	95.2	0.58	0.77	0.58	51.1
2	T1	All MCs	1642	1.7	1642	1.7	0.896	56.5	LOS E	30.5	217.0	0.98	0.98	1.16	37.1
3	R2	All MCs	575	1.1	575	1.1	* 0.953	86.0	LOS F	21.2	149.9	1.00	1.09	1.44	27.6
3u	U	All MCs	1	0.0	1	0.0	0.953	87.0	LOS F	21.2	149.7	1.00	1.09	1.44	27.5
Approach			2702	1.3	2702	1.3	0.953	55.9	LOS E	30.5	217.0	0.91	0.97	1.12	35.5
East: Burwood Highway															
4	L2	All MCs	365	0.0	365	0.0	0.399	24.1	LOS C	11.6	81.1	0.65	0.78	0.65	50.9
5	T1	All MCs	769	1.1	769	1.1	0.487	44.7	LOS D	10.4	73.5	0.92	0.76	0.92	36.7
6	R2	All MCs	285	0.4	285	0.4	* 0.916	81.6	LOS F	10.5	73.9	1.00	1.00	1.44	28.4
6u	U	All MCs	16	0.0	16	0.0	0.916	83.7	LOS F	10.2	71.6	1.00	1.00	1.45	28.2
Approach			1436	0.7	1436	0.7	0.916	47.2	LOS D	11.6	81.1	0.87	0.82	0.96	37.1
North: Springvale Road															
7	L2	All MCs	428	0.2	428	0.2	0.637	44.6	LOS D	18.1	127.1	0.88	0.95	0.88	41.5
8	T1	All MCs	1465	2.3	1465	2.3	* 0.980	84.9	LOS F	40.1	286.5	1.00	1.20	1.44	29.2
9	R2	All MCs	363	0.6	363	0.6	0.601	61.3	LOS E	10.1	71.1	0.98	0.82	0.98	30.5
9u	U	All MCs	1	0.0	1	0.0	0.601	59.7	LOS E	10.1	70.9	0.98	0.82	0.98	34.3
Approach			2258	1.6	2258	1.6	0.980	73.4	LOS E	40.1	286.5	0.97	1.09	1.26	30.4
West: Burwood Highway															
10	L2	All MCs	454	1.2	454	1.2	0.540	24.7	LOS C	15.7	111.1	0.72	0.81	0.72	46.9
11	T1	All MCs	1412	1.2	1412	1.2	0.810	53.8	LOS D	21.3	150.7	1.00	0.92	1.10	33.9
12	R2	All MCs	364	0.3	364	0.3	* 0.925	85.8	LOS F	12.7	89.3	1.00	1.03	1.43	24.6
12u	U	All MCs	1	0.0	1	0.0	0.925	84.0	LOS F	12.7	89.2	1.00	1.03	1.43	20.1
Approach			2231	1.1	2231	1.1	0.925	53.1	LOS D	21.3	150.7	0.94	0.92	1.08	33.0
All Vehicles			8626	1.2	8626	1.2	0.980	58.3	LOS E	40.1	286.5	0.93	0.96	1.12	33.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Sprinvale Road												
P1	Full	45	47	51.4	LOS E	0.1	0.1	0.93	0.93	68.1	20.0	0.29
East: Burwood Highway												
P2	Full	50	53	30.9	LOS D	0.1	0.1	0.72	0.72	47.6	20.0	0.42
North: Springvale Road												
P3	Full	50	53	34.6	LOS D	0.1	0.1	0.76	0.76	51.2	20.0	0.39
West: Burwood Highway												
P4	Full	50	53	30.9	LOS D	0.1	0.1	0.72	0.72	47.6	20.0	0.42
All Pedestrians		195	205	36.6	LOS D	0.1	0.1	0.78	0.78	53.2	20.0	0.38

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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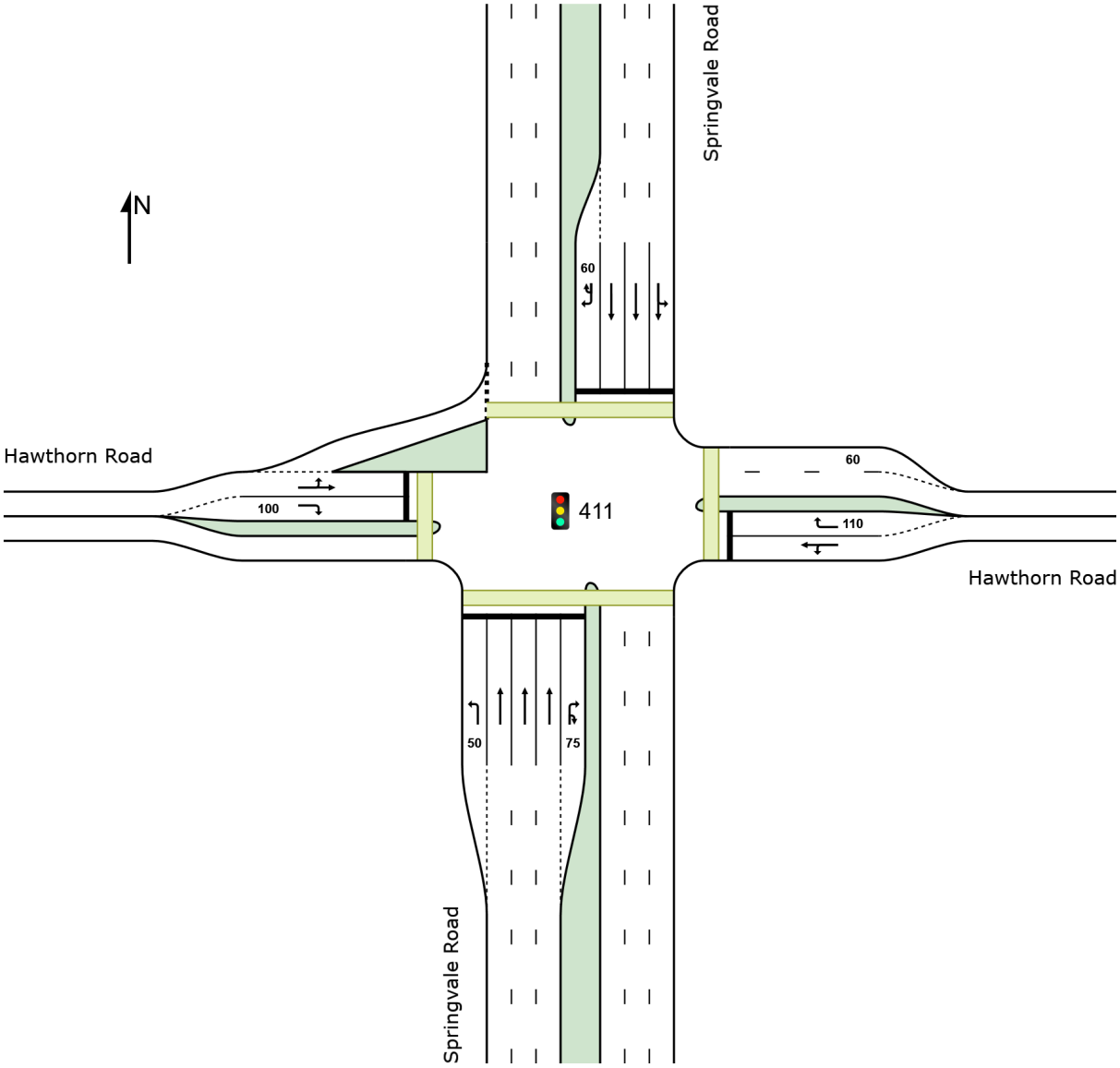
Project: N:\Projects\2023\230657\Sidra\230657SID001A - Burwood&Springvale.sip9

SITE LAYOUT

Site: 411 [SpriHawtAMExE (Site Folder: General)]

Sprinvale Road/Hawthorn Road
AM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Created: Wednesday, 7 February 2024 9:58:28 AM
Project: N:\Projects\2023\230657\Sidra\230657SID003A - Springvale&Hawthorn.sip9

PHASING SUMMARY

Site: 411 [SpriHawtAMExE (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Sprinvale Road/Hawthorn Road
AM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, C1*, C2*, C3*, D, E1*, E2*, E3*
Output Phase Sequence: A, C1*, D, E1*
Reference Phase: Phase A
(* Variable Phase)

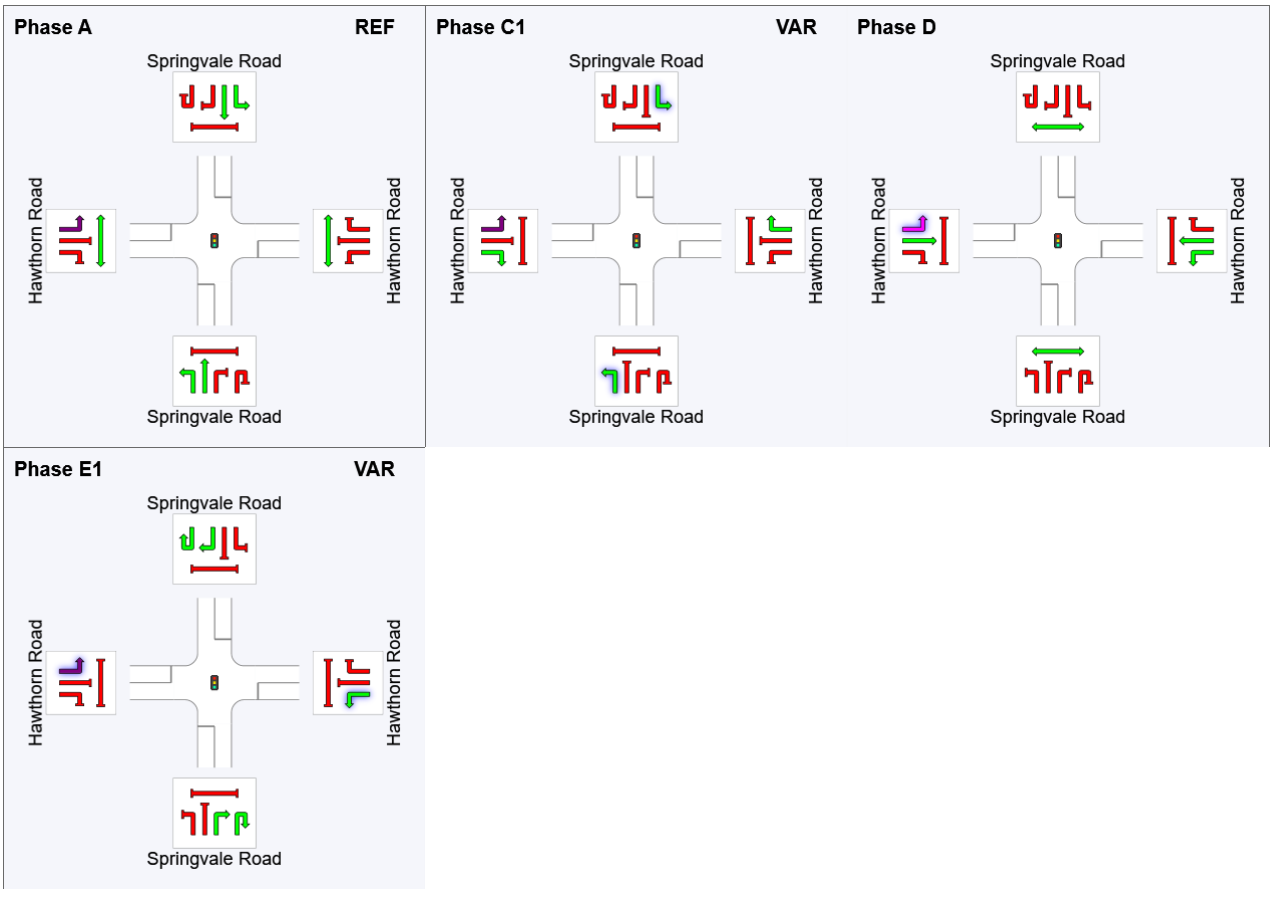
Phase Timing Summary

Phase	A	C1	D	E1
Phase Change Time (sec)	0	51	75	103
Green Time (sec)	45	18	21	10
Phase Time (sec)	51	25	28	16
Phase Split	43%	21%	23%	13%
Phase Frequency (%)	100.0[4]	100.0[4]	100.0[4]	100.0[4]

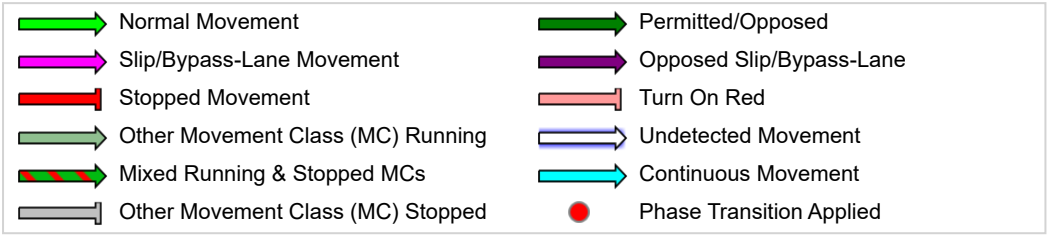
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

4 Phase Frequency specified by the user (phase times not specified).

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

DRAFT

Site: 411 [SpriHawtAMExE (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Sprinvale Road/Hawthorn Road
AM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springvale Road															
1	L2	All MCs	119	3.5	119	3.5	0.119	41.4	LOS D	3.3	23.7	0.51	0.73	0.51	44.7
2	T1	All MCs	1792	5.1	1792	5.1	0.899	62.1	LOS E	40.5	295.9	1.00	1.02	1.17	38.1
3	R2	All MCs	80	1.3	80	1.3	0.585	82.8	LOS F	5.2	36.8	1.00	0.79	1.02	28.6
3u	U	All MCs	7	0.0	7	0.0	0.585	84.1	LOS F	5.2	36.8	1.00	0.79	1.02	31.3
Approach			1998	4.8	1998	4.8	0.899	61.7	LOS E	40.5	295.9	0.97	1.00	1.13	33.6
East: Hawthorn Road															
4	L2	All MCs	103	3.1	103	3.1	0.834	52.9	LOS D	17.1	120.6	1.00	0.98	1.17	29.6
5	T1	All MCs	172	0.0	172	0.0	0.834	63.5	LOS E	17.1	120.6	1.00	0.98	1.17	27.7
6	R2	All MCs	245	6.4	245	6.4	* 0.921	75.9	LOS E	17.0	125.8	1.00	1.07	1.37	26.0
Approach			520	3.6	520	3.6	0.921	67.3	LOS E	17.1	125.8	1.00	1.02	1.27	27.2
North: Springvale Road															
7	L2	All MCs	140	0.8	140	0.8	0.916	44.6	LOS D	43.0	307.6	1.00	1.06	1.19	31.2
8	T1	All MCs	1747	3.1	1747	3.1	* 0.916	63.4	LOS E	43.4	311.9	1.00	1.06	1.20	33.5
9	R2	All MCs	124	4.2	124	4.2	* 0.881	96.0	LOS F	8.7	62.8	1.00	0.96	1.37	26.5
9u	U	All MCs	6	0.0	6	0.0	0.881	97.3	LOS F	8.7	62.8	1.00	0.96	1.37	28.9
Approach			2018	3.0	2018	3.0	0.916	64.2	LOS E	43.4	311.9	1.00	1.05	1.21	30.9
West: Hawthorn Road															
10	L2	All MCs	119	5.3	119	5.3	0.718	31.4	LOS C	12.7	90.8	0.98	1.01	1.02	33.0
11	T1	All MCs	174	0.0	174	0.0	* 0.718	56.8	LOS E	12.7	90.8	0.98	1.01	1.02	30.7
12	R2	All MCs	99	3.2	99	3.2	0.363	54.9	LOS D	5.3	38.3	0.94	0.77	0.94	30.8
Approach			392	2.4	392	2.4	0.718	48.6	LOS D	12.7	90.8	0.97	0.95	1.00	31.4
All Vehicles			4927	3.8	4927	3.8	0.921	62.3	LOS E	43.4	311.9	0.99	1.02	1.17	31.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Springvale Road											
P1 Full	45	47	40.1	LOS E	0.1	0.1	0.82	0.82	56.8	20.0	0.35
East: Hawthorn Road											
P2 Full	50	53	22.9	LOS C	0.1	0.1	0.62	0.62	39.5	20.0	0.51
North: Springvale Road											
P3 Full	50	53	40.1	LOS E	0.1	0.1	0.82	0.82	56.8	20.0	0.35
West: Hawthorn Road											
P4 Full	50	53	22.9	LOS C	0.1	0.1	0.62	0.62	39.5	20.0	0.51
All Pedestrians	195	205	31.3	LOS D	0.1	0.1	0.72	0.72	47.9	20.0	0.42

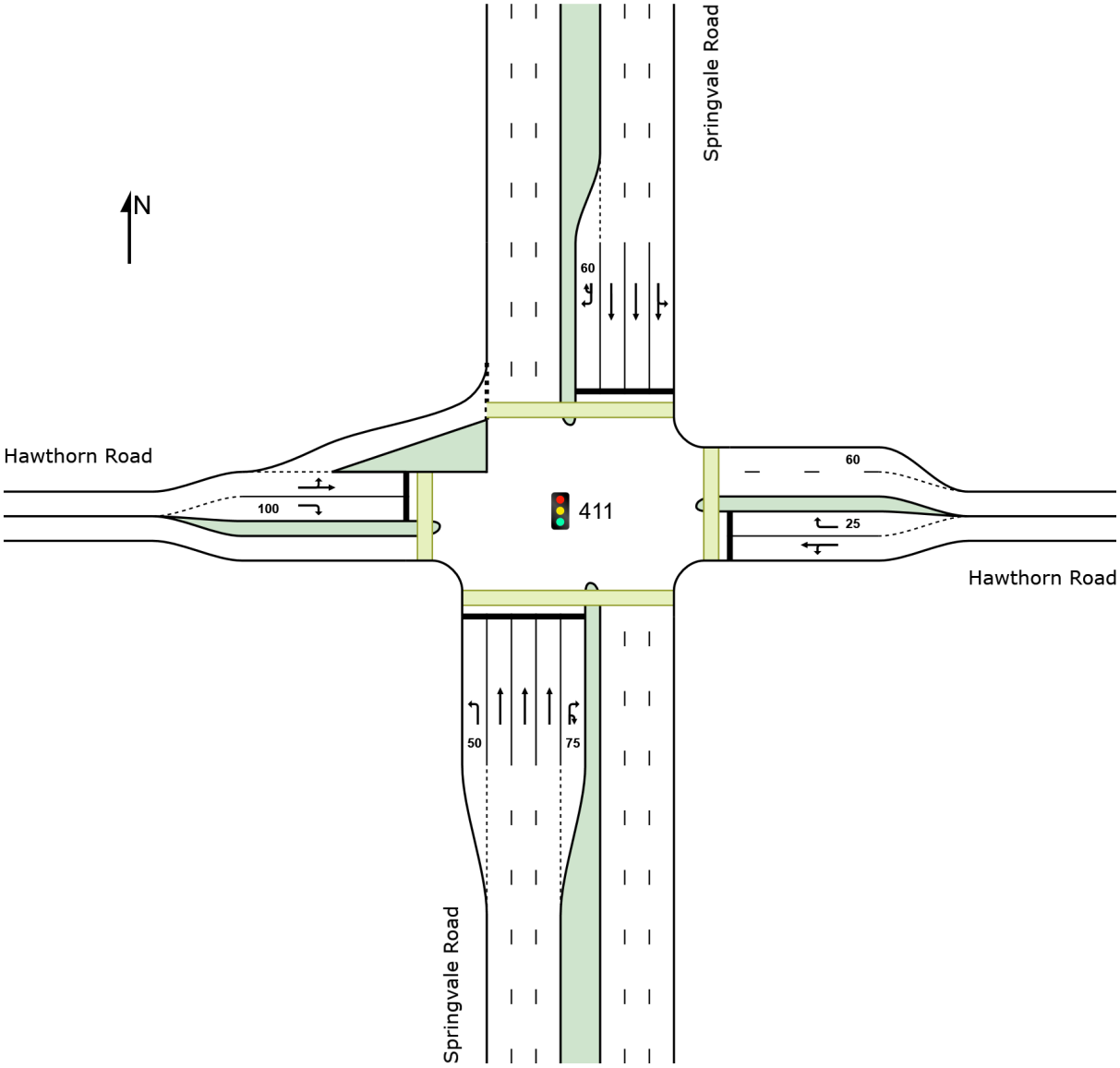
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 411 [SpriHawtPMExE (Site Folder: General)]

Sprinvale Road/Hawthorn Road
PM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Created: Wednesday, 7 February 2024 9:59:14 AM
Project: N:\Projects\2023\230657\Sidra\230657SID003A - Springvale&Hawthorn.sip9

PHASING SUMMARY

Site: 411 [SpriHawtPMExE (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Sprinvale Road/Hawthorn Road
PM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns
Input Phase Sequence: A, C1*, C2*, C3*, D, E1*, E2*, E3*
Output Phase Sequence: A, C1*, D, E1*
Reference Phase: Phase A
(* Variable Phase)

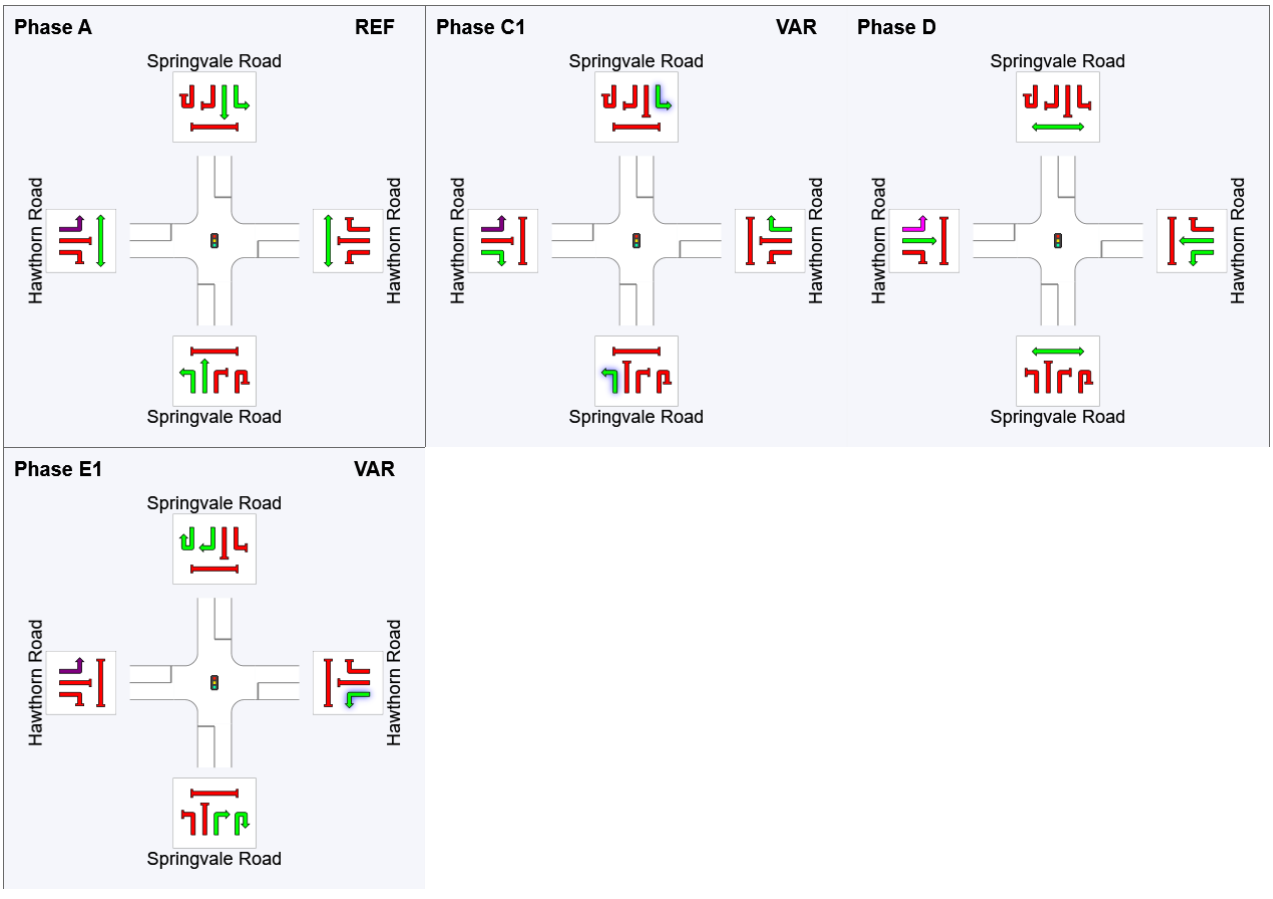
Phase Timing Summary

Phase	A	C1	D	E1
Phase Change Time (sec)	0	61	78	103
Green Time (sec)	55	11	18	10
Phase Time (sec)	61	18	25	16
Phase Split	51%	15%	21%	13%
Phase Frequency (%)	100.0[4]	100.0[4]	100.0[4]	100.0[4]

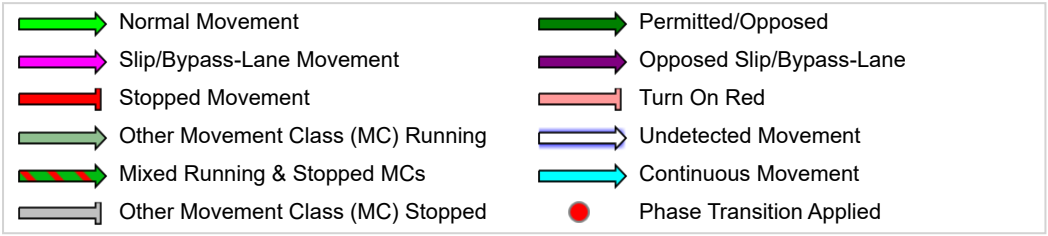
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

4 Phase Frequency specified by the user (phase times not specified).

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Processed: Friday, 24 November 2023 11:32:08 AM
Project: N:\Projects\2023\230657\Sidra\230657SID003A - Springvale&Hawthorn.sip9

MOVEMENT SUMMARY

Site: 411 [SpriHawtPMExE (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Sprinvale Road/Hawthorn Road
PM Peak, Existing Conditions, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springvale Road															
1	L2	All MCs	134	0.0	134	0.0	0.125	38.5	LOS D	3.5	24.5	0.49	0.72	0.49	45.5
2	T1	All MCs	2249	1.5	2249	1.5	* 0.896	54.0	LOS D	48.4	342.8	0.99	1.00	1.12	41.4
3	R2	All MCs	46	0.0	46	0.0	0.435	82.2	LOS F	3.6	25.5	0.99	0.76	0.99	28.8
3u	U	All MCs	16	0.0	16	0.0	0.435	83.6	LOS F	3.6	25.5	0.99	0.76	0.99	31.5
Approach			2445	1.4	2445	1.4	0.896	53.9	LOS D	48.4	342.8	0.97	0.98	1.08	36.4
East: Hawthorn Road															
4	L2	All MCs	39	0.0	39	0.0	0.410	45.9	LOS D	6.3	44.2	0.95	0.77	0.95	31.7
5	T1	All MCs	77	1.4	77	1.4	0.410	55.5	LOS E	6.3	44.2	0.95	0.77	0.95	29.3
6	R2	All MCs	88	0.0	88	0.0	0.519	62.9	LOS E	5.2	36.1	1.00	0.78	1.00	29.1
Approach			204	0.5	204	0.5	0.519	56.9	LOS E	6.3	44.2	0.97	0.77	0.97	29.6
North: Springvale Road															
7	L2	All MCs	86	1.2	86	1.2	0.835	29.5	LOS C	39.0	277.3	0.94	0.91	0.99	37.9
8	T1	All MCs	2046	2.0	2046	2.0	0.835	41.2	LOS D	39.4	280.4	0.95	0.91	0.99	41.1
9	R2	All MCs	97	4.3	97	4.3	* 0.814	88.6	LOS F	7.4	53.8	1.00	0.90	1.26	27.4
9u	U	All MCs	19	5.6	19	5.6	0.814	90.0	LOS F	7.4	53.8	1.00	0.90	1.26	29.4
Approach			2248	2.1	2248	2.1	0.835	43.2	LOS D	39.4	280.4	0.95	0.91	1.01	37.8
West: Hawthorn Road															
10	L2	All MCs	163	1.9	163	1.9	0.512	23.1	LOS C	10.7	75.8	0.90	0.80	0.90	38.9
11	T1	All MCs	80	0.0	80	0.0	* 0.512	45.2	LOS D	10.7	75.8	0.90	0.80	0.90	35.4
12	R2	All MCs	149	0.0	149	0.0	* 0.878	73.3	LOS E	9.9	69.0	1.00	1.02	1.34	26.9
Approach			393	0.8	393	0.8	0.878	46.7	LOS D	10.7	75.8	0.94	0.89	1.07	32.7
All Vehicles			5291	1.6	5291	1.6	0.896	48.9	LOS D	48.4	342.8	0.96	0.93	1.05	36.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Springvale Road											
P1 Full	45	47	42.6	LOS E	0.1	0.1	0.84	0.84	59.3	20.0	0.34
East: Hawthorn Road											
P2 Full	50	53	17.1	LOS B	0.1	0.1	0.53	0.53	33.8	20.0	0.59
North: Springvale Road											
P3 Full	50	53	42.6	LOS E	0.2	0.2	0.84	0.84	59.3	20.0	0.34
West: Hawthorn Road											
P4 Full	50	53	17.1	LOS B	0.1	0.1	0.53	0.53	33.8	20.0	0.59
All Pedestrians	195	205	29.5	LOS C	0.2	0.2	0.69	0.69	46.2	20.0	0.43

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

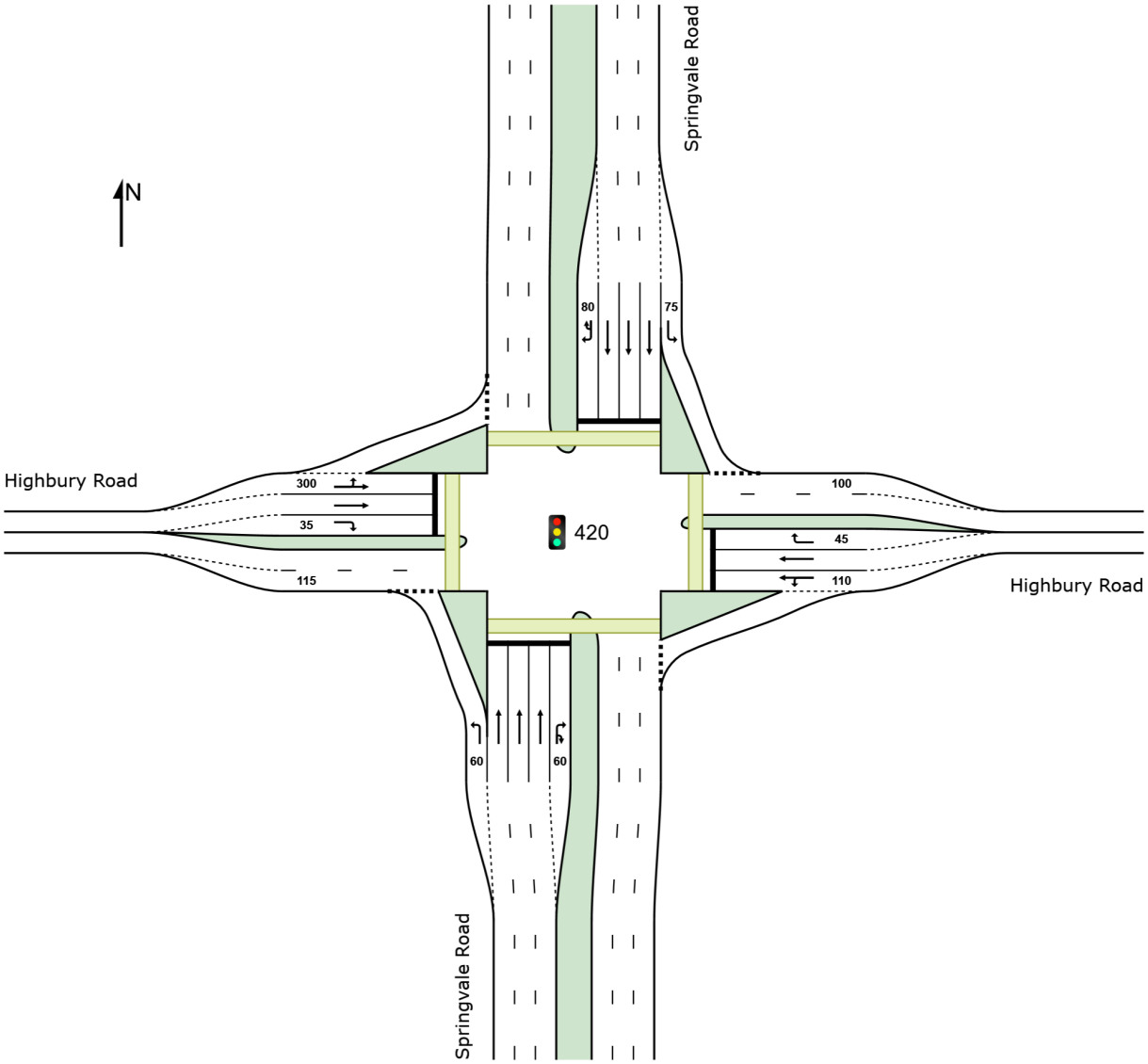
Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Processed: Friday, 24 November 2023 11:32:08 AM
Project: N:\Projects\2023\230657\Sidra\230657SID003A - Springvale&Hawthorn.sip9

SITE LAYOUT

Site: 420 [SpriHighAMExE (Site Folder: General)]

Sringvale Road / Highbury Road
AM peak, Existing Geometry, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Created: Wednesday, 7 February 2024 9:41:28 AM
Project: N:\Projects\2023\230657\Sidra\230657SID004A - Springvale&Highbury.sip9

PHASING SUMMARY

DRAFT

Site: 420 [SpriHighAMExE (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sringvale Road / Highbury Road
AM peak, Existing Geometry, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

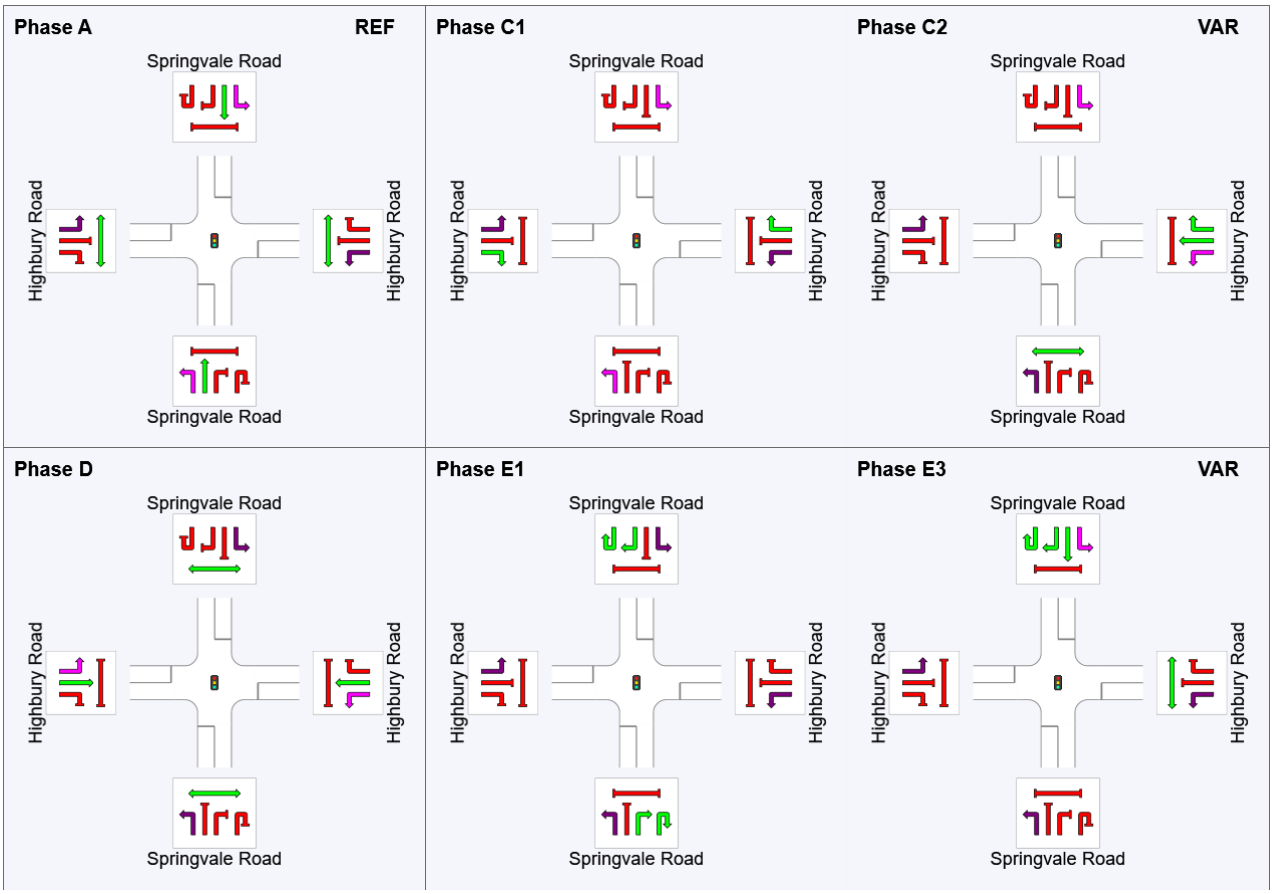
Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns - Copy
Input Phase Sequence: A, C1, C2*, D, E1, E2*, E3*
Output Phase Sequence: A, C1, C2*, D, E1, E3*
Reference Phase: Phase A
(* Variable Phase)

Phase Timing Summary

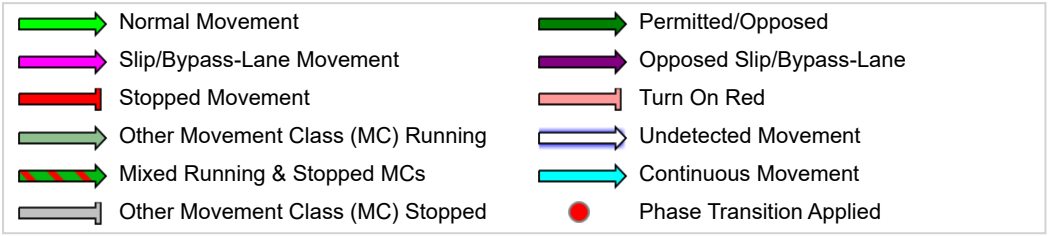
Phase	A	C1	C2	D	E1	E3
Phase Change Time (sec)	0	41	60	74	91	104
Green Time (sec)	35	13	8	11	6	10
Phase Time (sec)	41	19	14	18	12	16
Phase Split	34%	16%	12%	15%	10%	13%
Phase Frequency (%)	100.0	100.0	100.0	100.0	100.0	100.0

See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



MOVEMENT SUMMARY

DRAFT

Site: 420 [SpriHighAMExE (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sringvale Road / Highbury Road
AM peak, Existing Geometry, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springvale Road															
1	L2	All MCs	137	0.8	137	0.8	0.121	32.8	LOS C	2.7	19.3	0.41	0.70	0.41	52.5
2	T1	All MCs	1463	4.6	1463	4.6	* 0.950	82.2	LOS F	37.7	274.3	1.00	1.13	1.34	31.7
3	R2	All MCs	42	0.0	42	0.0	0.476	91.6	LOS F	2.6	18.5	1.00	0.74	1.00	28.9
3u	U	All MCs	1	0.0	1	0.0	0.476	93.0	LOS F	2.6	18.5	1.00	0.74	1.00	30.3
Approach			1643	4.2	1643	4.2	0.950	78.3	LOS E	37.7	274.3	0.95	1.09	1.25	29.3
East: Highbury Road															
4	L2	All MCs	108	1.9	108	1.9	0.506	19.4	LOS B	8.6	60.7	0.90	0.84	0.90	40.9
5	T1	All MCs	336	0.9	336	0.9	0.506	54.9	LOS D	10.5	74.3	0.92	0.80	0.92	36.4
6	R2	All MCs	318	2.3	318	2.3	* 0.971	107.1	LOS F	25.0	178.1	1.00	1.14	1.49	24.9
Approach			762	1.6	762	1.6	0.971	71.6	LOS E	25.0	178.1	0.95	0.95	1.16	28.2
North: Springvale Road															
7	L2	All MCs	120	0.9	120	0.9	0.082	20.2	LOS C	1.2	8.2	0.22	0.66	0.22	56.7
8	T1	All MCs	1768	2.4	1768	2.4	0.782	38.5	LOS D	31.7	226.3	0.93	0.84	0.94	46.8
9	R2	All MCs	306	1.4	306	1.4	* 0.931	86.3	LOS F	21.8	154.4	1.00	1.02	1.36	27.4
9u	U	All MCs	2	0.0	2	0.0	0.931	87.6	LOS F	21.8	154.4	1.00	1.02	1.36	28.6
Approach			2197	2.2	2197	2.2	0.931	44.2	LOS D	31.7	226.3	0.90	0.86	0.96	39.9
West: Highbury Road															
10	L2	All MCs	395	2.1	395	2.1	0.701	37.2	LOS D	18.9	135.0	0.93	0.85	0.93	38.6
11	T1	All MCs	153	2.1	153	2.1	* 0.897	72.1	LOS E	10.2	73.0	1.00	1.02	1.39	28.0
12	R2	All MCs	114	0.9	114	0.9	0.578	63.8	LOS E	6.6	46.4	1.00	0.79	1.00	30.7
Approach			661	1.9	661	1.9	0.897	49.8	LOS D	18.9	135.0	0.96	0.88	1.05	33.9
All Vehicles			5263	2.7	5263	2.7	0.971	59.5	LOS E	37.7	274.3	0.93	0.94	1.09	33.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Springvale Road											
P1 Full	45	47	36.9	LOS D	0.1	0.1	0.78	0.78	53.6	20.0	0.37
East: Highbury Road											
P2 Full	50	53	19.3	LOS B	0.1	0.1	0.57	0.57	36.0	20.0	0.56
North: Springvale Road											
P3 Full	50	53	48.7	LOS E	0.2	0.2	0.90	0.90	65.4	20.0	0.31
West: Highbury Road											
P4 Full	50	53	29.5	LOS C	0.1	0.1	0.70	0.70	46.1	20.0	0.43
All Pedestrians	195	205	33.5	LOS D	0.2	0.2	0.74	0.74	50.2	20.0	0.40

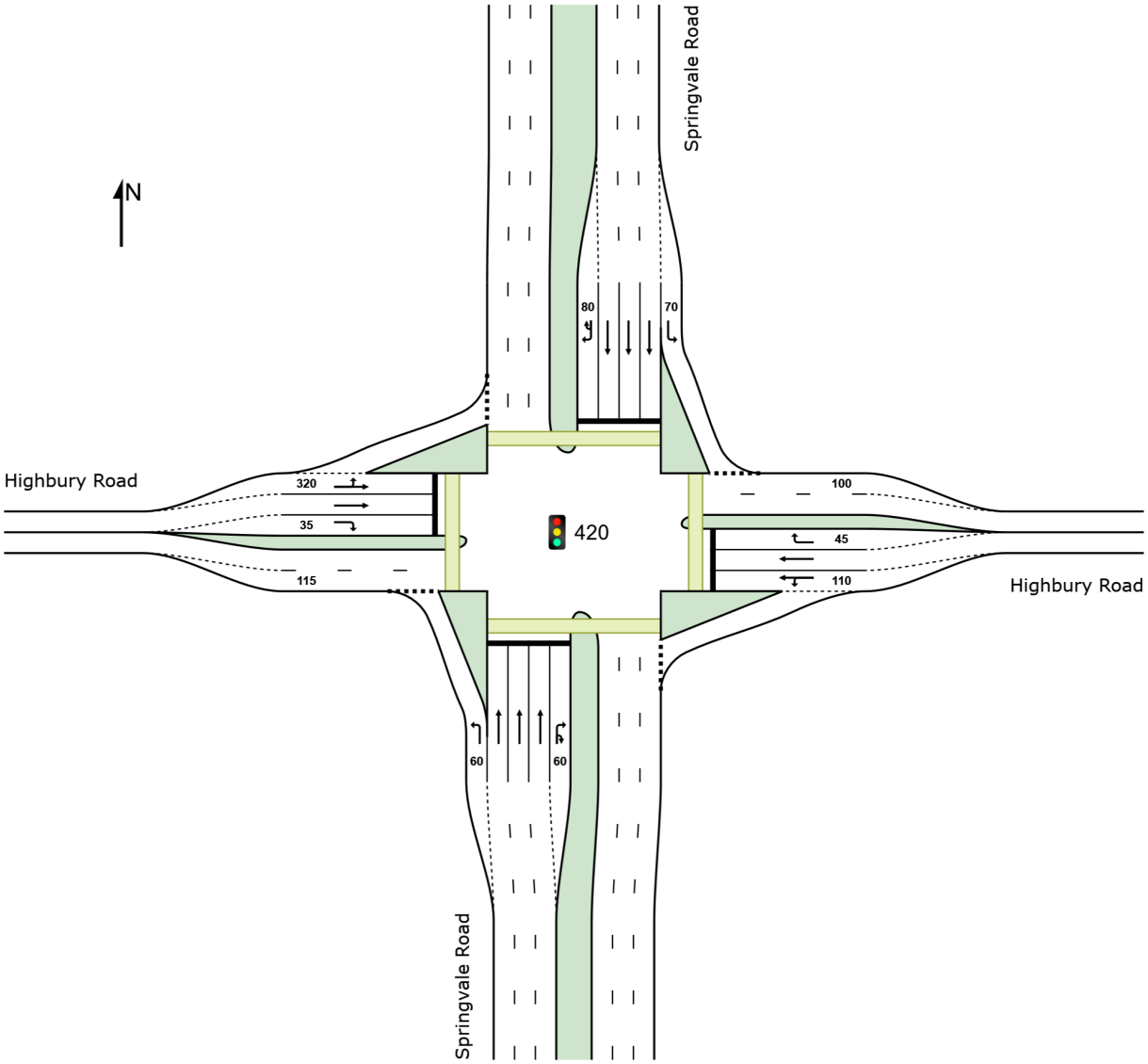
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 420 [SpriHighPMExE (Site Folder: General)]

Sringvale Road / Highbury Road
PM peak, Existing Geometry, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Created: Wednesday, 7 February 2024 9:50:19 AM
Project: N:\Projects\2023\230657\Sidra\230657SID004A - Springvale&Highbury.sip9

PHASING SUMMARY

Site: 420 [SpriHighPMExE (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sringvale Road / Highbury Road
PM peak, Existing Geometry, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Timings based on settings in the Site Phasing & Timing dialog
Phase Times determined by the program
Phase Sequence: Four-Phase Leading Right Turns - Copy
Input Phase Sequence: A, C1, C2*, C3*, D, E1, E2*, E3*
Output Phase Sequence: A, C1, C3*, D, E1, E3*
Reference Phase: Phase A
(* Variable Phase)

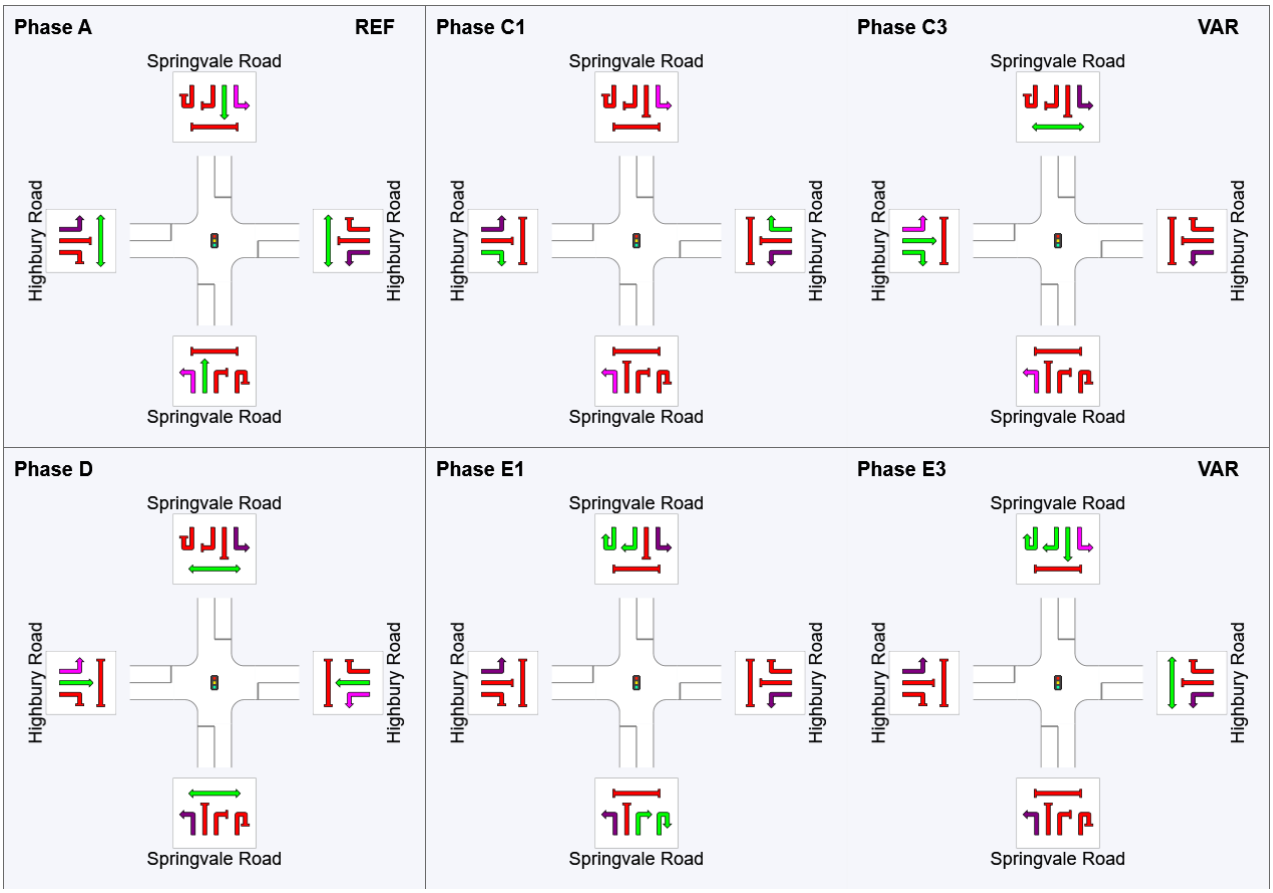
Phase Timing Summary

Phase	A	C1	C3	D	E1	E3
Phase Change Time (sec)	0	57	72	83	98	114
Green Time (sec)	51	9	5	9	9	***
Phase Time (sec)	57	15	11	16	15	6
Phase Split	48%	13%	9%	13%	13%	5%
Phase Frequency (%)	100.0[4]	100.0[4]	100.0[4]	100.0[4]	100.0[4]	100.0[4]

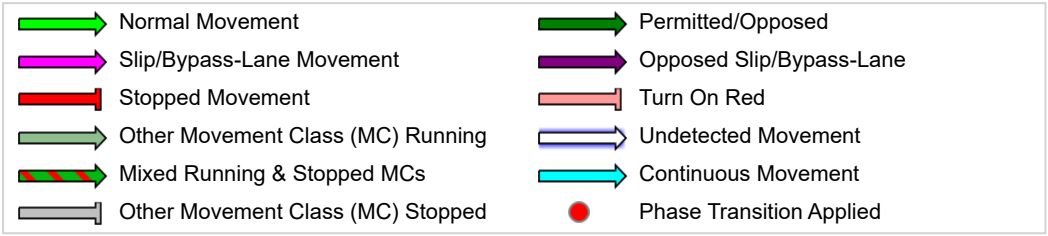
See the Timing Analysis report for more detailed information including input values of Yellow Time and All-Red Time, and information on any adjustments to Intergreen Time, Phase Time and Green Time values in cases of Pedestrian Actuation, Minor Phase Actuation and Phase Frequency values (user-specified or implied) less than 100%.

4 Phase Frequency specified by the user (phase times not specified).

Output Phase Sequence



REF: Reference Phase
VAR: Variable Phase



Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Processed: Monday, 27 November 2023 3:58:11 PM
Project: N:\Projects\2023\230657\Sidra\230657SID004A - Springvale&Highbury.sip9

MOVEMENT SUMMARY

Site: 420 [SpriHighPMExE (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.5.224

Sringvale Road / Highbury Road
PM peak, Existing Geometry, Existing Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springvale Road															
1	L2	All MCs	162	0.8	162	0.8	0.116	27.9	LOS C	2.0	13.9	0.27	0.62	0.27	51.1
2	T1	All MCs	2108	4.6	2108	4.6	* 0.957	76.1	LOS E	55.4	403.3	1.00	1.18	1.29	29.5
3	R2	All MCs	97	0.0	97	0.0	0.717	89.4	LOS F	6.0	42.3	1.00	0.86	1.14	27.8
3u	U	All MCs	1	0.0	1	0.0	0.717	91.0	LOS F	6.0	42.3	1.00	0.86	1.14	27.7
Approach			2368	4.1	2368	4.1	0.957	73.4	LOS E	55.4	403.3	0.95	1.13	1.22	27.3
East: Highbury Road															
4	L2	All MCs	74	1.9	74	1.9	0.387	14.7	LOS B	3.7	26.4	0.87	0.75	0.87	41.6
5	T1	All MCs	103	0.9	103	0.9	0.387	51.2	LOS D	3.7	26.4	0.93	0.75	0.93	35.2
6	R2	All MCs	126	2.3	126	2.3	* 0.936	83.9	LOS F	8.9	63.7	1.00	1.06	1.53	25.0
Approach			303	1.7	303	1.7	0.936	55.9	LOS E	8.9	63.7	0.95	0.88	1.17	31.1
North: Springvale Road															
7	L2	All MCs	180	0.9	180	0.9	0.141	18.6	LOS B	3.1	21.6	0.35	0.64	0.35	49.6
8	T1	All MCs	1742	2.4	1742	2.4	0.680	30.1	LOS C	27.4	195.9	0.84	0.75	0.84	42.1
9	R2	All MCs	200	1.4	200	1.4	* 0.908	81.5	LOS F	13.9	98.6	1.00	1.03	1.37	26.3
9u	U	All MCs	4	0.0	4	0.0	0.908	83.1	LOS F	13.9	98.6	1.00	1.03	1.37	26.2
Approach			2126	2.2	2126	2.2	0.908	34.1	LOS C	27.4	195.9	0.81	0.77	0.85	38.4
West: Highbury Road															
10	L2	All MCs	383	2.1	383	2.1	0.719	40.8	LOS D	18.5	132.1	0.96	0.94	0.96	35.2
11	T1	All MCs	237	2.1	237	2.1	* 0.942	94.1	LOS F	17.2	122.8	1.00	1.13	1.45	26.7
12	R2	All MCs	157	0.9	157	0.9	0.518	72.9	LOS E	8.5	60.3	0.96	0.80	0.96	30.9
Approach			777	1.9	777	1.9	0.942	63.5	LOS E	18.5	132.1	0.97	0.97	1.11	29.2
All Vehicles			5575	2.9	5575	2.9	0.957	56.1	LOS E	55.4	403.3	0.90	0.96	1.06	31.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE BACK OF QUEUE [Ped	Dist]	Prop. Que	Eff. Stop Rate	Travel Time	Travel Dist.	Aver. Speed

	ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Springvale Road											
P1 Full	45	47	50.5	LOS E	0.1	0.1	0.92	0.92	67.2	20.0	0.30
East: Highbury Road											
P2 Full	50	53	16.1	LOS B	0.1	0.1	0.52	0.52	32.7	20.0	0.61
North: Springvale Road											
P3 Full	50	53	40.9	LOS E	0.1	0.1	0.83	0.83	57.6	20.0	0.35
West: Highbury Road											
P4 Full	50	53	19.3	LOS B	0.1	0.1	0.57	0.57	36.0	20.0	0.56
All Pedestrians	195	205	31.2	LOS D	0.1	0.1	0.70	0.70	47.9	20.0	0.42

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

Organisation: ONE MILE GRID | Licence: NETWORK / 1PC | Processed: Monday, 27 November 2023 3:58:11 PM
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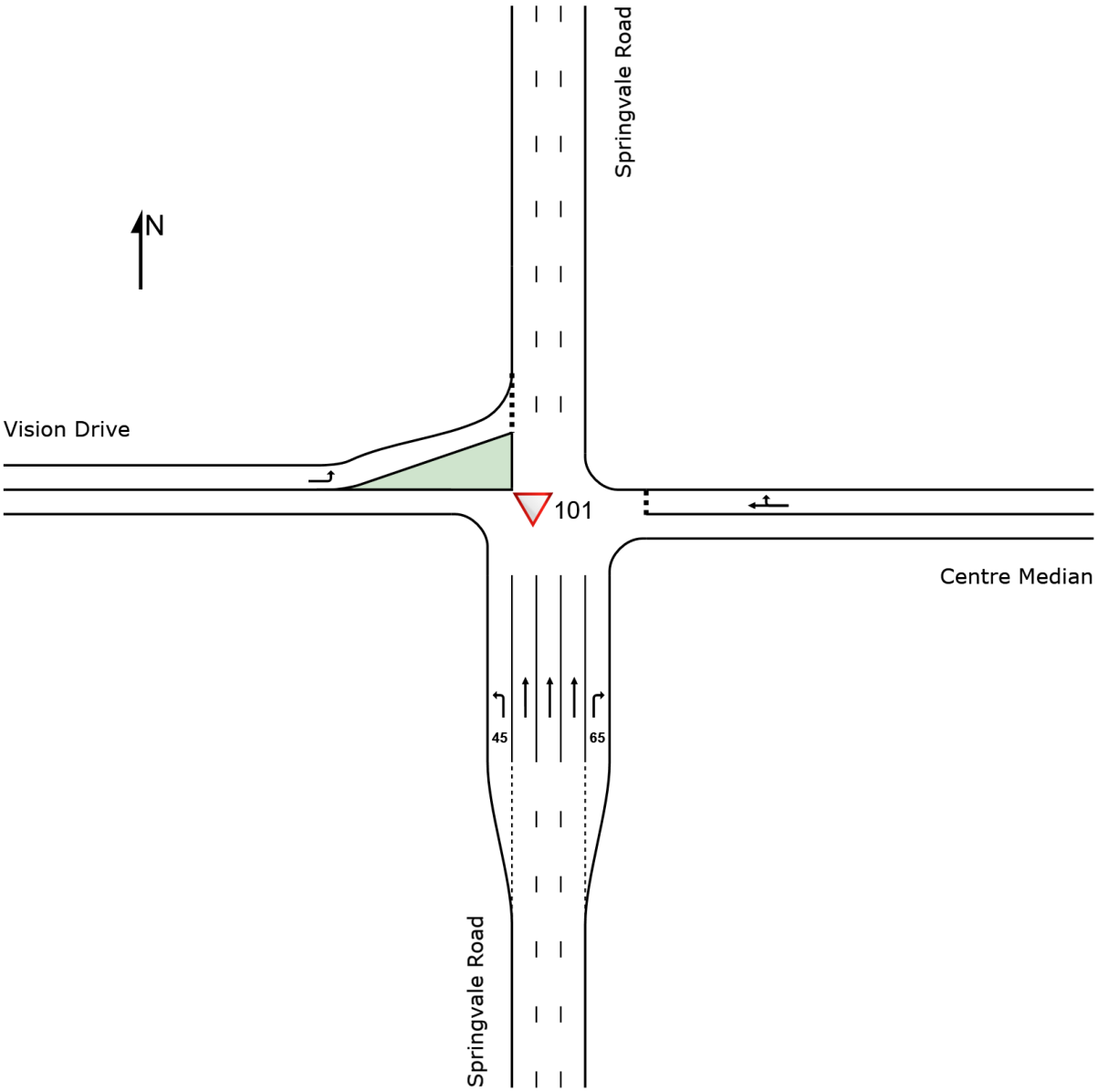
SITE LAYOUT

Site: 101 [SpriWeedVisiAMExE-W (Site Folder: General)]

Sprinvale Road / Weeden Drive / Vision Drive
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

DRAFT

Site: 101 [SpriWeedVisiAMExE-W (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Sprinvale Road / Weeden Drive / Vision Drive
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springvale Road															
1	L2	All MCs	41	2.6	41	2.6	0.023	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	52.8
2	T1	All MCs	2109	4.0	2109	4.0	0.376	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
3	R2	All MCs	29	4.0	29	4.0	0.017	5.8	LOS A	0.0	0.0	0.00	0.63	0.00	49.3
Approach			2180	4.0	2180	4.0	0.376	0.3	NA	0.0	0.0	0.00	0.02	0.00	59.5
East: Centre Median															
5	T1	All MCs	75	0.0	75	0.0	2.267	1259.5	LOS F	37.4	261.7	1.00	2.45	7.54	1.5
6	R2	All MCs	24	0.0	24	0.0	2.267	1205.0	LOS F	37.4	261.7	1.00	2.45	7.54	1.5
Approach			99	0.0	99	0.0	2.267	1246.2	LOS F	37.4	261.7	1.00	2.45	7.54	1.5
West: Vision Drive															
10	L2	All MCs	12	9.1	12	9.1	0.021	10.4	LOS B	0.1	0.5	0.57	0.71	0.57	49.5
Approach			12	9.1	12	9.1	0.021	10.4	LOS B	0.1	0.5	0.57	0.71	0.57	49.5
All Vehicles			2291	3.8	2291	3.8	2.267	54.2	NA	37.4	261.7	0.05	0.13	0.33	31.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

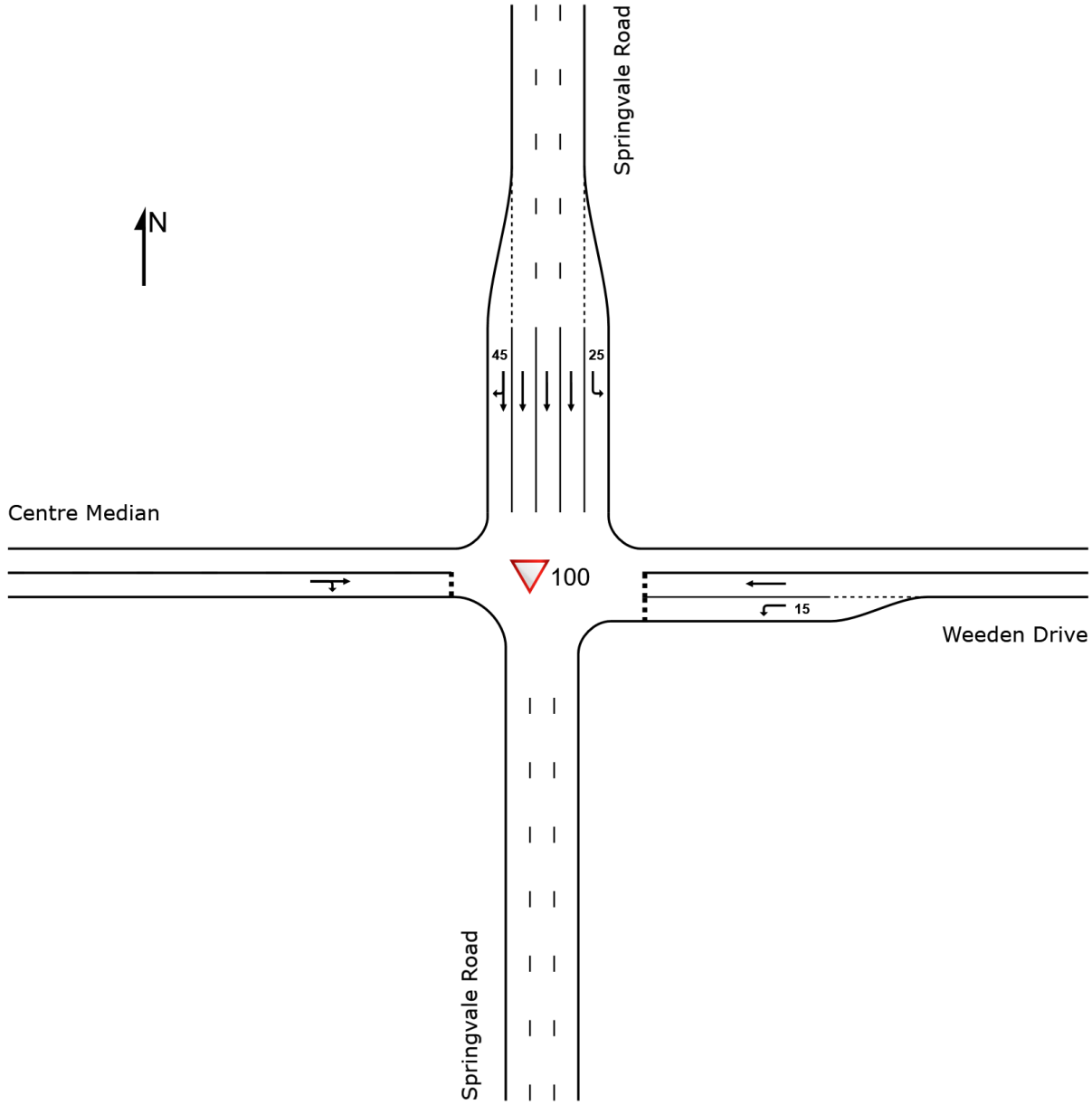
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 100 [SpriWeedVisiAMExE-E (Site Folder: General)]

Sprinvale Road / Weeden Drive / Vision Drive
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 100 [SpriWeedVisiAMExE-E (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Sprinvale Road / Weeden Drive / Vision Drive
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Weeden Drive															
4	L2	All MCs	38	0.0	38	0.0	0.034	6.3	LOS A	0.1	0.9	0.27	0.56	0.27	52.1
5	T1	All MCs	17	0.0	17	0.0	1.148	587.4	LOS F	4.4	30.6	1.00	1.19	1.89	3.1
Approach			55	0.0	55	0.0	1.148	185.1	LOS F	4.4	30.6	0.50	0.75	0.77	13.0
North: Springvale Road															
7	L2	All MCs	34	0.0	34	0.0	0.018	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
8	T1	All MCs	2137	2.2	2137	2.2	0.495	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	59.6
9	R2	All MCs	82	1.4	82	1.4	0.086	5.8	LOS A	0.0	0.0	0.00	0.42	0.00	28.4
Approach			2253	2.1	2253	2.1	0.495	0.5	NA	0.0	0.0	0.00	0.03	0.00	58.2
West: Centre Median															
11	T1	All MCs	26	0.0	26	0.0	1.918	1143.0	LOS F	11.4	80.0	1.00	1.47	3.25	1.6
12	R2	All MCs	3	0.0	3	0.0	1.918	1006.8	LOS F	11.4	80.0	1.00	1.47	3.25	1.6
Approach			29	0.0	29	0.0	1.918	1128.4	LOS F	11.4	80.0	1.00	1.47	3.25	1.6
All Vehicles			2337	2.1	2337	2.1	1.918	19.0	NA	11.4	80.0	0.02	0.07	0.06	44.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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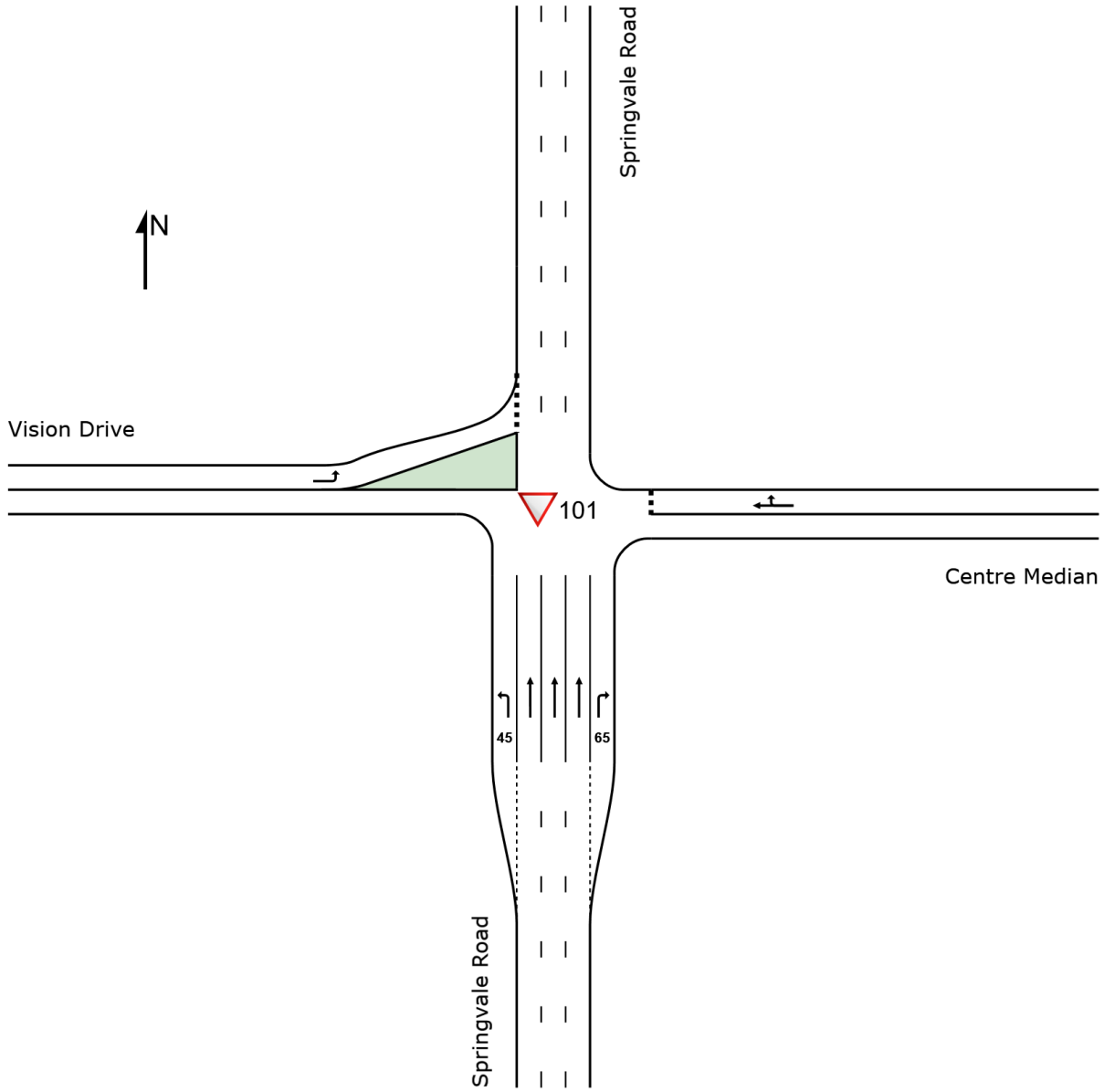
SITE LAYOUT

Site: 101 [SpriWeedVisiPMExE-W (Site Folder: General)]

Sprinvale Road / Weeden Drive / Vision Drive
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

DRAFT

Site: 101 [SpriWeedVisiPMExE-W (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Sprinvale Road / Weeden Drive / Vision Drive
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Springvale Road															
1	L2	All MCs	8	0.0	8	0.0	0.005	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
2	T1	All MCs	2565	1.3	2565	1.3	0.449	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
3	R2	All MCs	43	0.0	43	0.0	0.024	5.7	LOS A	0.0	0.0	0.00	0.63	0.00	49.3
Approach			2617	1.3	2617	1.3	0.449	0.3	NA	0.0	0.0	0.00	0.01	0.00	59.5
East: Centre Median															
5	T1	All MCs	76	0.0	76	0.0	8.609	7095.6	LOS F	59.7	418.0	1.00	1.68	4.24	0.3
6	R2	All MCs	28	0.0	28	0.0	8.609	7219.7	LOS F	59.7	418.0	1.00	1.68	4.24	0.3
Approach			104	0.0	104	0.0	8.609	7129.5	LOS F	59.7	418.0	1.00	1.68	4.24	0.3
West: Vision Drive															
10	L2	All MCs	61	0.0	61	0.0	0.124	11.9	LOS B	0.4	3.1	0.66	0.85	0.66	48.8
Approach			61	0.0	61	0.0	0.124	11.9	LOS B	0.4	3.1	0.66	0.85	0.66	48.8
All Vehicles			2782	1.2	2782	1.2	8.609	267.6	NA	59.7	418.0	0.05	0.09	0.17	10.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 100 [SpriWeedVisiPMExE-E (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.4.221

Sprinvale Road / Weeden Drive / Vision Drive
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Weeden Drive															
4	L2	All MCs	31	0.0	31	0.0	0.027	6.2	LOS A	0.1	0.7	0.27	0.56	0.27	52.1
5	T1	All MCs	18	0.0	18	0.0	1.108	533.3	LOS F	4.3	29.8	1.00	1.18	1.86	3.4
Approach			48	0.0	48	0.0	1.108	201.0	LOS F	4.3	29.8	0.54	0.79	0.86	11.9
North: Springvale Road															
7	L2	All MCs	39	0.0	39	0.0	0.021	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	52.9
8	T1	All MCs	2082	2.2	2082	2.2	0.482	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	59.6
9	R2	All MCs	86	1.4	86	1.4	0.087	5.8	LOS A	0.0	0.0	0.00	0.43	0.00	28.3
Approach			2207	2.1	2207	2.1	0.482	0.5	NA	0.0	0.0	0.00	0.04	0.00	58.1
West: Centre Median															
11	T1	All MCs	41	0.0	41	0.0	2.703	1782.1	LOS F	19.5	136.6	1.00	1.63	4.00	1.0
12	R2	All MCs	2	0.0	2	0.0	2.703	1887.8	LOS F	19.5	136.6	1.00	1.63	4.00	1.0
Approach			43	0.0	43	0.0	2.703	1787.3	LOS F	19.5	136.6	1.00	1.63	4.00	1.0
All Vehicles			2299	2.0	2299	2.0	2.703	38.3	NA	19.5	136.6	0.03	0.08	0.09	35.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

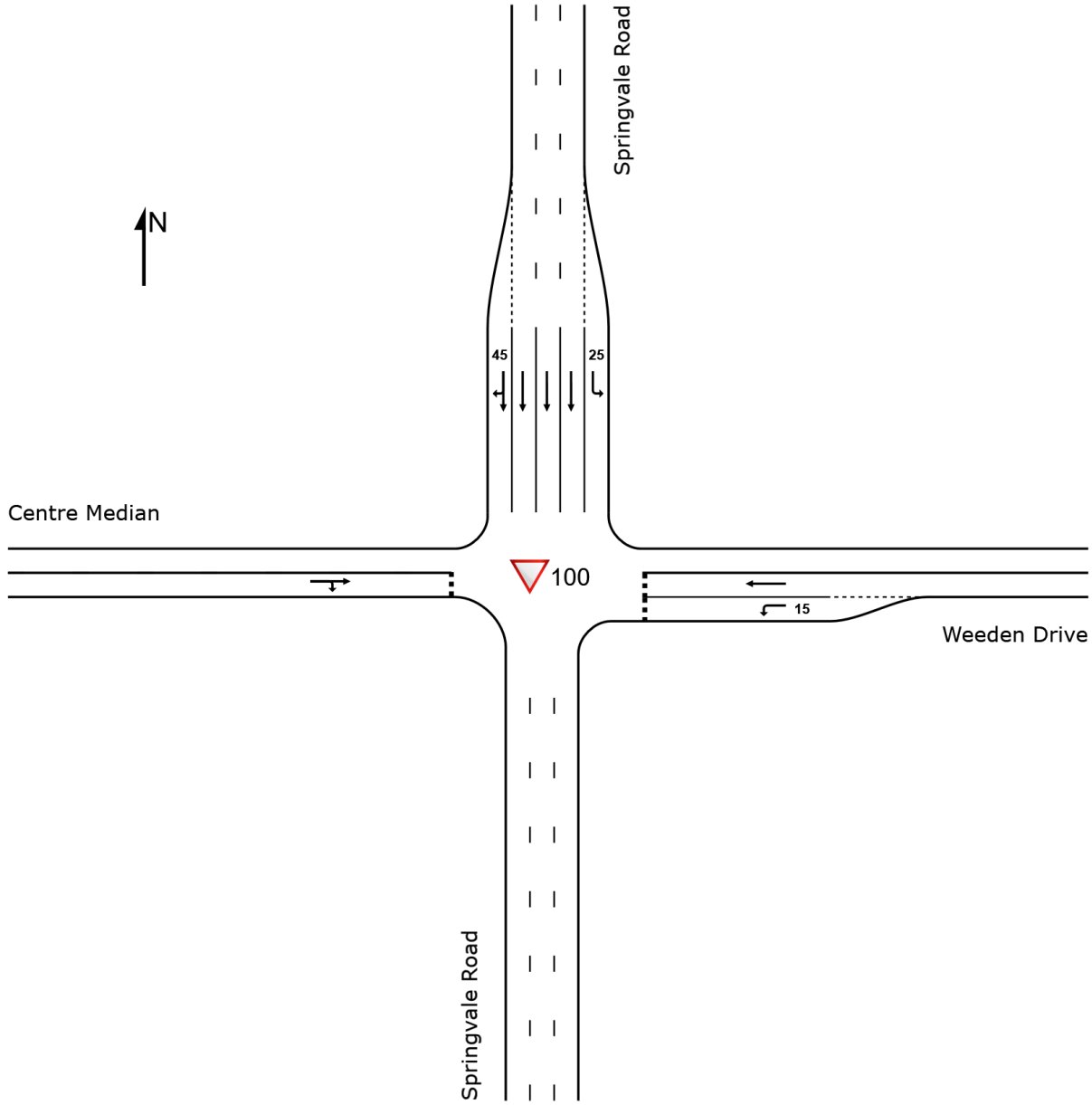
SITE LAYOUT

DRAFT

Site: 100 [SpriWeedVisiPMExE-E (Site Folder: General)]

Sprinvale Road / Weeden Drive / Vision Drive
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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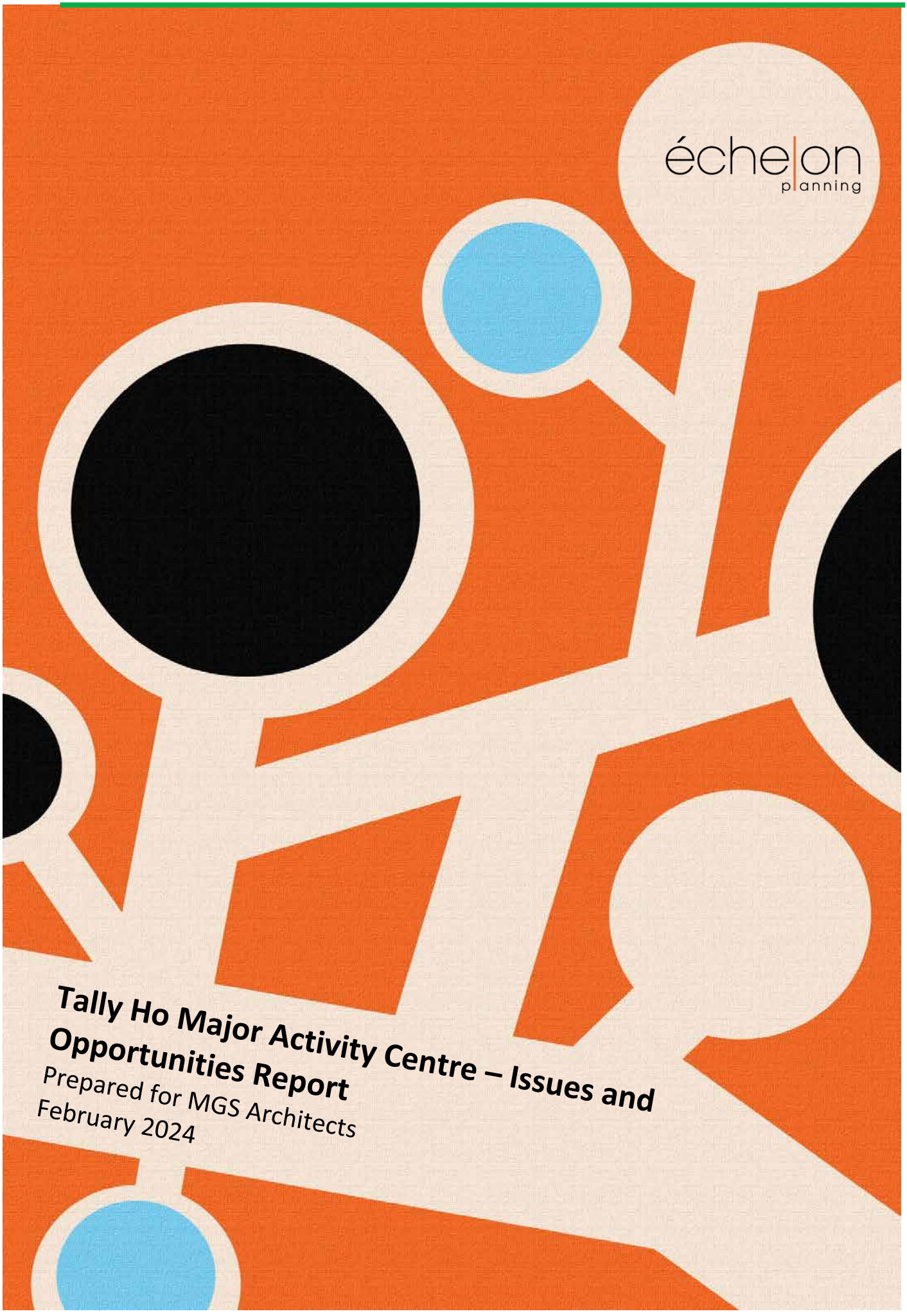
échelon
planning
Tally Ho Major Activity Centre – Issues and Opportunities Report
Prepared for MGS Architects
February 2024

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Contents

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Prepared by	EM
Reviewed by	BH/MW
Version	4

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Brunswick VIC 3056
ABN 48 156 350 668

1. Introduction and Strategic Context

1.1 Planning Context Summary

Strategic Context

The key policy directions from State Planning Policy that will shape the Tally Ho structure plan are as follows:

- Plan Melbourne 2017-2050

Plan Melbourne 2017-2050 is a strategy that will guide the growth of Melbourne over the next 35 years and contains directions regarding jobs, housing, transport, and sustainability. Plan Melbourne seeks to develop a network of Metropolitan Activity Centres supported by a Major and Neighbourhood activity centres of varying size, role and function that provide a diverse range of jobs, activities, and housing for regional catchments that are well serviced by public transport. Burwood East-Tally Ho is identified as a Major Activity Centre (MAC).

- The Melbourne Industrial & Commercial Land Use Plan 2020

The Melbourne Industrial & Commercial Land Use Plan 2020 (MICLUP) introduced new and more nuanced policy directions for the planning of industrial and commercial land across Metropolitan Land. State policy was updated to give effect to MICLUP in 2023 (Amendment VC215) but these changes did not amend the policy directions in relation to commercial land.

- Draft Eastern Metro Land Use Framework Plan

The Draft Eastern Metro Land Use Framework Plan is a 30-year strategy for action across six local government areas – Knox, Manningham, Maroondah, Monash, Whitehorse and Yarra Ranges, that will guide social, economic and environmental transformations that aim to make these local communities more prosperous, liveable, affordable and sustainable.

The Draft Eastern Metro Land Use Framework Plan identifies the Tally Ho Business Park as a freestanding business park with a mix of large offices, information technology-based businesses, health services, retail and community uses surrounded by residential uses.

- Victoria's Housing Statement – the decade ahead 2024-3

Victoria's Housing Statement – the decade ahead 2024-34 ('the Housing Statement') was released in September 2023. It sets an ambitious target to construct 800,000 homes in Victoria over the next decade.

The Housing Statement includes several planning reforms that may be of relevance to the future planning of the Tally Ho MAC, including the following:

- Introduction of clearer planning controls to deliver increased housing choice in activity centres14
- Expanding the Development Facilitation Program to facilitate development that includes affordable housing
- Streamlining the assessment pathways with a range of new 'Deemed to comply' residential standards
- Expand the Future homes program to encourage more 3-5 storey apartment developments in locations with good access to public transport and activity centres.

The Housing Statement commits to implementing clearer controls to an initial tranche of 10 activity centres. Whilst the Tally Ho MAC is not one of the initial 10 centres, it may be subject to these controls in future.

- Introduction of reformed commercial zones (2013)

Changes to the commercial zones were made in 2013 as part of a wider State government zoning reform across Victoria, resulting in land in the B2Z being automatically rezoned to the Commercial 1 Zone (C1Z).

Across the State, these commercial zone changes generally resulted in greater flexibility for land uses in activity centres and other business and commercial areas, particularly relating to the opportunity for residential and shop uses to be developed without the need for a permit in the C1Z.

The main consequence of these zoning changes was that the entirety of the Tally Ho Business Park was rezoned to C1Z, which substantially widened the range of 'as of right' and 'discretionary' land uses within this location.

- Introduction of reformed residential zones (2017)

The State government introduced new residential zones across the State in 2013 and then made further reforms to these zones in 2017. The role of each of these zones is summarised as follows:

Residential Growth Zone (RGZ):

Applied to areas suitable for housing diversity and housing at increased densities in locations offering good access to services, jobs and public transport, and to provide a transition between areas of more intensive use and development such as activity centres and other residential areas.

General Residential Zone (GRZ):

Applied to areas where housing development of three storeys exists or is planned for in locations offering good access to services and transport.

Neighbourhood Residential Zone (NRZ):

Applied to areas where there is no anticipated change to the predominantly single and double storey character. Also, to areas that have been identified as having specific neighbourhood, heritage, environmental or landscape character values, that distinguish the land from other parts of the municipality or surrounding area.

Local Context

The key policy directions from state and local planning policy contained within the Whitehorse Planning Scheme that currently apply to the Tally Ho MAC are as follows.

- Clause 11 (Settlement)

The Policy anticipates and responds to the needs of existing and future communities through provision of zoned and serviced land for housing, employment, recreation and open space, commercial and community facilities and infrastructure.

The Policy also supports appropriate siting of land uses to prevent environmental, human health and amenity problems, and facilitates sustainable development .

- Clause 11.03 (Planning for Places (Activity Centres, Activity Centres- Metropolitan Melbourne))

The policy encourages the concentration of major retail, residential, commercial, administrative, entertainment and cultural developments into activity centres that are highly accessible to the community. The policies support the development and growth of Metropolitan Activity Centres that accommodate significant growth for a broad ranges of land uses that are supported by appropriate infrastructure, public transport services with a sufficient catchment and high levels of amenity.

- Clause 12 (Environmental and Landscape Values)

The Policy supports the protection of ecological systems and biodiversity and conservation of areas with environmental and landscape values. Planning must implement environmental principles for ESD policies including National Strategy for Ecologically Sustainable Development, National Greenhouse Strategy, the National Water Quality Management Strategy, Australia's Strategy for Nature 2019-2030, the National Forest Policy Statement and National Environment Protection Measures.

- Clause 21.01 (Municipal Profile)

There are numerous activity centres in the municipality providing a range of roles and functions. Tally Ho plays a major service delivery role. It is one of the municipalities major office centres. It benefits from good access to tram routes.

- Clause 21.05 (Environment)

Council is concerned that the removal of canopy trees and vegetation will erode the neighbourhood character of Whitehorse. Of particular concern is the clearing of all trees from sites prior to development. The Whitehorse Sustainability Strategy is a key document for informing and supporting Council's strategic objectives and commitment to the principles of sustainability. The Strategy includes a list of priority areas for action which are aimed at the City achieving ecological sustainability. The Policy include a strategy to Implement Urban Design and Landscape Guidelines for the Tally Ho Activity Centre.

- Clause 21.04 (Strategic Directions)

A series of objectives, strategies and implementation mechanisms contained within the City of Whitehorse's local policy reinforce their vision statement. They address a range of key issues concerning the environment, housing, economic development and infrastructure. A Strategic Framework Plan accompanies these objectives, strategies and implementation mechanisms to guide implementation.

- Clause 21.06 (Housing)

This policy implements and builds on the City of Whitehorse's Housing Strategy (2014) and Neighbourhood Character Study (2014). It provides objectives, strategies and principles to guide housing development that address housing location, diversity, affordability, and design. The accompanying strategies ensure a level of specificity to the objectives and strategies that apply to different areas of Whitehorse and ensure that key local issues are addressed appropriately.

- Clause 21.07 (Economic Development)

The City of Whitehorse are committed to facilitating a thriving and sustainable local economy. This policy supports the operation and development of major activity centres and neighbourhood centres that accommodate a range of health, education, commercial, and industrial uses.

- Clause 22.03 (Residential Development)

This policy building on Clause 21.06 (Housing) and ensures that residential development is consistent with the preferred built form, landscape and neighbourhood character, and is achieving the required levels of housing development.

- Clause 22.06 (Activity Centres).

This policy ensures that Activity Centres are recognised for their role in providing services, employment and housing, and that Neighbourhood Centres support the concept of '20-minute neighbourhoods' which enable good local access to a range of services and facilities.

- Clause 22.08 (Tally Ho Activity Centre)

Objectives are provided in this policy to maintain and enhance Tally Ho Activity Centre's primary role as a key eastern suburbs office and technology hub, while broadening its mix of uses to better meet the needs of the local residents and worker community. This policy builds on Clause 21.07 and 22.06 by providing specific policies to guide the future of the Tally Ho Activity Centre.

- Clause 22.10: (Environmentally Sustainable Development)

The overarching objective of the policy is that development should achieve best practice in environmentally sustainable development from the design stage through to construction and operation. The policy also encourages innovative technology, design and processes in all development, which positively influence the sustainability of buildings through energy performance, water resource management, stormwater management, transport and urban ecology.

- 52.17 (Native Vegetation (particular provision)

To ensure that there is no net loss to biodiversity as a result of the removal, destruction or lopping of native vegetation. This is achieved by applying the following three step approach in accordance with the Guidelines for the removal, destruction or lopping of native vegetation (Department of Environment, Land, Water and Planning, 2017) (the Guidelines):

1. Avoid the removal, destruction or lopping of native vegetation.

2. Minimise impacts from the removal, destruction or lopping of native vegetation that cannot be avoided.

3. Provide an offset to compensate for the biodiversity impact if a permit is granted to remove, destroy or lop native vegetation.

To manage the removal, destruction or lopping of native vegetation to minimise land and water degradation.

- Tally Ho Major Activity Centre Urban Design Framework (2007)

To ensure that Tally Ho was meeting the needs of the local worker and residential population, an Urban Design Framework was prepared which set out objectives and strategies that guided development over a 15 year period. The key objectives addressed economic development, sustainability, transport, and landscaping.

- Tally Ho Activity Centre Urban Design and Landscape Guidelines (updated 2015)

These Guidelines build on the objectives outlined in the Tally Ho Major Activity Centre Urban Design Framework (2007) and provides more detail about how to realise and implement these objectives. The main purpose of this document is to ensure the objectives are usable and easily able to be implemented by anyone involved in the planning process.

- Whitehorse Council Open Space Strategy 2007

The Whitehorse Open Space Strategy sets out a cohesive direction for the future provision, planning, design and management of publicly owned land that is set aside for leisure, recreation and nature conservation purposes. This strategy aims to build upon the existing system of open space already established in Whitehorse to cater to the growing and changing needs of the community and the protection of the natural environment.

- Whitehorse Recreation Strategy 2015-24

The Recreation Strategy has identified short, medium and long term actions that are required to meet the current and future needs of the community. The Strategy acknowledges the key role of sport and recreation clubs, private recreation providers and schools in contributing to the diverse range of sport and recreation activities and opportunities in Whitehorse.

- Draft East Burwood Reserve Masterplan 2023

The Draft East Burwood Reserve Masterplan (2023) will identify, guide and implement infrastructure and improvement opportunities for the East Burwood Reserve. These directions will create a range of recreation opportunities for the existing and future local and broader community.

- Whitehorse Affordable Housing Policy

The purpose of this policy is to guide and facilitate the provision of affordable housing on public and private land through appropriate and effective advocacy, facilitation and planning. This policy will guide and inform all Council decisions and actions pertaining to affordable housing in the City of Whitehorse.

Statutory Context

The existing planning policy framework for the Tally Ho Activity Centre and its environs comprises the following elements:

- Clause 15 (Built Environment and Heritage)
- Clause 16 (Housing)
- Clause 17 (Economic Development)
- Clause 18 (Transport)

- Clause 19 (Infrastructure)

The zones applicable to the Tally Ho MAC are:

- Clause 31.07 Residential Growth Zone – Schedule 2 Substantial Change B
- Clause 32.08 General Residential Zone – Schedule 1
- Clause 34.01 Commercial 1 Zone
- Clause 32.04 Mixed Use Zone

The overlays applicable to the Tally Ho MAC are:

- Schedule 9 to Clause 43.02 Design and Development Overlay
- Schedule 4 to Clause 43.04 Development Plan Overlay (Crossway Baptist Church- 2-18 and 27-29 Vision Drive and 709 Highbury Road, Burwood East)
- Schedule 9 to Clause 42.03 Significant Landscape Overlay (Neighbourhood Character Areas)
- HO234 Clause 43.01 Heritage Overlay:

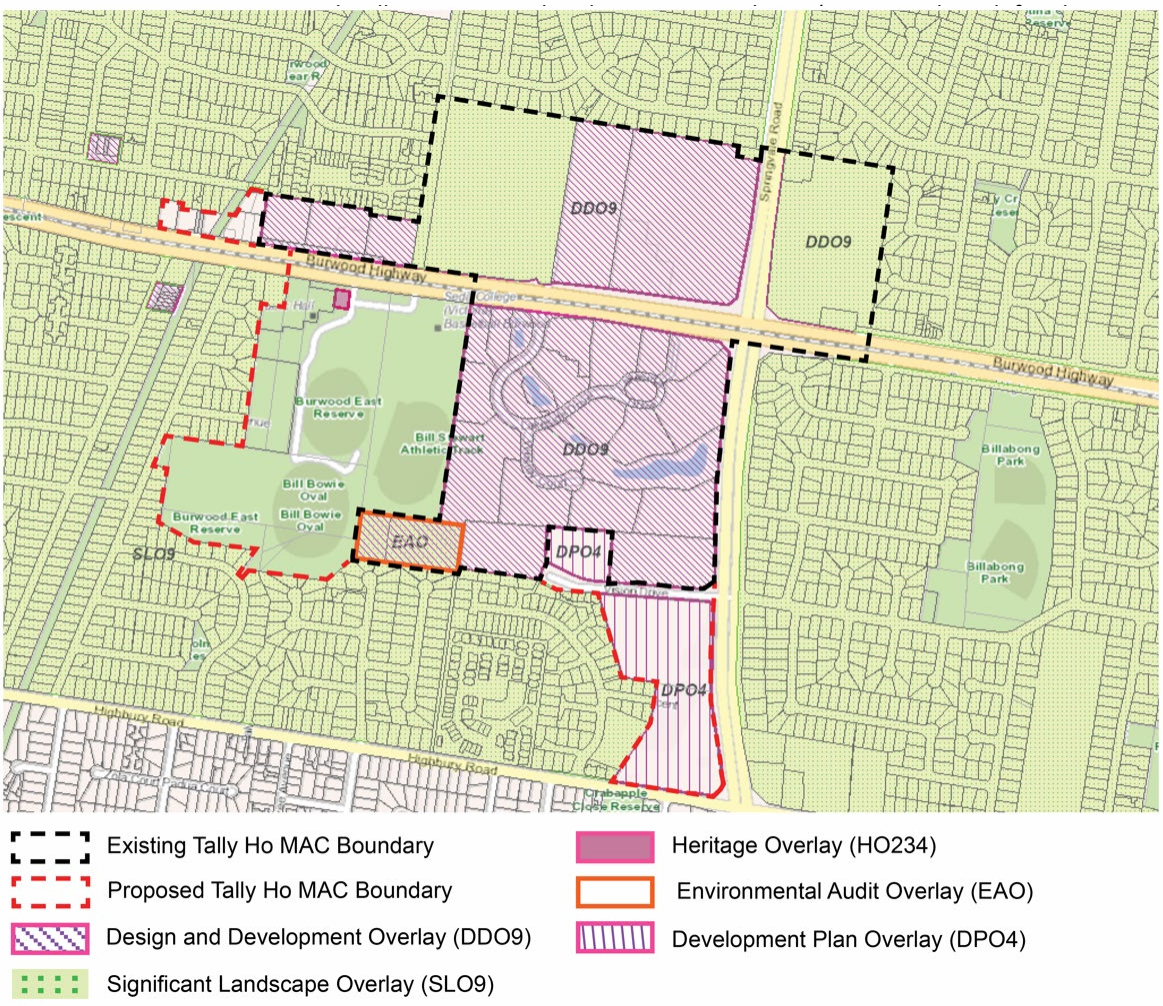

Figure 1: Planning Overlays

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2. Issues and Opportunities: Planning

2.1 Development and Permit Summary

The following is an overview of major development proposals within the Tally Ho MAC in recent years (Reference numbers in Figure 3 correspond to the below).

A. VCAT No. P1899/2017 – 104-168 Hawthorn Road, Forest Hill

This is the site of the Forest Ridge development. A range of building heights of up to 6 storeys have been approved including townhouses and apartments. In February 2018 the development plan for 104-168 Hawthorn Road was endorsed. The site is to be developed in three stages.

B. VCAT 172-210 Burwood Highway, Burwood East (WH/2021/1114)

VCAT issued permit for buildings and works was issued for a mixed-use building (retail premises, accommodation (dwellings and residential hotel), office, a medical centre, gym, signage in Section 2, and alteration access.

172-210 Burwood Highway, Burwood East (WH/2006/304/E)

This permit was amended to issue a building and works permit to extend the shopping centre an to use of the land for an indoor recreation facility and allow a reduction in car parking.

C. 315-319 Burwood Highway, Burwood East (WH/2016/489)

Whitehorse City Council granted a permit for the development of a six-storey building, on land with a 10-metre preferred height limit. The permit allows for the use of the land for medical centre, serviced apartments, restricted recreation facility (gymnasium), display of non-illuminated and illuminated signage and reduction in car parking.

D. 347 Burwood Highway Forest Hill

Construction of a three level carpark at the rear of the existing building and removal of native vegetation, generally in accordance with the endorsed plans

Buildings and works to the existing building including an ancillary food and drink premises, generally in accordance with the endorsed plans.

E. 353-383 Burwood Highway, Forest Hill (WH2019/806)

Permit issued on 9 March 2021 for Construction of two, six (6) storey commercial (office and retail) buildings, removal of native vegetation (under Clause 52.17) and alteration of access to a Road Zone Category 1, generally in accordance with the endorsed plans

F. VCAT No. P938/2021 – City Park Site 353-383 Burwood Highway, Forest Hill (WH/2020/1299)

Permit granted by VCAT to the construction of a mixed-use shopping centre in a multi-storey building constructed over three levels of basement car parking, as shown in Figure 1. The proposal is a large parcel of land that sits at the City Park Site.

In summary, the proposal includes:

- Supermarkets (3,800m^2).
- Retail spaces (7,777m^2).
- Food and Drink premises (1,486m^2).
- Medical Centre (1,290m^2).
- Basement car parking.
- Public piazza.
- Landscaped path between the Hewlett Packard building and Stage 3 site and the internal Boulevard link.

G. VCAT No. P869/2018 – 380 Burwood Highway, Burwood East (WH/2017/646)

Permit issued for an eight-storey mixed-use development to replace the existing China Bar restaurant, yet to commence construction. The building would include retail, office, education centre and residential apartment uses. None of the proposed uses required a planning permit.

H. 4 Lakeside Drive, Burwood East – WH/2021/431

Buildings and works within a C1Z and DDO9 (Construct a building or carry out works for a linking bridge between offices).

I. 8 Lakeside Drive, Burwood East – WH/2021/431
Buildings and works within a C1Z and DDO9 (Construct a building or carry out works for a linking bridge between offices).

J. 20 Lakeside Drive, Burwood East – WH/2020/575
Development of the land for an office building and the removal of native vegetation.

K. Crossways Baptist Church

Amendment C123 to the Whitehorse Planning Scheme introduced a Development Plan Overlay (DPO) Schedule 4 to facilitate the redevelopment of the Crossway Baptist Church. Amendment C123 was gazetted in October 2013.

L. VCAT NO. P2530/2017 – 412-414 Burwood Highway, Vermont South

VCAT determined to direct the grant of a permit for the development of a five-storey apartment building on land outside but within proximity the activity centre. (Not shown on map area).

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Figure 1: Key sites and future development within proximity to the Tally Ho MAC

2.2 Policy gaps identification to facilitate future use and development of the Activity Centre

DDO9 building heights do not reflect that development that is being approved.

The DDO9 does not align with the Tally Ho Urban Design Framework (UDF). As mentioned above, the UDF has identified a preferred 20m maximum building height. Alternatively, the DDO9 has a preferred building height that ranges from 7m to 20m across various sub-precincts.

However, there have been instances of development that have exceeded 20m in height and disregard these maximum height limits. For instance, at 380 Burwood Highway (China Bar site) a six-storey development has been approved that has a proposed height that exceeds 20m. Additionally, at 315-319 Burwood Highway an eight-storey building has been approved on land with a 10-metre preferred height limit.

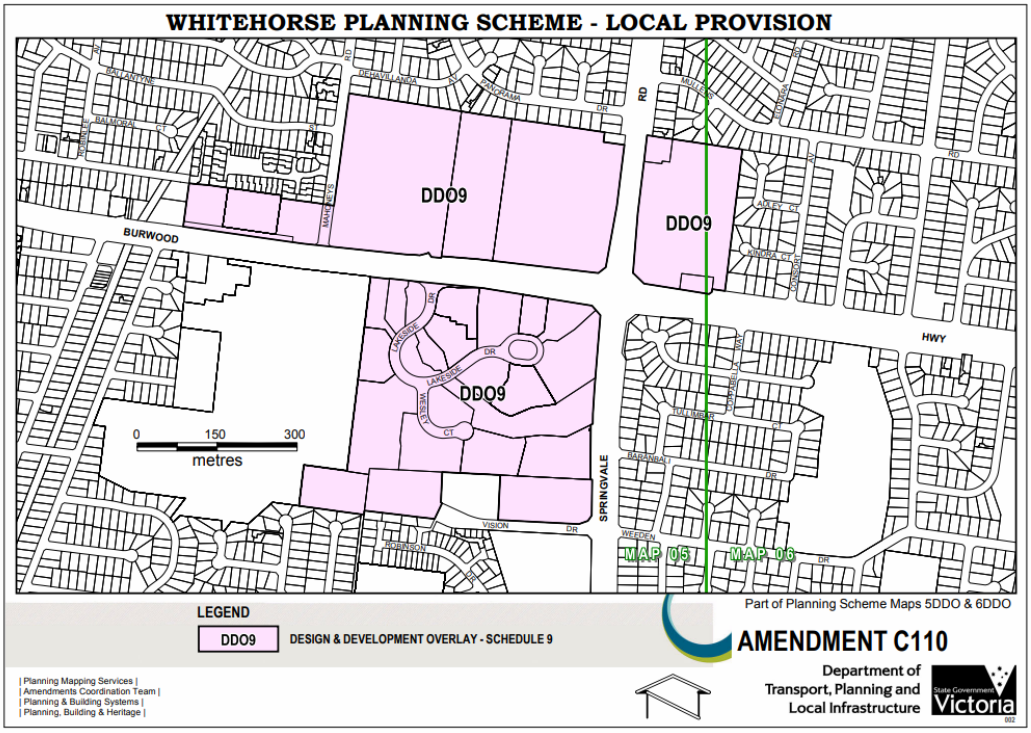

Figure 2: DDO9 controls (Amendment C110).

There is an increase in Residential Development within the Commercial 1 Zone (C1Z).

Clause 34.01 in the Whitehorse Planning Scheme outlines that the purpose of the Commercial 1 Zone is to establish a diverse mix of land uses. In contrast, the existing Urban Design Framework (2007) has established Tally Ho's primary role as a key office and technology hub for Melbourne's eastern suburbs. Therefore, the C1Z broadens the extent of as-of-right uses, including residential, which has consequently allowed for the unintended increase in residential development which threatens the business focus of Tally Ho.

This pattern of development has been further discussed within the C1Z Review prepared by Urban Enterprise (2021). There is an evident incompatibility between the Urban Design Framework and the Commercial 1 Zone, therefore there is a need to realign these planning controls to establish a shared vision and objective for Tally Ho. This has been discussed further below as a key issue for Tally Ho's future use and development.

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General Residential Zone within the MAC

A significant portion of the MAC is zoned GRZ (Pete James Centre) and is designated for 'natural change' growth where detached houses, semi detached dwellings, townhouses, row and terrace houses are supported. This type of residential development does not align with the Tally Ho Activity Centre Clause (22.08) of the Whitehorse Planning Scheme and contributes toward the lack of clarity regarding the role of the MAC, and the residential component of the MAC. Consequently, it is possible for permit applications to be sought for residential development in this portion of the MAC that does not align with the role of the MAC and potentially undermines the role of the MAC as a suburban office and technology hub.

Strategic Direction and Vision for redevelopment sites

There are a number of large sites within the Taly Ho MAC that offer the potential to deliver 'strategic redevelopment' (i.e. redevelopment which helps give shape to a preferred future urban structure and built form for the MAC).

The directions provided for these sites in the current UDF are over 15 years old and in most instances. they do not align with current planning, design and development outcomes anticipated in a MAC envisaged under State planning policy. They also contribute to the creation of the type of 'urban' centre that is characteristic of successful activity centres and employment precincts across Australia and internationally.

Tally Ho MAC Urban Design Framework and associated Guidelines

Whilst the UDF identified locations suitable for residential development within the wider UDF study area boundary, it does not identify land within the business park area (ie the study area of the current review) as being suitable for residential purposes.

It noted that there is a need to expand the range of services, infrastructure, and facilities to meet the needs of the workforce based at Tally Ho. It encourages the introduction of a greater mix of complementary uses that fill current areas of high need, notably retail, business services, short term accommodation and high-quality conference facilities. However, the sub-precinct plans included within the UDF do not identify specific locations for the delivery of such complementary uses on and within the current study area. The UDF also provided broad guidance on preferred building scale, design, and development patterns across the entire Activity Centre area.

2.3 Key Land Use Planning Issues

The background review and issues and opportunities workshop revealed key areas of concern. Key themes that emerged include the following:

- Land Use and Built Form
- Strategic Direction
- Residential Development
- Permeability and Catchment

Tally Ho currently does not have a land use mix that reflects its policy designation as a Major Activity Centre.

State Policy envisages Major Activity Centres as being a focus for business, shopping, working, leisure, and community facilities, as well as providing for housing diversity and density..

The current local policy for Tally Ho seeks to maintain and enhance its primary role as a key eastern suburbs office and technology hub, while broadening its mix of uses to better meet the needs of the local resident and worker community. It envisages that the Tally Ho would support neighbourhood convenience retail, housing, hospitality, and associated infrastructure, as well as business services, short term accommodation and high-quality conferencing facilities.

Whilst Tally Ho has succeeded at remaining one of the largest commercial office concentrations in the eastern metropolitan region, the centre will need to offer a much wider diversity of land uses, services, and amenities for it to fulfil its potential and meet the contemporary need of businesses, workers and nearby communities.

Tally Ho currently does not have an urban structure or built form which supports its evolution as a true employment-anchored Major Activity Centre.

Whilst there has been some new development within the MAC over the past 15 years, this has not substantially contributed towards the creation of a genuinely 'urban' place.

Tally Ho continues to function as a series of co-located land uses rather than it being a place with a coherent 'town centre' structure. There is no 'main street' or obvious focal point within the MAC, and development across the centre has largely persisted as a relatively spread-out low-density suburban business park typology.

A new structure plan for the centre could address these shortcomings by promoting:

- A higher density mixed-use corridor connecting the MAC to the SRL Burwood Station
- Creation of a new focal point or main street within the MAC, where retail, hospitality, conferencing, and other services could be established.
- Higher density commercial development within the Tally Ho Business Park precinct (the Commercial 1 zone)
- Higher density residential development along the Burwood Highway and on designated key development sites.

The vision and strategic direction for strategic redevelopment sites within the Tally Ho MAC needs refreshing.

There are a number of large sites within the Tally Ho MAC that offer the potential to deliver 'strategic redevelopment' (i.e. redevelopment which helps give shape to a preferred future urban structure and built form for the MAC).

The directions provided for these sites in the current UDF are over 15 years old and in most instances, they do not align with current planning, design and development outcomes anticipated in a MAC envisaged under State planning policy. They also contribute to the creation of the type of 'urban' centre that is characteristic of successful activity centres and employment precincts across Australia and internationally.

New land use policy policies, zoning and built-form controls should be established for strategic redevelopment sites within the Tally Ho MAC.

The Commercial 1 zone that applies to the main commercial precinct within the MAC does not support the local policy objective to maintain Tally Ho as a key commercial hub for the eastern metropolitan region.

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The current local policy for Tally Ho seeks to maintain and enhance its primary role as a commercial hub for the eastern metropolitan region. The C1Z review (Urban Enterprise, 2021) concluded that this remains an import policy objective and that planning policy should prioritise the following land use outcomes within the Commercial 1 zone:

- Primary use: employment, primarily office based.
- Secondary uses: retail and commercial uses supporting the employment role, including convenience retail, hospitality, visitor accommodation, recreation (public and commercial), health, childcare, banking and professional services.
- Tertiary uses: residential dwellings, located peripheral to the C1Z land.

The C1Z allows all of the above uses to occur on an 'as of right' basis, and there is therefore no scope for the Council to exercise discretion to preferentially treat the abovementioned primary or secondary uses over residential uses on land within this precinct.

Consideration needs to be given to rezoning the primary commercial precinct within the MAC to an alternative zone which allows the abovementioned primary and secondary uses to be prioritised.

The aforementioned C1Z Review recommended that land within the C1Z be rezoned to the Commercial 3 zone. However, there are other zones that could be considered. For example, the Activity Centre Zone (ACZ) could be applied, to customize the land use policies and controls to different precincts across the activity centre.

The range of community, health, education, recreational, entertainment and business support uses within the MAC could be enhanced.

The best examples of contemporary town centres and employment precincts across the globe all contain a vibrant mix of community, health, education, recreational, entertainment and business support uses.

The Tally Ho MAC currently offers a relatively limited range of such uses.

The centre benefits from having the regionally significant East Burwood Reserve at its doorstep, and a new masterplan has been prepared to further enhance this reserve. This is a major asset for the Tally Ho MAC.

However, businesses, workers and residents would greatly benefit from there being a much wider range of community, recreational and entertainment uses available within the Tally Ho MAC. Such uses would substantially improve the attractiveness of the MAC as a place for businesses, but it would contribute towards the achievement of government policy for activity centres and 20-minute neighbourhoods.

Opportunities should therefore be explored to expand the range of both public and private sector community, health, education, recreational and entertainment uses within the MAC. This might include activities such as:

- A wider range of public and private hospital and health care services (leveraging the presence of the Peter James Centre)
- Tertiary education facilities (potentially associated with the Deakin University campus and potential partnerships with businesses within the Tally Ho Business Park)
- Public and private leisure and recreation facilities including gyms, yoga studios, community centres, etc.
- Hospitality services including restaurants, cafes and bars

- Business services such as conference and meeting facilities, co-work spaces, banks, IT support, post office, etc.

There is a lack of clarity about where housing is encouraged within the Tally Ho MAC.

Residential development is permitted under various zones within the existing Tally Ho MAC boundary (ie the RGZ, GRZ, MUZ and C1Z), and the current local policy refers to supporting a greater range of residential opportunities within the MAC.

Existing local policy (Clause 22.03 – Residential Development), residential zoning and proposed new DDO controls (DDO11- Residential Growth Corridors)[1] provide direction about the preferred location and form of development in residential areas along the Burwood Highway.

However, neither the existing local policy nor the original UDF provides clear direction about where within the MAC boundary residential development is and isn't encouraged. Consequently, it is possible for permit applications to be sought for residential development in most locations within the MAC.

Whilst in other activity centre contexts this would be appropriate, the findings of the C1Z review (Urban Enterprise, 2021) concluded that substantial residential development could materially change the role and function of the centre and risk eroding the specialisation, value, and employment role of the area In addition, the Council outlined how there is no appetite to increase residential development within the major activity centre boundary, due to the large extent of established residential areas surrounding Tally Ho. There is therefore a need to review both policy and zoning controls to provide greater clarity and certainty about where housing is (and isn't) encouraged within the Tally Ho MAC.

This Issues and Opportunities report identifies a number of potential residential sites along the Burwood Highway and Springvale Road. As the development of the Structure Plan progresses, the viability and suitability of these sites to be considered for increased housing densities should be considered. Two key aspects to be considered will be connectivity of sites on the eastern side of Springvale Road to the Activity Centre and existing community facilities and open space, and the location of these sites in relation to the Electronic Gaming Machines (EGMs) at the Burvale Hotel (corner of Burwood Highway and Springvale Road). Council's Responsible Gaming Policy establishes a policy position to minimise the harmful and negative impacts of EGMs in the local community. Although Clause 22.17 (Gaming) applies to applications for new gaming machines and venues, the proximity of these sites and potential vulnerable groups to the venue should be considered.

The current boundary for the Tally Ho MAC does not include residential zones within the walking catchment of the tram line or C1Z boundary. There may be a need to review the activity centre boundary as well as the policies and controls that apply to residential areas surrounding the Tally Ho MAC in response to Victoria's Housing Statement.

There are some substantial areas of land located within the 800m walking catchment of the existing tram line and C1Z boundary that are currently zoned NRZ and GRZ. Victoria's Housing Statement proposes to introduce a number of new residential development provisions into Victorian Planning Schemes over the coming months. New 'Future Homes' provisions have already been introduced to all Victorian planning schemes to facilitate 3 storey apartment developments on land within a General Residential Zone located within 800 metres of an activity centre. The Victorian government has also foreshadowed that these provisions will be expanded to create exemplary designs of four storey apartment developments in the near future. In light of these reforms, there may be a need to review the policies and controls that apply to residential areas surrounding the Tally Ho MAC.

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The Burwood Residential Corridor could potentially be re-cast as a mixed-use activity corridor.

Land along the Burwood Highway corridor between the Tally Ho MAC and the Burwood SRL station is predominately located within a Residential Growth Zone.

Land along this corridor could potentially be re-cast as a mixed-use activity corridor, to capitalize on its access to the tram network, the planned SLR station, Deakin University, employment within the Tally Ho MAC, and access to activity centres along this corridor.

Recent planning reforms introduced alongside Victoria's Housing Statement provide for a wider range of non-residential uses (such as certain office and retail uses in residential zones, subject to the satisfaction of conditions) within the RGZ and GRZ. These changes may be sufficient to enable a wider range of land uses to be established within new residential buildings along this corridor over time.

Local planning policies could be developed to provide positive policy support for these changes in key locations along this corridor.

The built form controls that apply to both residential and non-residential development within the MAC do not facilitate a level of urban density that supports the achievement of activity centre policy or the economic renewal of existing commercial buildings.

The C1Z Review previously identified some risks to the ongoing attractiveness of land within the C1Z to the office market, primarily due to the age of existing buildings, the need to adapt and update space to meet changing business needs, and the need to facilitate opportunities for ongoing reinvestment and redevelopment.

The current commercial buildings within the MAC present significant opportunities for redevelopment. COVID-19 has redefined how suburban office spaces are used, and it is increasingly necessary for 'office parks' to become higher density mixed use urban centres to remain attractive to investors and commercial occupants.

Stakeholder submissions on the Review contended that the building heights under the DDO9 are too restrictive and are stifling growth and investment in the activity centre. In addition to this view that heights are too restrictive, the consideration of aspects of design and built form outcomes such as setbacks, massing, façade treatments and streetscape treatments is critical to ensure increased heights and yields are acceptable to the community and stakeholders.

The design provisions contained within DDO9 were drafted over 15 years ago, and they do not align with current planning, design and development outcomes anticipated in a MAC envisaged under State planning policy.

The UDF identifies a preferred maximum building height of 20m and DDO9 applies lower building heights in many locations across the MAC. Permits have been sought (and in some cases granted) for development within the MAC which exceed this height and permits have. For instance, two 6-storey commercial buildings have been proposed for the area north of the HP building site.

The existing built form controls also do not support the creation of the type of 'urban' centre with a mix of commercial, retail, community and residential uses that is characteristic of successful activity centres and employment precincts across Australia and internationally.

Additionally, there is not a consistent approach to setting building heights along Burwood Road.

The design provisions of DDO9 do not align with the planning controls proposed via the Whitehorse Residential Corridors Built Form Study (Amendment C220). These latter controls are proposed to apply to land within the RGS along the Burwood Highway on either side of the Tally Ho MAC, and they include a discretionary 19m (6 storey) height limit for this corridor. However, DDO9 sets building heights ranging from 7m to 17m along the Burwood Highway, in locations which have limited or no sensitive residential interfaces.

Connection between MAC Sub-precincts

There is an obvious physical division between the northern and southern areas within the Tally Ho Major Activity Centre, caused by the alignment of Burwood Highway. This major thoroughfare punctures through the major activity centre and prioritises the needs of motor vehicles.

Burwood Highway presents a hostile interface towards pedestrians and cyclists. The 8-lane road does not consider needs at a human scale.

For instance, there are two pedestrian signal crossings provided at the intersection between Burwood Highway and Springvale Road and between Lakeside Drive and Burwood Highway. However, these crossings are not holistic and involve multiple steps which contribute to their complexity.

When crossing Burwood Highway from Lakeside Drive, pedestrians encounter a pedestrian crossing, a signal crossing, the requirement to give way to trams, two additional signal crossings and another pedestrian crossing. The ability to walk through the various areas within the site has not been clearly identified or addressed.

2.4 Key Planning Opportunities

1. **Coordination of Land Uses: "Beating Heart of Tally Ho"**

The increased coordination between planning, subdivision, and development provides an opportunity to establish a core within the wider Tally Ho Activity Centre. A clear focal point is necessary to establish a strong sense of place and identity. This could be achieved through the introduction of sub-precincts within the Tally Ho MAC and the introduction of the new structure plan, including a 'town centre core' sub-precinct.

A multi-storey supermarket and car park has been approved under planning application WH/2020/1299. Located on the corner of Springvale Road and Burwood Highway (City Park site), this development will deliver commercial, retail, and health services within Tally Ho. The significant scale of the development has set a precedent where future retail, hospitality, conferencing, and other services can be co-located. The development will include a piazza, all-purpose sports courts, and a rooftop garden which collectively help establish a focal point within the Tally Ho MAC.

However the location and design of this approved centre will not positively contribute to the creation of a high amenity, centrally located 'beating heart' for the Activity Centre. The size and scale of the approved development will also fully exhaust any further demand for retail floorspace, including food and beverage) within the centre.

The Tally Ho Structure Plan could include an alternative scenario which is predicated on this approved development not proceeding and the associated retail floorspace being accommodated in a more central location which offer higher amenity and is more accessible for workers within the precinct.

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2. Increase Urban Density and Vibrancy

The redevelopment of the existing commercial buildings within Tally Ho is a mechanism to support the renewal of the ageing built environment. This approach would ensure that the centre maintains its attraction towards investors and commercial occupants.

COVID-19 has influenced the perception of our working environments and consequently heightened expectations towards the quality and standard of office environments. Working from home has changed people's behaviour and attitude towards office spaces and the level of amenities provided.

Additionally, a significant increase in urban density is required to ensure the centre achieves the relevant policy objectives relevant to activity centres. There is relatively strong demand for housing in the general vicinity of the Activity Centre, as evidenced by the rate of development and diversity of townhouses and low rise apartments being delivered in the local area, and high rise apartments being delivered in the broader sub-region.

A vibrant and attractive Major Activity Centre is expected to provide a dense and diverse mix of community, health, education, recreational, entertainment and business support uses. The existing arrangement of low-density campus-style buildings does not reflect an effective use of the land. Therefore, the existing built-form controls need to be revised to increase urban density throughout the boundary of the Major Activity Centre and in proximity to the surrounding transport corridors.

The increase in urban density within Tally Ho is necessary to achieve a broader selection of land uses and concentration of office uses. The intensification of urban density and activity will further ensure the Tally Ho is achieving its full potential as one of Melbourne's Major Activity Centres.

3. Amend the land use zoning and controls across the Precinct

The current policy and zoning that applies to the Tally Ho Activity Centre requires review. For example:

- Local policy seeks to maintain and enhance the primary role of land use within much of Centre as a commercial hub for the eastern metropolitan region, but the Commercial 1 zone that applies to a large proportion of the Centre allows for a much wider range of uses to occur on an 'as of right' basis.
- State policy supports the provision of housing within Major Activity Centres, but the current policies and controls that apply to the Tally Ho MAC do not provide direction about the preferred location and form of housing within the centre boundary.

The unique land use mix across the Tally Ho MAC is such that there is no current activity centre 'core' and neither local policy nor zoning provide direction about where retail and related uses are prefeed within the precinct.

As a result of the above, land use and development decisions have been ad-hoc, and approvals have been granted for large residential uses within the commercial precinct, as well as a large retail use in a location that is not central to the precinct and is not designed to integrate well with adjoining sites.

The opportunity exists to provide clearer guidance on preferred land use and development forms within different sub-precincts across the wider MAC boundary. The structure plan can establish preferred land use and development outcomes for each sub-precinct, and the local policy and zoning within the Whitehorse Planning Scheme can be updated to give effect to this.

The option exists to either apply different 'standard' zones to different sub-precincts (for example, C1Z, C2Z, C3Z, MUZ, etc) or to apply the Activity Centre Zone (ACZ) to all land within the MAC, and to customize the land use and built form controls for each sub-precincts via schedules to this zone.

The unique commercially-oriented nature of the Tally Ho MAC and the challenges to diversify land uses within a bespoke urban structure means that there is the need to promote different land use types in different locations within the Centre (e.g. commercial within the core of the Business Park, Mixed sue along Burwood highway, health and wellbeing to the north, etc.) For this reason, the ACZ provides the greatest flexibility to customize the land use and built form controls to give effect to bespoke land use and development outcomes.

4. Enhance North-South Connection

The introduction of a potential new northern retail anchor on Springvale Road has increased the necessity to knit together the two areas within the Tally Ho MAC, to further support equitable access to goods and services throughout the northern and southern areas of the site.

The separation caused by Burwood Highway may be resolved by creating a safer physical environment that has a pedestrian focus. The introduction of traffic calming measures could support employees within the precinct to access food and drink facilities and other services within walking distance.

Furthermore, strengthening this connection will create a less hostile interface between the two areas of the centre and clearly define the boundaries of the MAC and its significance as an innovation and employment precinct.

Burwood Highway could be reimagined as a more active mixed use corridor for the Tally Ho MAC. There is a potential to introduce a mix of uses to foster the linear connection between the centre and the Burwood SRL precinct, in alignment with the existing tram service.

5. Open Green Space Provision and Access

The Burwood East Reserve is a collection of open recreation spaces, sporting facilities, and green spaces that are located directly to the west of the Tally Ho MAC. Although this precinct is currently located outside of the activity centre boundary, establishing multiple clear, visible, and direct active transport connections between these precincts will provide a multitude of benefits for residents, visitors, and workers. Enhancing access to open green spaces further supports the daytime amenity experienced by users of Tally Ho.

The various sporting clubs may experience the co-benefit of an uptake in new memberships, spectators, and visitors to the site. Some of the sporting facilities and clubs include the East Burwood Tennis Club, Blacklords Fencing Club, Nunawading Basketball, Bill Sewart Athletics Track, Blackburn Cycling Club, East Burwood Reserve Oval, East Burwood Sporting Club, East Burwood Football Club, Burwood East Reserve Cricket Nets, and the Burwood East Reserve Playground.

6. Alternative Distribution of Retail Uses

If the existing approval for a large multi-storey retail development along Springvale Road is constructed, then it will be necessary for the Structure Plan to integrate and connect this development to the wider precinct as best it can (given the constraints that the location and design of this approved development presents).

If this development is constructed, then it is likely to absorb the future demands for retail uses (including food and beverage) within the MAC, and other uses within the centre will rely on improved connections to it.

Opportunities exist to create alternative connections for workers and visitors to access these facilities via internal routes, so as to avoid the need to walk or drive along the Burwood Highway to get to these uses.

If the existing approval is not constructed (for example if the permit lapses) then the opportunity exists to take a fresh approach to identifying a preferred location and land use mix for the future 'core' of the activity centre.

A more centrally located retail core which includes a mix of supermarket, specialty shops, food and beverage, services, recreation and other uses would ultimately strengthen the role, character and attractiveness of the centre for visitors, workers and businesses alike. There is some flexibility about where this mix of uses could be located but it should generally be more central to workers within the precinct, and be located close to the intersection Lakeside Drive and the Burwood Highway. The Structure Plan could identify the general location of the alternative retail core, and its preferred land use and design attributes.

7. Built Form Controls Review

The UDF and heights established under DDO9 identifies a preferred maximum building height of 20m and DDO9 applies lower building heights in many locations across the MAC. Permits have been sought (and in some cases granted) for development within the MAC which exceed this height. These controls do not facilitate a level of urban density that supports the achievement of activity centre policy or the economic renewal of existing commercial buildings.

It should also be noted that the design provisions of DDO9 do not align with the planning controls proposed via the Whitehorse Residential Corridors Built Form Study (Amendment C220). These latter controls are proposed to apply to land within the RGZ along the Burwood Highway on either side of the Tally Ho MAC, and they include a discretionary 19m (6 storey) height limit for this corridor. However, DDO9 sets building heights ranging from 7m to 17m along the Burwood Highway, in locations which have limited or no sensitive residential interfaces.

There is an opportunity to review built form controls to coordinate building heights across the MAC that facilitate increased densities in appropriate locations with the MAC.

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3. Activity Centre Boundary Review

3.1 Assessment against Planning practice Note 58 Criteria

The Activity Centre Boundary Criteria in the PPN58 (Structure Planning for Activity Centres) have been developed to assist in defining their activity centre boundaries through structure planning. A detailed assessment of the criteria has been undertaken which explores the potential boundary amendments.

The following inputs are required to further progress the consideration of the MAC boundary:

- Commercial and residential needs assessments retailing, office, fringe retailing and support activities such as entertainment) activities needed over a 15 to 20-year time frame and then into the 30-year horizon.
- Consideration of physical barriers and opportunities for their improvement.
- Walkability from the Activity Centre to other key destinations and residential areas.
- Community infrastructure requirements.

Potential changes for consideration	Key criteria assessment (PPN58) and further discussion points
Inclusion Crossways Baptist Church	• Consideration should be given to the inclusion of the Crossway Baptist Church site in the MAC given its potential as a strategic development site adjacent to Springvale Road, and its potential to improve connectivity from the site to residential land to the east.
Inclusion of Burwood East Reserve	• The East Burwood Reserve is located outside of the current Activity Centre boundary to the west. This Reserve contains a variety of open space services (tennis courts, velodrome, athletics track) for community use but currently is not well integrated into the Activity Centre. • Whitehorse City Council are currently developing a Masterplan for the Reserve. The Masterplan aims to improve connections, enhance the visual appearance of entry points, and review existing fencing to improve connectivity. • Expanding the Activity Centre boundary to include the Reserve will allow any future development to better connect the reserve and the wider area, as well as better utilise the surrounding land.
Inclusion MUZ land adjacent to the MAC and the Burwood East Linear Reserve	• Consideration should be given to the MUZ land adjacent to the MAC and the Burwood East Linear Reserve for inclusion in the revised boundary to provide consistent guidance on future land use and development for this site.
Inclusion Burwood Terrace Retirement Village and adjacent GRZ	• Consideration should be given to inclusion of the Burwood Terrace Retirement Village site in the MAC given it's potential as a strategic development site.

	• Discussion required regarding the inclusion of the GRZ land adjacent to the Crossway Baptist Church site. • Although the Whitehorse planning scheme supports 'limited change' only (i.e., detached, and semi-detached dwellings), there is opportunity to improve connectivity between this area and the Crossway Baptist Church site and Burwood Retirement Village site through the Structure Plan. • Consideration to be made of inclusion of residential land identified as suitable for 'substantial change' (zoned RGZ) for inclusion in the MAC. • Discussion is necessary as to the need for further residential land that is identified for 'substantial change' above that identified in the Whitehorse Planning Scheme. Further clarification of the role and services to be delivered through the Structure Plan is required to determine whether increased densities are suitable.
Inclusion residential sites 'Suitable for change'	• Consideration to be made of the inclusion of residential land identified as suitable for 'substantial change' (zoned RGZ) for inclusion in the MAC. • Discussion is necessary as to the need for further residential land that is identified for 'substantial change' above that identified in the Whitehorse Planning Scheme. Further clarification of the role and services to be delivered through the Structure Plan is required to determine whether increased densities are suitable.

TALLY HO MAJOR ACTIVITY CENTRE

ECONOMIC INPUT TO STRUCTURE PLAN (FINAL DRAFT)

WHITEHORSE CITY COUNCIL AND MGS ARCHITECTS | FEBRUARY 2024

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Tally Ho MAC Structure Plan - Economic Input Final Draft February 2024.docx

VERSION

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ACKNOWLEDGEMENT OF COUNTRY

Urban Enterprise is located on Wurundjeri Woi-Wurrung Country. We pay our respects to elders past, present and emerging and also acknowledge all Traditional Owners of Country on which we work.

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1. INTRODUCTION

1.1. ENGAGEMENT

Urban Enterprise was engaged by MGS Architects to provide economic analysis to inform the preparation of the Tally Ho Major Activity Centre Structure Plan for Whitehorse City Council (**Council**). This report includes an assessment of the economic and land use context for the Activity Centre and projections of demand for the major land uses of residential, retail and commercial.

1.2. STUDY AREA

The Study Area is the Tally Ho Major Activity Centre (the **Activity Centre**). The current Activity Centre boundary is shown in Figure 1 (green line), along with a previously proposed extension to the boundary which was not implemented (black line).

F1. ACTIVITY CENTRE BOUNDARY

Figure 2 Tally Ho MAC — Aerial and extent of proposed/refused Activity Centre boundary and key land use anchors

- Proposed Activity Centre Boundary
- C110 Proposed Boundary (rejected)
- 800m radius from centre of Activity Centre boundary
- 1 Location and view direction of site photograph (see opposite page)

- **A** Tally Ho Business Park
- **B** Burwood East Reserve
- **C** Crossway Baptish Church
- **D** Burvale Hotel
- **E** Poly Holding / former HP sites
- **F** Peter James Centre (Eastern Health)
- **G** Quest Apartments and adjoining commercial uses
- **H** Asian Supermarket

Source: MGS.

The main elements of the Activity Centre are:

- The Tally Ho Business Park;
- Peter James Centre (rehabilitation and aged care provided by Eastern Health); and
- The Burvale Hotel.

Other major uses adjacent to the existing Activity Centre boundary include:

- East Burwood Reserve;
- Crossway Church; and
- Global Television Studios.

2. POLICY, SPATIAL AND ECONOMIC CONTEXT

2.1. INTRODUCTION

This section summarises the economic, spatial and policy context for the Activity Centre.

2.2. STATE PLANNING POLICY CONTEXT

PLAN MELBOURNE

Plan Melbourne (2017-2050) is the State government's overarching strategic plan which establishes a vision for Melbourne to continue to be a global city of opportunity and choice.

Plan Melbourne places a strong emphasis on creating jobs closer to where people live, with a need to deliver another 1.5 million jobs over the next 35 years. Central to the delivery of these jobs is a network of well-connected activity centres with appropriate supplies of commercial land.

The Tally Ho Activity Centre is identified as a Major Activity Centre (MAC) in Plan Melbourne. Plan Melbourne defines Major Activity Centres as locations where policy supports investment and job creation to ensure that employment grows outside the central city. MACs help achieve improved access to jobs through the delivery of medium-high density housing closer to jobs and public transport.

Plan Melbourne also introduced the concept of 20 minute neighbourhoods which aims to increase the availability of services and employment to residents within 20 minutes' walk or public transport. The concept as described in Plan Melbourne and related State government publications is primarily applicable to Neighbourhood Activity Centres and the greater role that these centres can play in accommodating growth, however the principles of access to employment and services are relevant to the overall State planning objectives for established areas.

MICLUP

The Melbourne Industrial and Commercial Land Use Plan (MICLUP, 2020) builds on policies, strategies and actions in Plan Melbourne and its associated Plan Melbourne 2017-2050 Five-Year Implementation Plan (Plan Melbourne Implementation Plan). It provides an overview of current and future needs for industrial and commercial land across metropolitan Melbourne and puts in place a planning framework to support state and local government to plan more effectively for future employment and industry needs, and better inform future strategic directions.

The Principles to Guide future planning for industrial and commercial land are as follows:

- "Principle 1: Adequate long-term commercial and industrial land supply will be identified and set aside to support future industry and business growth.
- Principle 2: Industrial and commercial areas that provide an ongoing economic, urban servicing or employment contribution to local communities, regions and the state will be recognised and retained as a critical economic resource.
- Principle 3: Planning for industrial and commercial land will provide clarity and certainty about how and where industry and business can grow over time to support and guide long term investment and locational decisions.
- Principle 4: Planning will support industry and business to innovate and grow in areas identified for these purposes." (p.vi)

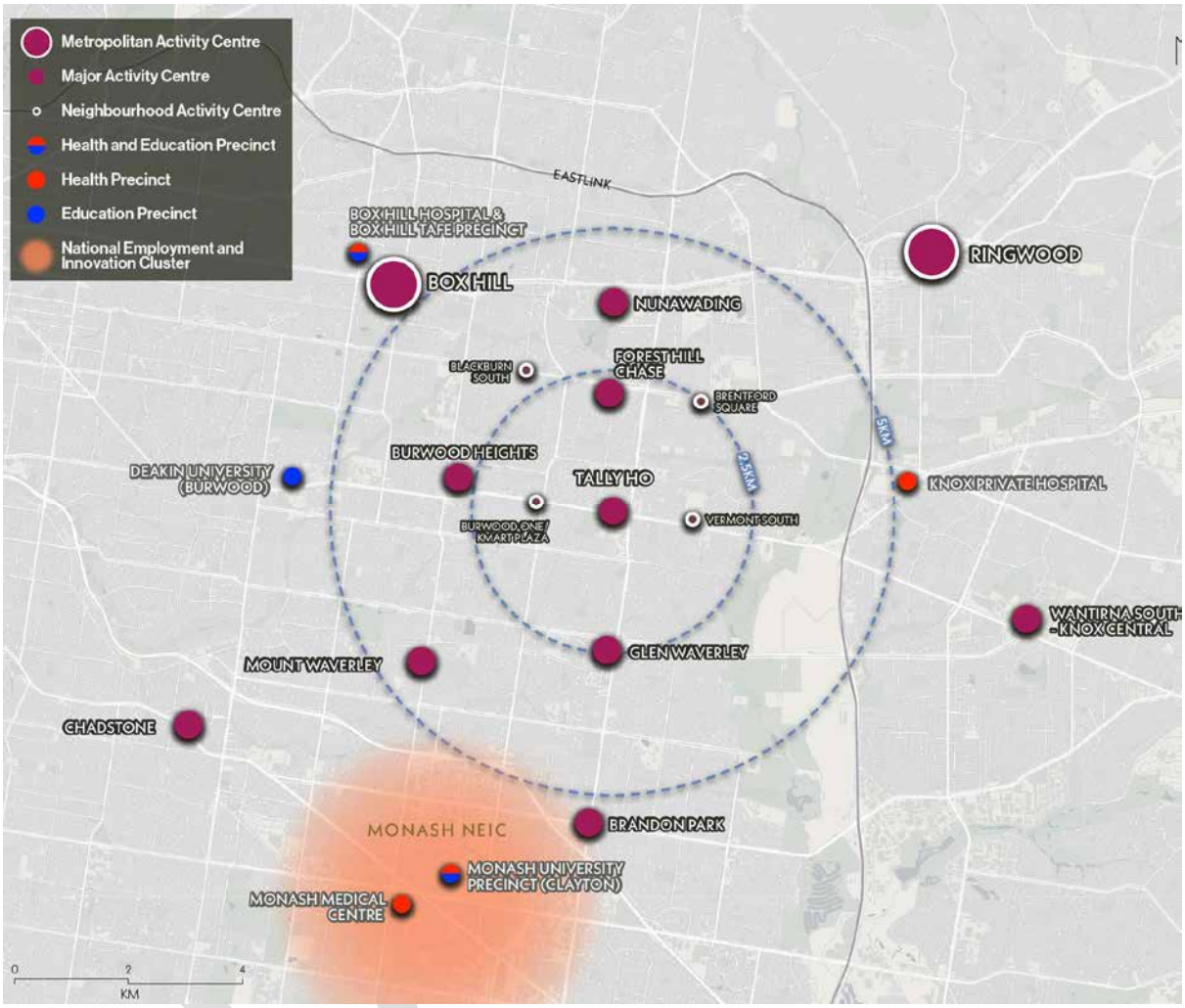
In respect of commercial areas, the Plan categorises areas of State significance, regional significance and local significance. Major Activity Centres (including the Tally Ho Activity Centre) are attributed regional significance and identified as places which "should provide for and support access to a wide range of goods and services, including office and retail development, and provide for a wide range of employment opportunities. They are expected to deliver more intensive forms of employment uses including office and commercial activity." (p.vii).

2.3. PRECINCT AND ACTIVITY CENTRE CONTEXT

Figure 2 shows the activity centre network surrounding Tally Ho, focusing on higher order Activity Centres, as well as the larger Neighbourhood Activity Centres within close proximity to Tally Ho.

Table 1 provides an overview of the scale and function of each precinct and centre shown.

F2. ACTIVITY CENTRE NETWORK MAP



Source: Urban Enterprise, based on Plan Melbourne and Whitehorse Planning Scheme. Map shows selected larger Neighbourhood Activity Centres within approximately 2.5km of the Tally Ho Activity Centre; Major Activity Centres within approximately 5km of the subject site, Metropolitan Activity Centres influencing the network in the vicinity of Tally Ho, and precincts of State Significance in the area.

T1. ACTIVITY CENTRES AND MAJOR PRECINCTS

Name	Category	Status	Description / Role
State significant precincts			
Monash NEIC	NEIC	Existing	Major employment, health and education precinct planned to accommodate substantial growth and investment.
Wantirna Health Precinct	Health Precinct	Existing with expansion proposed (current amendment process).	Existing health precinct (including Knox Private Hospital) which is proposed to accommodate additional public and private health uses, as well as local retail, commercial, housing and aged care facilities.
Box Hill	Metropolitan Activity Centre	Existing	Diverse centre with substantial commercial, education, health, retail and civic uses. Substantial housing development has occurred in recent years and is projected to continue.
Ringwood	Metropolitan Activity Centre	Existing	Major retail and bulky goods location with emerging commercial office and accommodation role.
Regionally Significant precincts			
MegaMile (Nunawading)	Major Activity Centre (MAC)	Existing	A major homemaker centre serving a regional catchment extending across much of eastern Melbourne.
Burwood Heights	MAC	Recently developed	Activity centre which includes the former Burwood Brickworks site (which now accommodates the Burwood Brickworks Shopping Centre, including Woolworths, Dan Murphys, cinemas and speciality retailers), Burwood Heights Shopping Centre and the RSPA Animal Welfare Centre.
Forest Hill Chase	MAC	Existing	Anchored by a stand-alone major shopping centre including Target and several other discount department stores and mini-major retailers, cinemas, multiple supermarkets, entertainment, hospitality and specialty retailers.
Glen Waverley	MAC	Existing	Major regional shopping centre, with ancillary office, accommodation, and government uses with recently developed high density housing. Directly serviced by Glen Waverley Train Station.
Mount Waverley	MAC	Existing	A mixed-use activity centre that encompasses the Mount Waverley Village Shopping Centre and surrounds.
Chadstone	MAC	Existing	Super-regional shopping centre serving Melbourne's east and south-east with a focus on fashion, entertainment and a wide range of speciality and department stores. Emerging office role.
Knox Central	MAC	Existing	Includes a major regional shopping centre (Westfield, including Myer, Kmart and Target, multiple supermarkets and substantial specialty role) which has been recently expanded and refurbished, co-located with government and tertiary uses.
Brandon Park	MAC	Existing	Stand-alone neighbourhood level shopping centre anchored by Coles, Aldi and Kmart (click and collect only), supported by speciality shops.
Locally Significant Precincts			
Vermont South	Neighbourhood Activity Centre	Existing	Neighbourhood shopping centre anchored by Coles and Aldi, collocated with civic, recreation, aged care and education uses.
Burwood One	NAC	Existing	Large neighbourhood retail centre known as Kmart Plaza, anchored by Kmart and Coles.
Blackburn South	NAC	Existing	Small street-based neighbourhood centre anchored by Woolworths Supermarket and supported by independent retailers and hospitality.
Brentford Square	NAC	Existing	Neighbourhood shopping centre anchored by a Woolworths Supermarket and specialty retailers and medical uses.

Source: Urban Enterprise.

2.4. ECONOMIC CONTEXT

Victoria's economy is growing strongly, following a period of relative volatility during the recent COVID pandemic in 2020 and 2021. Unemployment is low and employment growth is generally strong, with State government projections for the short term (2023 – 2027) for economic growth between 1.5% and 2.75% per annum, and employment growth at between 0.75% and 1.75% per annum.[1]

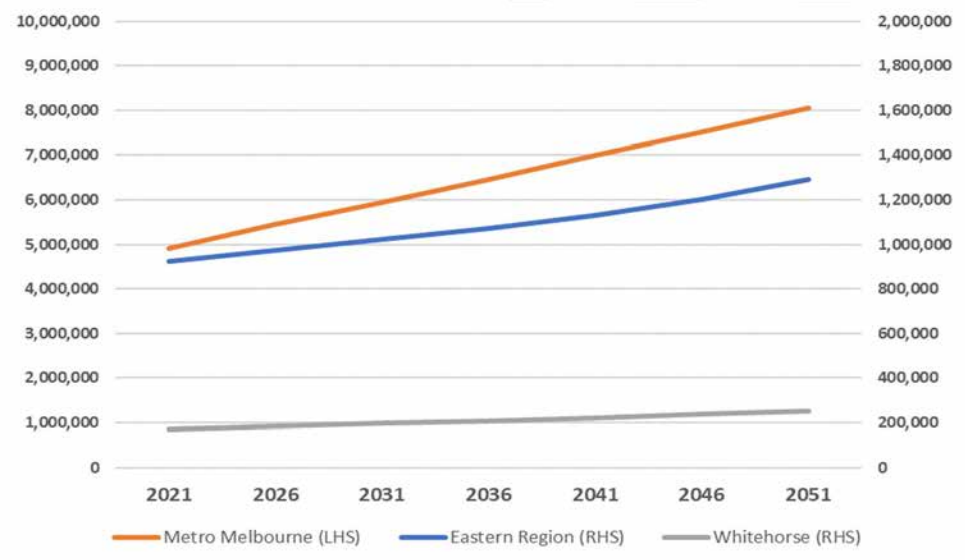
Since the COVID pandemic, population growth in Victoria has rebounded strongly and the most recent State government projections are for Melbourne to accommodate an additional 3.1m residents over the period 2021 to 2051 at an average growth rate of 1.7% per annum[2]. This will generate substantial need for additional and expanded employment, businesses, services, housing and infrastructure across the metropolitan region.

Melbourne's economy is underpinned by a combination of professional and financial services, health and education services, construction and manufacturing activity. Knowledge-based industries and health services have grown strongly in recent years as part of a longer-term economic transition from a manufacturing-led economy to one focused on innovation and services.

Melbourne's eastern metropolitan region has economic strengths and specialisations in the sectors of health, education, medical technology, engineering and retail[3]. A key advantage is the skilled labour force of the area.

Activity centres form a critical component of the urban economy, typically accommodating a range of businesses and services, alongside supporting economic and social infrastructure such as housing, transport, entertainment, recreation and so on. In Melbourne's east, the lack of greenfield land means that most population, employment and business growth will need to be accommodated in existing activity centres.

F3. PROJECTED POPULATION, 2021 – 2051



Source: Victoria in Future 2023. Whitehorse extrapolated from 2036 – 2051 based on 2021 – 2036 rate for comparison purposes.

[1] Victorian State Budget 2023/24.

[2] Victoria in Future 2023.

[3] Draft Eastern Metro Land Use Framework Plan. Region includes municipalities of Whitehorse, Manningham, Monash, Yarra Ranges, Maroondah and Knox.

2.5. KEY POINTS

- **State planning policy, through MICLUP, highlights the importance of recognising employment land as a critical economic resource to be retained.**
- **Planning policy identifies Tally Ho as a Major Activity Centre, a regionally significant location expected to accommodate employment, retail and services growth in addition to performing a residential growth role.**
- **The Tally Ho Activity Centre is located within a well-established network of Major and larger Neighbourhood Activity Centres, many of which are stand-alone retail shopping centres without a substantial non-retail employment function.**
- **Melbourne's economy is rebounding strongly from the COVID pandemic and is experiencing strong population growth. As the economy continues to transition towards knowledge-based services and the need for innovation and productivity growth intensifies, Melbourne's east (in particular, its employment areas and activity centres) will have an important role to play in accommodating employment growth, innovation and talent attraction and retention.**

3. EXISTING ROLE, LAND USE AND ACTIVITIES

3.1. INTRODUCTION

This section includes an assessment of existing land uses, activity and employment within the Activity Centre. The analysis is informed by a range of data sources and supplemented by a site visit undertaken in September 2023.

3.2. ECONOMIC ROLE OF THE ACTIVITY CENTRE

The Tally Ho Major Activity Centre performs business and institutional functions servicing Melbourne's eastern region. The primary land uses are office and health, supported by secondary retail, hospitality and industrial functions.

The economic role of the Activity Centre has evolved over time and has been influenced by the following changes:

- The Peter James Centre was established in 1985 and provides rehabilitation and aged care services. The Centre has since expanded, and other health and disability services have located in proximity.
- The main driver of the initial commercial and economic role of the centre was the development of a technology-focused business park in the 1990s. These office buildings have since been occupied by a range of software and technology companies, government departments and other professional services businesses.
- Since 2006, the area has had specialisations in information technology, telecommunications and innovation. Redevelopment of the Hewlett Packard campus[4] contributed strongly to this trend, however the number of technology related jobs decreased from 2011 to 2021 and the overall employment in the activity centre remained relatively stable over the period.
- The activity centre continues to house a substantial number of headquarter offices for technology, engineering, medical, emergency services, government and other businesses which comprise a major concentration of professional services that is significant to the eastern region of Melbourne.

From a land use perspective, there is relatively little diversity within the Activity Centre, in that retail and hospitality floorspace and uses are minor compared with the core medical and office space. In this sense, the area does not currently function as a genuine activity centre as current planning policy would expect. Rather, the centre could be better described as a concentration of employment uses and supporting ancillary retail and hospitality businesses.

The following sub-sections set out data and analysis which informs the assessment of economic role and opportunities.

[4] 353-383 Burwood Highway, Forest Hill.

3.3. MAIN ACTIVITIES AND CHARACTERISTICS

The following core activities currently occur within the Activity Centre:

- The **Peter James Centre** provides aged care and rehabilitation services to people following illness or surgery, or who have disabilities or chronic illness. The centre was established in 1985 and is operated by Eastern Health. The centre anchors a cluster of allied healthcare providers offering services such as neuro physiotherapy, counselling, and social services. The precinct also provides a range of supporting facilities for workers including an outdoor gym, childcare and café.
- The **Tally Ho Business Park** occupies approximately 16 hectares of Commercial 1 Zone land in the centre of the Activity Centre. The Business Park accommodates 18 multi-storey office buildings and in the order of 80,000 sqm of office space. The Business Park was developed in the 1990s and has a campus-style layout that was typical of stand-alone commercial business parks developed at the time.
- The **Burvale Hotel** and adjacent Dan Murphy's liquor store in the north-eastern section of the Activity Centre (north-eastern corner of Springvale Road and Burwood Highway).
- A range of other larger **industrial** and **commercial** businesses operating both to the north and south of Burwood Highway, with a notable presence of software and computing enterprises such as Pronto Software, APH Holding, and the HP Elite Lounge.
- A **local retail and commercial precinct** on Burwood Highway at the western edge of the Activity Centre comprising Quest Serviced Apartments, an Asian grocery store, a restaurant, fitness centre, and range of allied health services and offices. The precinct accommodates a concentration of private tutoring services, health-related service providers, and software companies and was observed to have low vacancies.

The Activity Centre is characterised by:

- Undulating **topography**, with substantial falls from north to south.
- **Campus style** office buildings with substantial vegetation, road space and parking; and
- Major **arterial roads** which carry substantial volumes of vehicle traffic while making pedestrian movements between sub-precincts difficult.

Peter James Centre

With a capacity of 158 beds, the Peter James Centre delivers a range of services including rehabilitation, geriatric medicine, aged persons' mental health services, aged care assessment, residential care, and transition care. The centre admits nearly 2500 patients per annum.

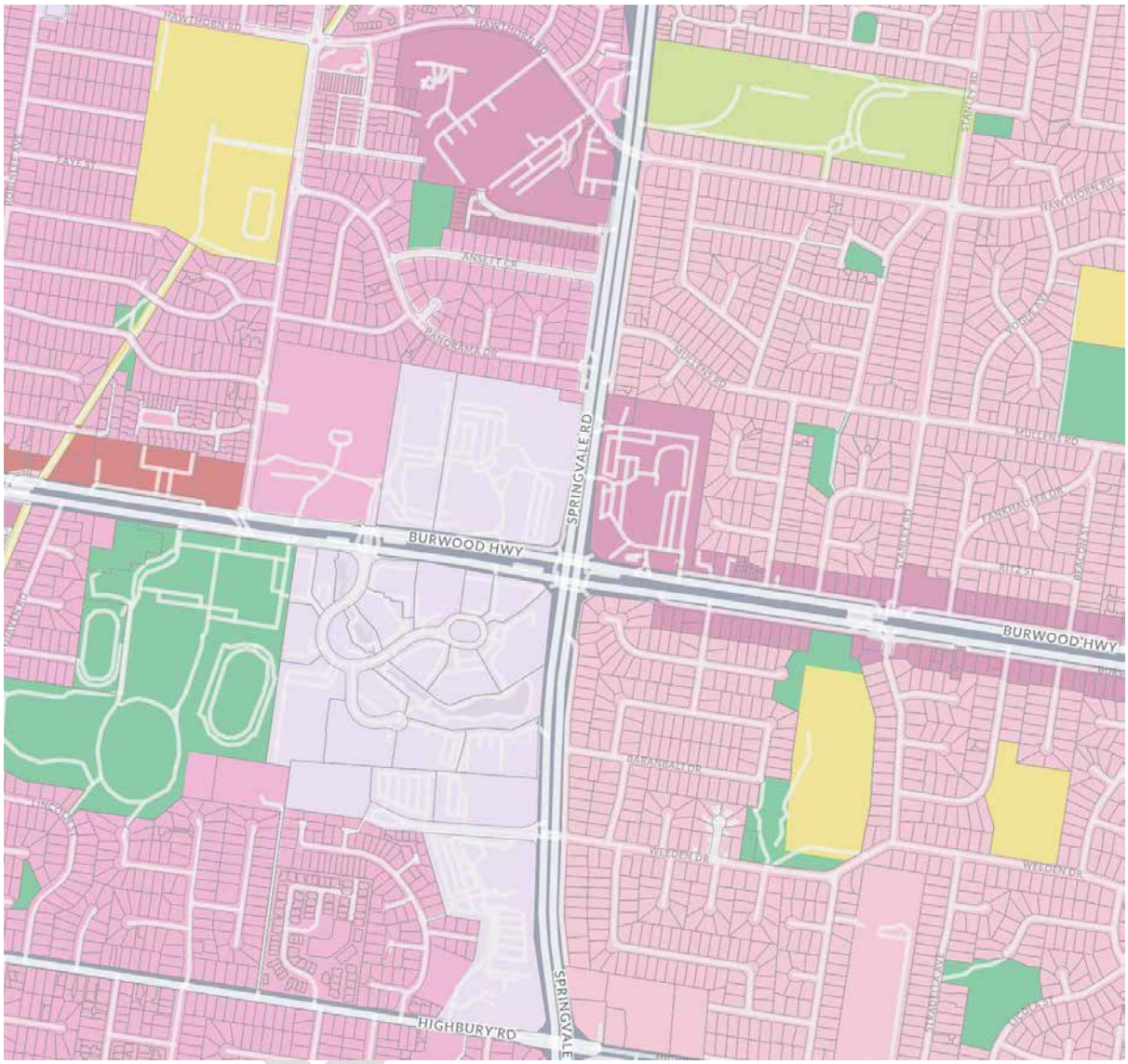
Patients to rehabilitation hospitals typically require longer length of stays than patients in general hospitals due to complex medical needs. Therefore, while hospital will treat fewer patients per year than a general hospital of the same capacity, these patients tend to stay far longer at the facility.

As a dedicated public rehabilitation centre, the Peter James Centre is regionally significant and predominantly services patients within the Eastern Region, such as those recovering from surgery at one of the Eastern Health Group's general hospitals.

3.4. LAND AREA AND ZONING

The Activity Centre covers an area of 64 hectares (excluding road reserves), the majority of which is in the Commercial 1 Zone (50 ha, 78%), with smaller sections in the General Residential Zone (6ha, 10%), Residential Growth Zone (4.9ha, 8%) and Mixed Use Zone (3ha, 5%). Planning zones are shown in Figure 4.

F4. PLANNING ZONES



Source: VicPlan.

3.5. LAND USE AND FLOORSPACE

Table 2 shows a summary of the floorspace of existing private land uses within the Activity Centre.

There is approximately 137,000sqm of retail, commercial and industrial floorspace in the Activity Centre, 100,000sqm of which is commercial office space (74%). There is approximately 4,000sqm of retail space in the Activity Centre, making up just 3% of floorspace, a very low proportion for an Activity Centre.

Table 2 also shows non-residential floorspace in the area previously proposed as an extended Activity Centre boundary. When this area is included, the total retail, commercial and industrial floorspace in the area is approximately 148,000sqm.

T2. FLOORSPACE BY LAND USE

Land Use	Activity Centre	Periphery	Total	% of total
Retail				
Food retail	4,090	2,750	6,840	5%
Other retail	0	0	0	0%
Retail sub-total	**4,090**	**2,750**	**6,840**	**5%**
Commercial				
Office	100,720	0	100,720	68%
Short-term accommodation	7,500	0	7,500	5%
Leisure and recreation	4,000	0	4,000	3%
Medical	12,000	1,940	13,940	9%
Childcare	930	0	930	1%
Other Commercial	1,370	450	1,810	1%
Commercial sub-total	**126,510**	**2,390**	**128,900**	**87%**
Industrial				
Warehouse	5,250	0	5,250	4%
Other industrial	820	0	820	1%
Industrial sub-total	**6,070**	**0**	**6,070**	**4%**
Other				
Civic and community	0	6,260	6,260	4%
Other sub-total	**0**	**6,260**	**6,260**	**4%**
Total	**136,670**	**11,390**	**148,060**	**100%**

Source: Whitehorse Property Database; Urban Enterprise. Excludes former ATV Studios. Some data estimated by Urban Enterprise where data not included in rates information (e.g. Peter James, Quest Apartments).

3.6. EMPLOYMENT

Table 3 shows the employment located within the Destination Zones of best fit to the Activity Centre (see Appendix A for a map of these Destination Zones). At the last Census in August 2021, 5,237 workers were counted in this area. Given that the Census typically undercounts employment by at least 10%, it is estimated that the area had in the order of 5,800 jobs in 2021.

Employment increased slightly between 2016 and 2021 (+132 workers).

T3. EMPLOYMENT, ACTIVITY CENTRE AND SURROUNDS, 2011 - 2021

Sector	2011	2016	2021
Employment in Activity Centre and surrounds	5,564	5,105	5,237

Source: ABS Census; Urban Enterprise.

Table 4 shows a breakdown of employment by industry and changes over time, with key observations as follows:

- Knowledge based services (commercial) account for approximately half of all employment in the area (48%), followed by health care (24%).
- Significant employment in public administration and safety, IT and telecommunications, professional services, health care and social assistance, wholesale trade and other services is accommodated in the area.
- Since 2016, industrial employment has decreased significantly, outweighed by a substantial increase in health employment and a moderate increase in knowledge-based services employment.[5]

[5] The reduction in industrial sector employment is primarily due to a substantial decrease in Wholesale Trade and Manufacturing employment. Given the lack of industrial premises in the activity centre, it is likely that this reduction is due to a reclassification of jobs between sectors rather than substantive land use change.

T4. NUMBER OF WORKERS IN STUDY AREA BY EMPLOYMENT SEGMENT – 2011, 2016 & 2021

Industry of Employment	2011	2016	2021	Change ('16-'21)
Knowledge-based services (commercial)				
Public Administration and Safety	607	579	769	190
Information Media and Telecommunications	209	628	731	103
Professional, Scientific and Technical Services	483	760	571	-189
Financial and Insurance Services	235	218	210	-8
Administrative and Support Services	222	168	139	-29
Rental, Hiring and Real Estate Services	8	35	89	54
Sub-total	**1764**	**2388**	**2509**	121
Health and Education				
Health Care and Social Assistance	582	744	1,251	507
Education and Training	20	92	179	87
Sub-total	**602**	**836**	**1430**	**594**
Retail and food				
Accommodation and Food Services	100	99	55	-44
Retail Trade	34	86	39	-47
Sub-total	**134**	**185**	**94**	**-91**
Industrial				
Wholesale Trade	1,461	802	527	-275
Construction	90	52	75	23
Transport, Postal and Warehousing	297	223	75	-148
Manufacturing	363	22	14	-8
Mining	0	0	0	0
Sub-total	**2,211**	**1,099**	**691**	**-408**
Other				
Other Services	536	528	473	-55
Arts and Recreation Services	48	69	40	-29
Agriculture, Forestry and Fishing	0	0	0	0
Electricity, Gas, Water and Waste Services	269	0	0	0
Sub-total	**853**	**597**	**513**	**-84**
Total	**5,564**	**5,105**	**5,237**	**132**

Source: Census of Population and Housing, 2011, 2016, and 2021; Urban Enterprise.

EMPLOYMENT MIX

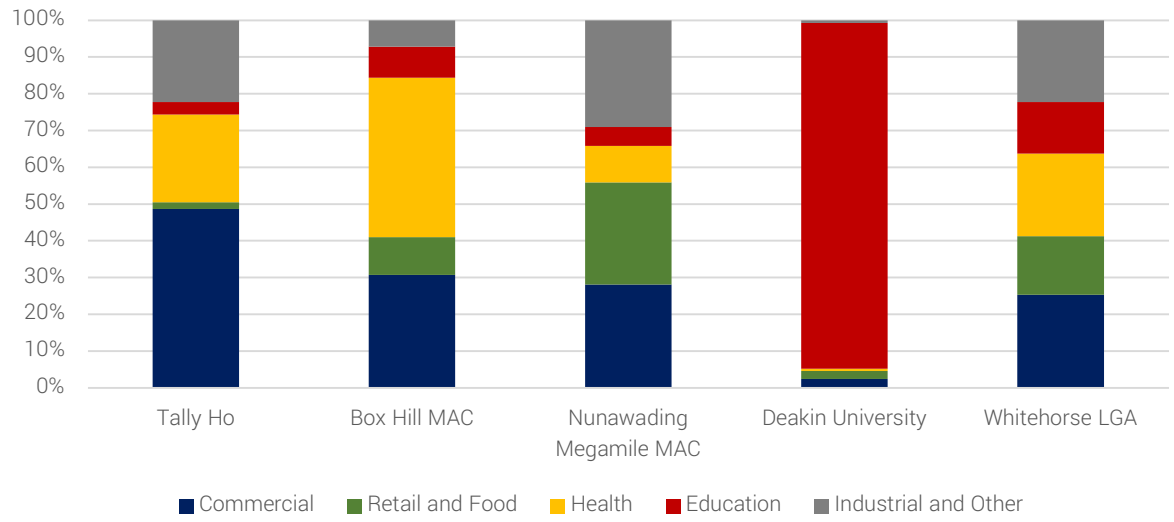
In terms of overall employment, the Activity Centre is one of four main concentrations of employment in the City of Whitehorse, alongside the Box Hill Activity Centre, Deakin University and the Nunawading Megamile Activity Centre and corridor.

Figure 6 shows a comparison of the employment mix of the Activity Centre compared with the other main concentrations of employment in the City of Whitehorse and the overall municipal breakdown.

The graphic shows that Tally Ho has an over-representation of commercial (knowledge-based) jobs, and a very low level of employment in retail and food when compared with other areas. The differences reflect Tally Ho's planning history as being within a zone designed to accommodate business activity (Business 2 Zone) until Victoria's commercial zones were consolidated and broadened in 2013, a process which automatically created zoning (Commercial 1 Zone) which now permits a wide range of uses commonly found in activity centres.

The comparison demonstrates that Tally Ho has a limited availability of businesses providing support services and amenity (especially hospitality) to workers and visitors to the area and supporting the view that the area is better described as an employment and health precinct with limited convenience retail than a fully functional activity centre of the kind envisaged by planning policy.

F5. WHITEHORSE LGA AND ACTIVITY CENTRE EMPLOYMENT PROFILE COMPARISON, 2021



Source: Census of Population and Housing, 2021.

INDUSTRY SPECIALISATION

Previous studies identified that the Study Area accommodated a cluster of computer and IT related employment that is significant to metropolitan Melbourne.

Table 5 shows that, although there is substantial employment in these fields in 2021, the number of jobs decreased significantly between 2016 and 2021.

T5. TECHNOLOGY RELATED EMPLOYMENT NUMBERS AND RANKING BY DESTINATION ZONE

DZN Area	2011	2021	Change
1	634	773	139
2	42	37	-5
3	1,140	606	-534
Sub-total Study Area	1,816	1,416	-400

Source: Census of Population and Housing, 2016 and 2021. See Appendix B for industries identified as technology related.

Despite this decrease, the area continues to accommodate a substantial number of technology-related businesses and employment, a specialised cluster of significant value to the regional and metropolitan economy.

In addition to technology, the area clearly accommodates high concentrations of health care, emergency services and public administration jobs.

3.7. KEY FINDINGS

- **The Tally Ho Major Activity Centre performs business and institutional functions servicing Melbourne's eastern region. The primary land uses are office and health, supported by secondary retail, hospitality and industrial functions.**
- **There is approximately 137,000sqm of retail, commercial and industrial floorspace in the Activity Centre, 100,000sqm of which is commercial office space (74%). There is 4,000sqm of retail space in the Activity Centre, making up just 3% of floorspace, a very low proportion for an Activity Centre.**
- **From a land use perspective, there is relatively little diversity within the Activity Centre, in that retail and hospitality floorspace and uses are minor compared with the core medical and office space. The area does not currently function as a genuine activity centre as current planning policy would expect. Rather, the centre is a concentration of employment uses and supporting ancillary retail and hospitality businesses.**
- **The Activity Centre and immediate surrounds accommodated approximately 5,800 jobs in 2021. Knowledge based services (commercial) account for approximately half of all employment in the area (48%), followed by health care (24%). Significant employment in public administration and safety, IT and telecommunications, professional services, health care and social assistance, wholesale trade and other services is also accommodated.**
- **The area continues to accommodate a substantial number of technology-related businesses and employment, a specialised cluster of significant value to the regional and metropolitan economy.**
- **Although employment numbers in the centre have remained relatively steady over the 10 years to 2021, the composition of jobs has changed, with growth in the commercial and health sectors, no change in the retail and food industry, and a decline in jobs in industrial sectors.**

4. ECONOMIC TRENDS AND INFLUENCES

4.1. INTRODUCTION

This section summarises the key trends and influences that are relevant to the future role of the Activity Centre.

4.2. COVID PANDEMIC

The COVID-19 pandemic has had a significant impact on the global and national economy, with restrictions on business and travel affecting local communities and business trading.

Industries that are consumer facing and rely on population movements (i.e. retail, food and hospitality) have been more significantly impacted in terms of revenue reductions and job loss. While other industries, particularly essential services (i.e. health and education), have had to alter their operations. Even as businesses readjust to the 'new-normal' in the wake of the pandemic, the impacts have left lasting changes to the local employment landscape.

REMOTE AND FLEXIBLE WORKING

COVID-19 has accelerated the rise of remote working, particularly for employees that work in traditional 'office-based' industries (including professional and financial services), that now have greater flexibility to work outside the traditional office environment. This trend will impact the Tally Ho Activity Centre, as professional services is one of the largest employing sectors.

As the pandemic has decreased the importance of permanent business spaces and seen business re-locate from the CBD to the inner suburbs, co-working spaces and 'satellite' offices have come to provide critical support infrastructure for businesses. Demand for co-working spaces is growing, driven by a combination of tech and creative start-ups, the decentralisation of business activity, the growth in home-based businesses and rise in remote working arrangements.

4.3. OFFICE MARKET

Melbourne's office market has experienced considerable volatility in recent years due to the COVID pandemic. Vacancy rates have increased strongly in the CBD, however some parts of the inner fringe have continued to attract office investment and strong growth. There has been an observed "flight to quality"[6] in recent years, with many tenants preferring higher quality office stock and higher amenity locations (such as South Melbourne, Richmond and Collingwood) to attract staff and, more recently, encourage in-person working.

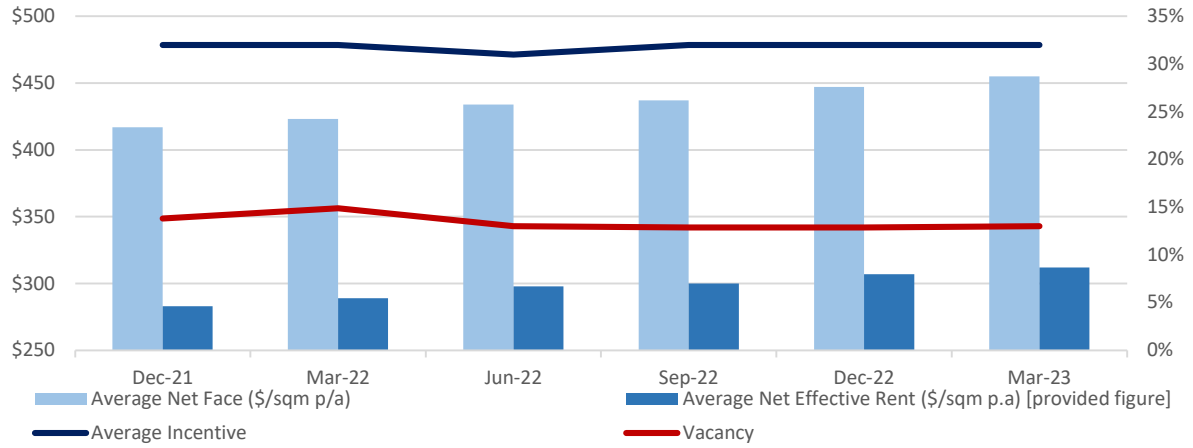
The suburban market (i.e. excluding the CBD and city fringe) has fared reasonably well since the initial shocks of the pandemic, with vacancy rates and rents remaining steady since late 2021 (see Figure 7), including for secondary grade[7] offices. The outer east of Melbourne continues to perform well in terms of absorption of new office space despite changes to working practices.

Part of this can be explained by tenants seeing advantages of locations outside the CBD which are closer to labour forces. This factor was also referenced by the original developers of the Tally Ho Business Park, albeit during a different era and socio-economic circumstances.

[6] A clear and increasing preference for higher quality, newer office premises (often in locations that offer a range of supporting services such as hospitality, entertainment and recreation) over older premises in more traditional business environments which historically have lacked supporting services, especially hospitality.

[7] The Property Council provides definitions and categories of office premises based on their quality, size, facilities and environmental credentials. Market reports on office space generally report on performance of Prime and Secondary office space separately.

F6. MELBOURNE METROPOLITAN PRIME GRADE OFFICE MARKET INDICATORS



Source: Colliers, March 2023.

4.4. MAJOR INFRASTRUCTURE PROJECTS

As part of Victoria's Big Build, two major state infrastructure projects are set to be delivered that will increase the connectivity of Tally Ho Activity Centre: the Suburban Rail Loop and North East Link Program.

NORTH EAST LINK

North East Link (NEL) will link an upgraded Eastern Freeway and the M80 Ring Road, and is the largest investment in a road project in Victoria's history. NEL will take up to 15,000 trucks off local roads resulting in reduced travel times for freight and associated industries. It is expected to reduce travel times by up to 35 minutes across the project corridor. The road link will increase accessibility to Whitehorse from surrounding municipalities, particularly from the north and east. Therefore, a 20-minute road journey to the Tally Ho Activity Centre may capture a greater catchment distance once the project is delivered. The project is currently underway and on track for completion by 2028.

SUBURBAN RAIL LOOP

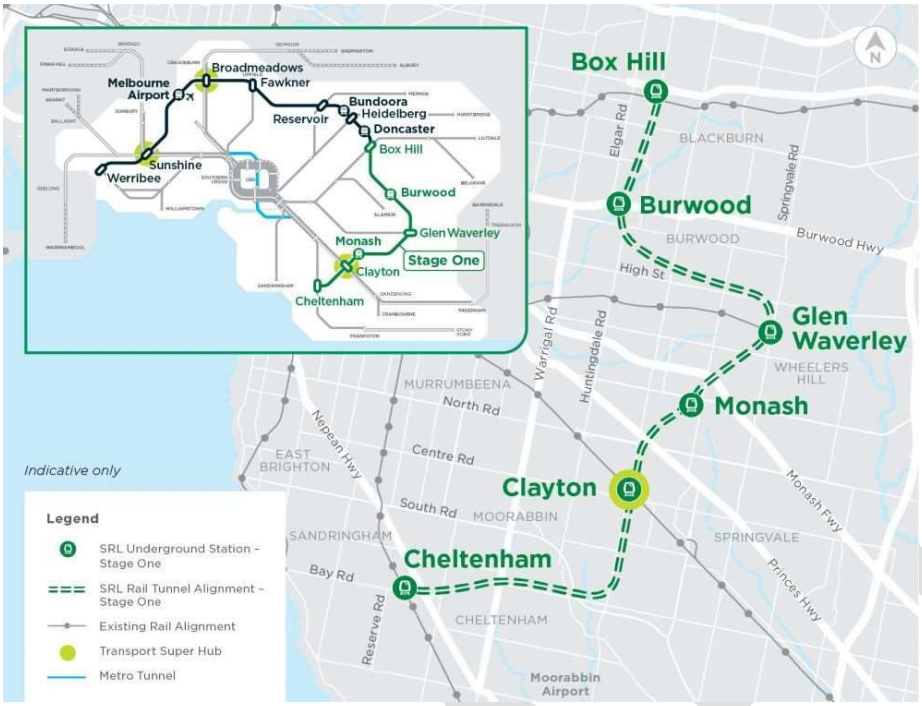
The Suburban Rail Loop (SRL) is a major Victorian infrastructure project involving a 90km rail ring through the middle suburbs that will link every metropolitan trail line. The projects seek to better connect Victorians to jobs, retail, education, health services and each other.

The first stage of the project (SRL East) commenced in June 2023 and is scheduled for completion in 2035 at a cost of $30.0 to $34.5 billion. SRL East will run between Cheltenham and Box Hill and include six new underground stations at Cheltenham, Clayton, Monash, Glen Waverley, Burwood, and Box Hill. In particular, the SRL stations at Glen Waverley and Box Hill will greatly enhance the accessibility and connectivity of the Tally Ho Activity Centre.

The SRL station at Glen Waverley is expected to be one of the best-connected stations in Melbourne, offering short travel times to universities, employment, and hospitals to the north and south. A bus journey from this station to the Tally Ho Activity Centre will take approximately 10 minutes[8]. Meanwhile, the station at Burwood will facilitate better access to Deakin University for thousands of staff and students. It will also see the delivery of a new tram stop outside the station which runs along Burwood Highway. This stop will provide a direct link between the Activity Centre and the Burwood SRL station, further increasing its accessibility from key transport nodes.

[8] Although the bus connection between Tally Ho and Glen Waverley Station already exists, the connection to a train station with both radial and orbital rail options will substantially increase the accessibility of the area via rail.

F7. SUBURBAN RAIL LOOP – STAGE 1 ALIGNMENT AND STATIONS



Source: Victoria's Big Build Website.

4.5. LOCAL DEVELOPMENT PROPOSALS

In recent years, the activity centre has been the subject of several major development proposals, including the proposed redevelopment of 353-383 Burwood Highway (mixed use development, including a shopping centre) and 380 Burwood Highway (on the site of the current China Bar restaurant, where a 10 storey mixed-use development, primarily residential, has been issued a planning permit).

Despite this permit activity, few major investments or new developments have been completed in the study area, resulting in a stable and relatively mature economic role and built form that has experience little change in recent years. Several existing buildings have been internally refurbished.

It is noted that the urban design controls put in place as part of the Urban Design Framework for the Activity Centre seek to maintain the valued green spaces of the Business Park and discourage building footprint expansion except over at grade parking areas. The controls also apply built form and building height policies which may have contributed to the lack of substantial redevelopment or intensification of built space in parts of the Activity Centre.

The precinct is set to undergo a significant transformation, however, with APH Holding securing approval for a substantial mixed-use shopping centre (planning permit WH/2020/1299 issued by VCAT in April 2023) for the land at 353-383 Burwood Highway (the north-west corner of Springvale Road and Burwood Highway) which would form Stage 2 of a proposed multi-stage development of the site.

Stage 1 of the proposal includes two six-storey office buildings with a combined total of 35,000sqm of office space. Architectural plans[9] show that Stage 2 is a multi-level shopping centre covering 13,000sqm of retail floorspace (GLAR), including:

- A 3,800sqm supermarket (Woolworths);
- A 3,900sqm mini-major tenancy;
- 3,860sqm for general retail; and

[9] Buchan, 15 February 2021.

- 1,486sqm for food and beverage.

Other developments recently completed or proposed in the vicinity of the Activity Centre include:

- Recent completion of the redevelopment of the former Burwood Brickworks (corner of Burwood Highway and Middleborough Road, 2.8km west of Tally Ho) to include:
  - 750 townhouses and apartments;
  - A new full-line Woolworths supermarket and neighbouring Dan Murphy's liquor store; and
  - Specialty shops, a cinema, childcare centre and medical centre.
- A Development Plan for Stage 3 of the Forest Ridge site (the former ATV Studios, 104-168 Hawthorn Road, Forest Hill) which envisages 600 – 700 dwellings being accommodated on the site, only 300m north of the northern extent of the current Activity Centre boundary; and
- The Burwood One Shopping Centre (172-210 Burwood Highway, 1.5km west of Tally Ho) has two planning permits for expansion, including a 2,800sqm retail expansion to the west and a separate expansion to the east.

4.6. KEY POINTS

- **The COVID pandemic has accelerated pre-existing trends towards workplace flexibility and the need to establish quality employment environments to remain competitive. As a result, the need to attract and retain talent to employment precincts is of even greater importance.**
- **Melbourne's metropolitan office market has performed relatively well despite the disruptions of the pandemic, led by ongoing demand for office space in Melbourne's eastern suburbs.**
- **The Tally Ho Activity Centre has experienced relatively little investment in recent years, with the exception of the development of a new Quest Serviced Apartments. A recently issued planning permit for a shopping centre within the Activity Centre would significantly alter the land use mix if delivered.**
- **Opportunities to encourage re-development and re-investment in the centre will be important to ensure that premises can continue to be updated, expanded and remain aligned with tenant expectations.**
- **The Suburban Rail Loop will significantly improve the accessibility of the precinct to rail-based public transport. This is likely to improve the attractiveness of the precinct to office-based businesses, however the delivery of priority precincts immediately around SRL stations will present new competition to Tally Ho for investment.**
- **The Structure Plan should seek to capitalise on the economic opportunities associated with the Suburban Rail Loop, proximity to Deakin University and established specialisations (especially technology and health).**

5. FUTURE NEEDS

5.1. INTRODUCTION

Activity centre structure plans need to plan to accommodate demand for a range of land uses, including residential, retail, commercial and related uses.

This section includes an analysis of the catchment that the Activity Centre serves in terms of retail and employment, and projections of the potential scale that the centre will need to accommodate over the period to 2041.[10]

5.2. ACTIVITY CENTRE CATCHMENT

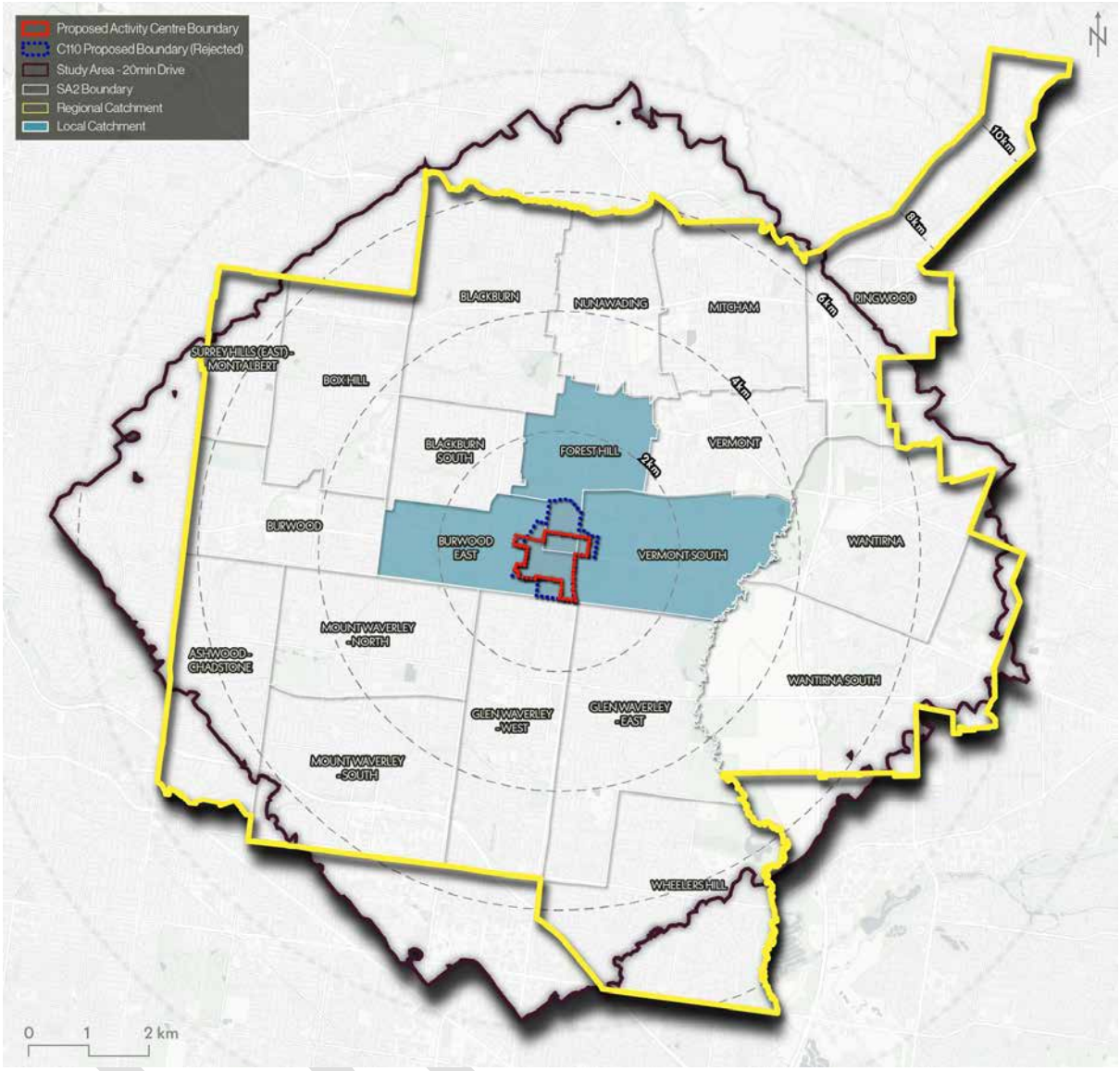
Due to the nature of the uses in Tally Ho – primarily health and employment uses – the Activity Centre serves a relatively broad catchment.

Figure 8 shows a 20 minute drive time catchment to the centre of the Activity Centre and the SA2 areas within that catchment. This area includes all of the City of Whitehorse, as well as the northern part of the City of Monash (Glen Waverley, Mount Waverley and Wheelers Hill), and the westernmost parts of the Cities of Knox (Wantirna) and Maroondah (Ringwood). This area – referred to in the assessment as the regional catchment - has been profiled in order to understand the existing and future characteristics and scale of the population that will require goods, services and employment in the area.

A smaller local catchment has also been considered which takes in the three suburbs that immediately surround the Activity Centre of Burwood East, Vermont South and Forest Hill. Residents of these suburbs will be the primary driver of the need for retail and other convenience goods and services in the Activity Centre.

[10] 2041 is the last date at which local population projections (Forecast ID) are currently available, and is 18 years from the date this analysis was prepared, enabling Council to ensure that the policy requirement of at least 15 years of land demand is planned for.

F8. REGIONAL AND LOCAL CATCHMENT MAP



Source: TravelTime.com, Australian Bureau of Statistics, Urban Enterprise.

POPULATION AND GROWTH

As shown in Table 6, the regional catchment had a population of 325,875 residents in 2022, having increased at an average of 0.66% per annum over the period 2012 – 2022.

The local catchment had a population of 33,987 in 2022 and had increased at a lower rate of 0.28% per annum over the preceding 10 years.

T6. ESTIMATED RESIDENT POPULATION OF CATCHMENT AREAS

	2012	2022	AAG	AAGR%
Regional catchment	305,220	325,875	2,066	0.66%
Local catchment	33,065	33,987	92	0.28%

Source: ABS, Urban Enterprise. AAG=average annual growth. AAGR=average annual growth rate.

Population projections prepared by the State Government (Victoria in Future 2023) and Forecast ID for Councils have been reviewed and are summarised in Table 7 and Table 8.

Forecast ID projections result in an overall average annual population growth rate of 1.26% in the regional catchment and 1.55% in the local catchment.

The latest Victoria in Future projections are for an average growth of 1.17% per annum across the regional catchment and 1.26% in the local catchment. These projections are slightly lower than Forecast ID in terms of population, but slightly higher in terms of dwellings required.

Given that the projections are similar in terms of rates of growth over the period to 2036 and that Forecast ID projections continue further into the planning period for the structure plan (i.e. to 2041), the Forecast ID projections have been adopted for the purposes of informing this analysis. This approach also ensures that the possibility of higher growth than projected by VIF is taken into account in planning decisions.

T7. POPULATION AND DWELLING FORECASTS (FORECAST ID)

Catchment	2021	2041	Change	AAG	AAGR
Regional catchment					
Population	322,036	413,762	91,726	4,586	1.26%
Dwellings	130,446	165,867	35,421	1,771	1.21%
Local catchment					
Population	33,688	45,796	12,108	605	1.55%
Dwellings	13,444	17,726	4,282	214	1.39%

Source: Forecast ID, Urban Enterprise.

T8. POPULATION AND DWELLING FORECASTS (VICTORIA IN FUTURE)

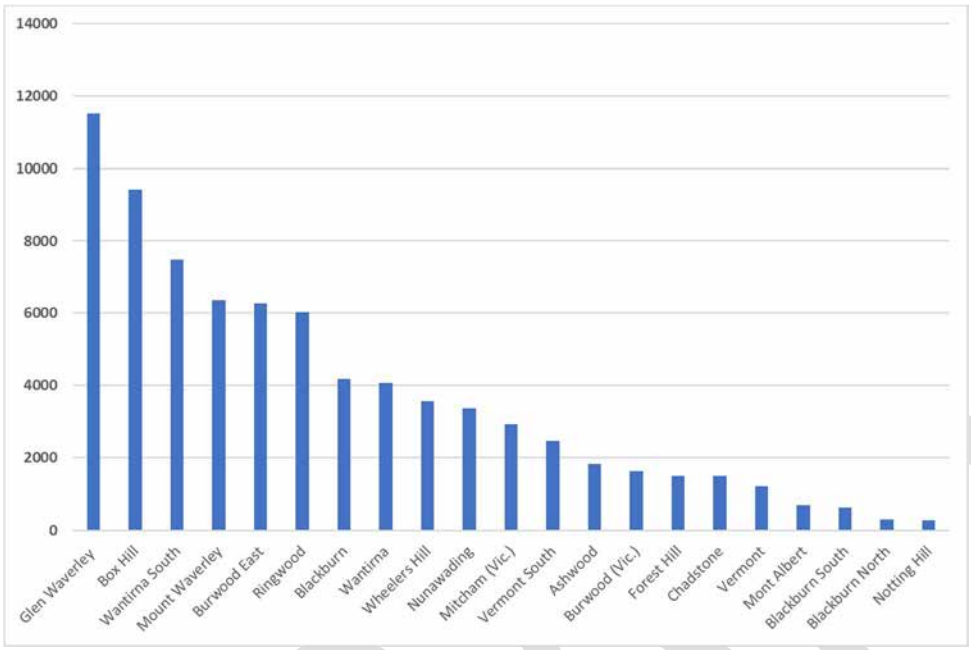
Catchment	2021	2036	Change	AAG	AAGR
Regional catchment					
Population	324,584	386,679	62,095	4,140	1.17%
Dwellings	132,033	161,514	29,481	1,965	1.35%
Local catchment					
Population	33,682	40,643	6,961	464	1.26%
Dwellings	13,476	16,897	3,421	228	1.52%

Source: Victoria in Future 2023, Urban Enterprise.

As shown Figure 9, projected population growth in the catchment is not evenly distributed. Substantial growth is projected for Glen Waverley and Box Hill, while Wantirna South, Mount Waverley and Ringwood are all expected to growth strongly as well.

Within the local catchment, Burwood East is projected to accommodate 6,268 additional residents over the period, with considerably lower scales of growth projected for Vermont South (+2451) and Forest Hill (+1500).

F9. PROJECTED POPULATION GROWTH BY SUBURB WITHIN BROADER CATCHMENT, 2023 - 2041

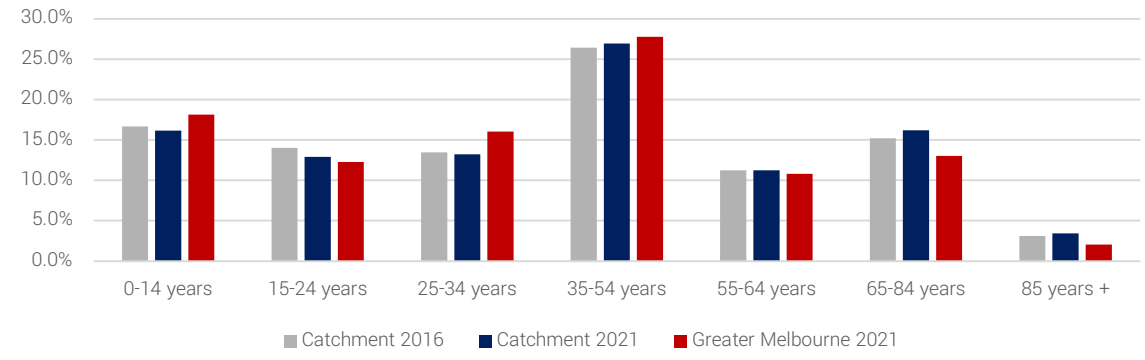


Source: Forecast ID; Urban Enterprise. Graph shows projected population change from 2023 to 2041.

AGE PROFILE

Residents of the catchment area are slightly older compared to Greater Melbourne. The Catchment maintains a high proportion of those in the later working (55-64 years) and retired age cohorts (65-84 years), as well as those who require the most care (85 years+) compared to the Greater Melbourne benchmark. Younger (25-34 years) and middle aged (35-54 years) workers are underrepresented against the benchmark. The youngest age cohort (0-14 years) are similarly underrepresented.

F10. CATCHMENT AREA AGE PROFILE



Source: Census of Population and Housing, 2016 and 2021.

5.3. HOUSING NEEDS

The most recent Whitehorse Housing Strategy (2014) was prepared around the time that the majority of the Tally Ho Activity Centre was within the Business 2 Zone, a zone which did not encourage residential land use. The Strategy therefore referred to what is now the Commercial 1 Zone area as a 'non-residential area' and did not take into account the potential housing role of this area.

The Strategy noted that a test was undertaken to ensure that the new zones proposed to implement the strategy would enable supply to meet demand. It is apparent that this test would not have included the Business 2 (now C1Z) land in the Activity Centre given its designation as 'non-residential' land, and therefore that the Commercial 1 Zone area was not needed to perform a housing role to provide sufficient housing supply to meet demand. It is noted that the Strategy was prepared at a point in time when demand was estimated at 500 dwellings per annum, considerably lower than the most recent State government projections of 1,200 dwellings per annum.

PROJECTED HOUSING NEEDS

The need for housing in the Structure Plan area will be directly influenced by population growth in the local and broader areas.

As shown in the previous section, there is projected to be a need for the following scale of dwellings:

- Across Whitehorse:
  - 19,694 dwellings in Whitehorse over the period 2021 – 2041, equating to 985 per annum (Forecast ID);
  - 18,398 dwellings over the period 2021 – 2036, equating to 1,227 per annum (Victoria in Future);
- In the local catchment:
  - 4,282 dwellings in the local catchment between 2021 and 2041, equating to 214 per annum across the suburbs of Burwood East, Forest Hill and Vermont South (Forecast ID);[11]
  - 3,421 dwellings in the local catchment between 2021 and 2036, equating to 228 per annum (Victoria in Future 2023).

[11] The development assumptions which underpinned these projections at the time are set out in Appendix C, taken from https://forecast.id.com.au/whitehorse/residential-development

RECENT AND PROPOSED DEVELOPMENT

Table 9 shows the rate of dwelling approvals in Whitehorse and the local catchment over the period 2015 – 2022, and Table 10 summarises the major developments that were recently completed or are currently in the 'pipeline'.

The data shows that:

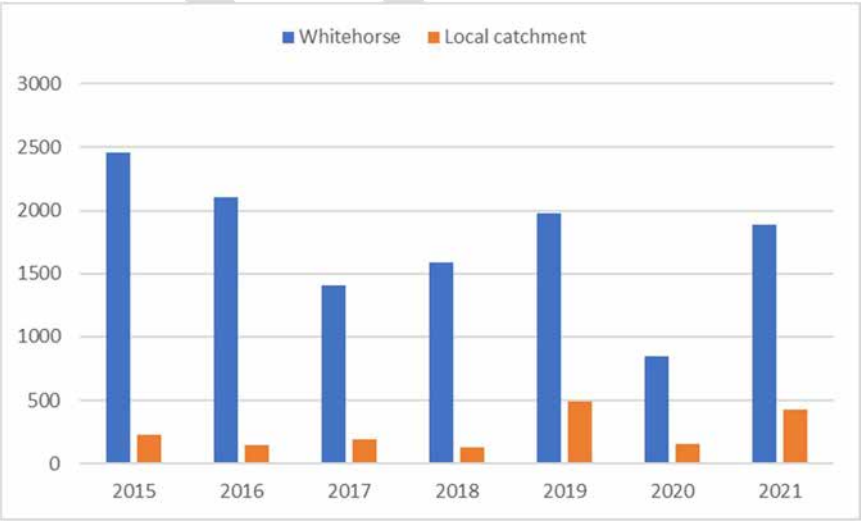
- Whitehorse averaged 1,752 dwelling approvals per annum over the period 2015 – 2021;
- Box Hill accounted for 38% of all approvals, followed by Blackburn (11%). The local catchment accounted for 15% of all approvals over the period (255 per annum);
- UDP data shows 1,462 dwellings completed in major redevelopment sites were completed in Whitehorse in 2021, and that there are a further 7,208 dwellings in the pipeline; and
- Although the majority of new dwellings in the pipeline are in Box Hill (53%), 15% of the pipeline project yield is in the local catchment. This includes 116 apartments in the Forest Ridge development, which is considerably less than the planned 600 – 700 dwellings on the site.

T9. DWELLING APPROVALS, WHITEHORSE AND LOCAL CATCHMENT, 2015-2022

SA2	2015	2016	2017	2018	2019	2020	2021	Average
Blackburn	168	255	189	149	203	282	120	195
Blackburn South	138	93	54	50	74	30	42	69
Box Hill	1095	926	407	459	813	114	869	669
Box Hill North	157	176	159	149	96	58	123	131
Burwood	306	189	146	212	80	75	89	157
Burwood East	61	46	46	45	292	121	349	137
Forest Hill	134	60	69	52	48	20	53	62
Mitcham	95	112	80	87	85	42	62	80
Nunawading	170	100	67	192	56	38	49	96
Surrey Hills (East) - Mont Albert	62	45	75	136	46	22	66	65
Vermont	34	59	37	29	31	24	37	36
Vermont South	38	41	77	32	151	16	31	55
WHITEHORSE LGA	**2458**	**2102**	**1406**	**1592**	**1975**	**842**	**1890**	**1752**
Local catchment	233	147	192	129	491	157	433	255

Source: ABS; Urban Enterprise.

F11. DWELLING APPROVALS BY LOCATION, 2015-2022



Source: ABS; Urban Enterprise.

T10. MAJOR REDEVELOPMENT SITE PIPELINE, WHITEHORSE AND LOCAL CATCHMENT, 2022

Suburb	Completed 2021	Under Construction 2022	Firm	Likely	Possible	Total
BLACKBURN	136	263	264	87	73	823
BLACKBURN SOUTH	65		195			260
BOX HILL	555	1348	1709	379	386	4377
BOX HILL NORTH		10				10
BOX HILL SOUTH			74	153	10	237
BURWOOD	63	75	163	82		383
BURWOOD EAST	397	585	83	36	122	1223
FOREST HILL	14		115			129
MITCHAM	17	46	18	30		111
MONT ALBERT	60	33	183		15	291
NUNAWADING	54		274	180		508
VERMONT			48			48
VERMONT SOUTH	101		114	12	43	270
Total	**1462**	**2360**	**3240**	**959**	**649**	**8670**
Local catchment total	**512**	**585**	**312**	**48**	**165**	**1622**

Source: Urban Development Program 2022.

The list of current projects in the local catchment is shown in Appendix C and has been updated to take into account the 2023 Urban Development Program data. The projects are summarised as follows:

- 483 dwellings were constructed in the local catchment in 2021;
- 179 dwellings were constructed in 2022;
- 413 dwellings were under construction in 2023; and
- 1,273 dwellings are in the 'pipeline' (defined as firm, likely or possible).

Of the pipeline:

- 345 dwellings (28%) are within low rise developments (1-3 storeys);
- 796 dwellings (63%) are in mid-rise proposals (4-8 storeys); and
- 122 dwellings (10%) are in 1 project of 10 storeys (China Bar site within the Tally Ho Activity Centre).

Excluding projects completed in 2021, the local catchment has projects with a total of **1,865 dwellings**, compared with a dwelling demand projected by Forecast ID of 4,282 dwellings over a 20 year period to 2041. This means that the current pipeline, if all delivered, would provide 44% of the projected housing needs over the 20 year period to 2041.

The extent to which dwellings that are in the 'pipeline' are actually delivered is a variable that is difficult to predict. At the state level, the volume of dwellings completed (i.e. constructed) has equated to approximately 95% of the volume of dwellings approved for construction. In middle ring suburbs such as Whitehorse, the number of dwellings with building approval generally comprises in the order of 80% of the number of dwellings with planning permission[13]. Other developments that are yet to receive planning permission are less certain, given the need to achieve pre-sales, finance, planning permission and so on.

[13] Urban Enterprise, based on analysis of DTP and ABS data between 2015 and 2022, accounting for time lag between planning approval, building approval and construction.

CAPACITY TO ACCOMMODATE ONGOING HOUSING DEVELOPMENT

The local catchment area will need to accommodate ongoing development to meet housing demand. The main opportunities to achieve this are:

- The Residential Growth Zone along the Burwood Highway Corridor between Middleborough Road and Vermont South Shopping Centre, including within the Activity Centre. Several apartment developments are proposed within this corridor at 3-5 storeys with a density of between 200 – 400 dwellings per ha (sites between 500sqm and 2,000sqm). This indicates the likelihood of substantial redevelopment potential in the corridor given the presence of many properties with similar characteristics. Amendment C220 will also introduce a new Design and Development Overlay with a preferred height limit of 6 storeys in the corridor.
- Housing in the Tally Ho Activity Centre, especially on key sites such as:
  - The Burvale Hotel, a highly strategic 4.5ha site in the Residential Growth Zone with preferred building heights under the UDF of between 1 and 6 storeys.
- Housing delivered in other Major Activity Centres in the local catchment, including the Burwood Heights MAC and the Forest Hill Chase MAC.
- Infill development in the General Residential Zone, and to a lesser extent, Neighbourhood Residential Zone, in the established residential areas of Burwood East, Forest Hill and Vermont South.

IMPLICATIONS FOR THE ACTIVITY CENTRE

The following implications are noted for the Activity Centre and Structure Plan:

- There is relatively strong demand for housing in the general area of the Activity Centre, as evidenced by the rate of development and diversity of townhouses, low rise apartments and high-rise apartments being delivered in the broader area.
- As noted in previous sections, proximity to major health, education and employment precincts is an advantage of the area. Housing in this part of the municipality is well located for students and workers located in the regional catchment and surrounds. The Activity Centre could perform a role in accommodating housing suitable for students and key workers, and contribute to the overall diversity of housing available in the catchment (including for the substantial cohort of older residents likely to seek downsizing opportunities in the planning period.
- The municipal housing demand projection is being exceeded by the rate of new development and the pipeline is particularly strong, especially in Box Hill (although this pipeline is strongly influenced by high-rise towers which can be less certain to proceed). This indicates that Tally Ho is unlikely to be required to deliver substantial housing volumes to meet municipal demand.
- At the local level, a pipeline of smaller apartment developments is evident, primarily within the Burwood Highway corridor. When combined with the presence of strategic sites within and adjacent to the activity centre and increased building heights along the Burwood Highway corridor, the potential to accommodate housing within and near the Tally Ho Activity Centre is already substantial.
- The Structure Plan area could perform a contributory role in accommodating residential development to ensure that the projected need for 4,282 dwellings in the local catchment can be accommodated in areas supported by planning policy. This would also provide opportunities for a wider range of housing in the area.
- Larger strategic sites such as the Burvale Hotel are logical candidates to accommodate housing in the activity centre.
- It will be important to plan for a suitable balance of employment floorspace and any potential residential uses planned for sections of the activity centre currently used for employment purposes.

Table 11 shows a comparison of housing needs in the local catchment against the current pipeline and other housing opportunities in the area.

This analysis shows that:

- Once the current pipeline is accounted for, a remaining balance of 2,417 dwellings will need to be accommodated in the area.
- The Residential Growth Zone along the Burwood Highway corridor could accommodate substantial housing development, along with incremental infill development in the balance of the residential areas.
- Activity Centres in the local catchment (including Tally Ho) will likely need to accommodate at least 550 dwellings over the planning period. This could increase to up to 1,300 dwellings if low levels of development occur in the RGZ and infill areas.[14]

T11. POTENTIAL RESIDENTIAL ROLE OF ACTIVITY CENTRE

Item	Dwellings
Housing Needed in Local Catchment, 2021 - 2041	**4,282**
Current UDP Pipeline	1,865
Remaining housing to be accommodated	**2,417**
- Residential Growth Zone[1]	330 – 660
- Potential infill development[2]	800 – 1,200
- Activity Centres (including Tally Ho)	557 – 1,287

Source: Urban Enterprise, based on Forecast ID, Urban Development Program 2023 and UE estimates.

1. A capacity assessment would be required to determine the dwelling yield that could be delivered in this area. As an indication of the potential role of this area, the table shows a range of potential development outcomes in this corridor based on the volume of dwellings recently completed and in the pipeline in the RGZ (330) being delivered in the short term, and then being repeated in the second half of the planning period (330 dwellings, lower bound of the range) or increased (660, upper bound) based on the opportunity for more intense developments following the introduction of C220 and the availability of a substantial number of developable sites remaining in the corridor.

2. The rate of infill development is uncertain, however as a guide, Forecast ID projections adopt a rate of 5-60 infill dwellings p.a. in Burwood East, "low level" infill in Vermont South, "low level infill" Forest Hill at 35 p.a.). A conservative estimate of 40-60 per annum has been adopted so as not to over-estimate the annual rate of infill development which could occur.

It is recommended that further analysis of the potential scale of housing that could be realistically accommodated in the RGZ be undertaken. **In the interim, the Structure Plan for Tally Ho should seek to accommodate between 500 and 1,000 dwellings.**

[14] It is noted that these estimates are indicative given that more detailed analysis of the capacity of residential and commercial land within the Activity Centre and across the local catchment would be required to verify where and how the dwelling demand could be accommodated across these areas.

5.4. RETAIL

The future retail role of the activity centre will be strongly influenced by the competition posed by nearby activity centres and shopping centres, especially:

- Higher order centres at The Glen, Chadstone, Eastland and Knox Central; and
- Nearby neighbourhood centres at Forest Hill Chase, Burwood Brickworks, Burwood Heights, Burwood One and Vermont South.

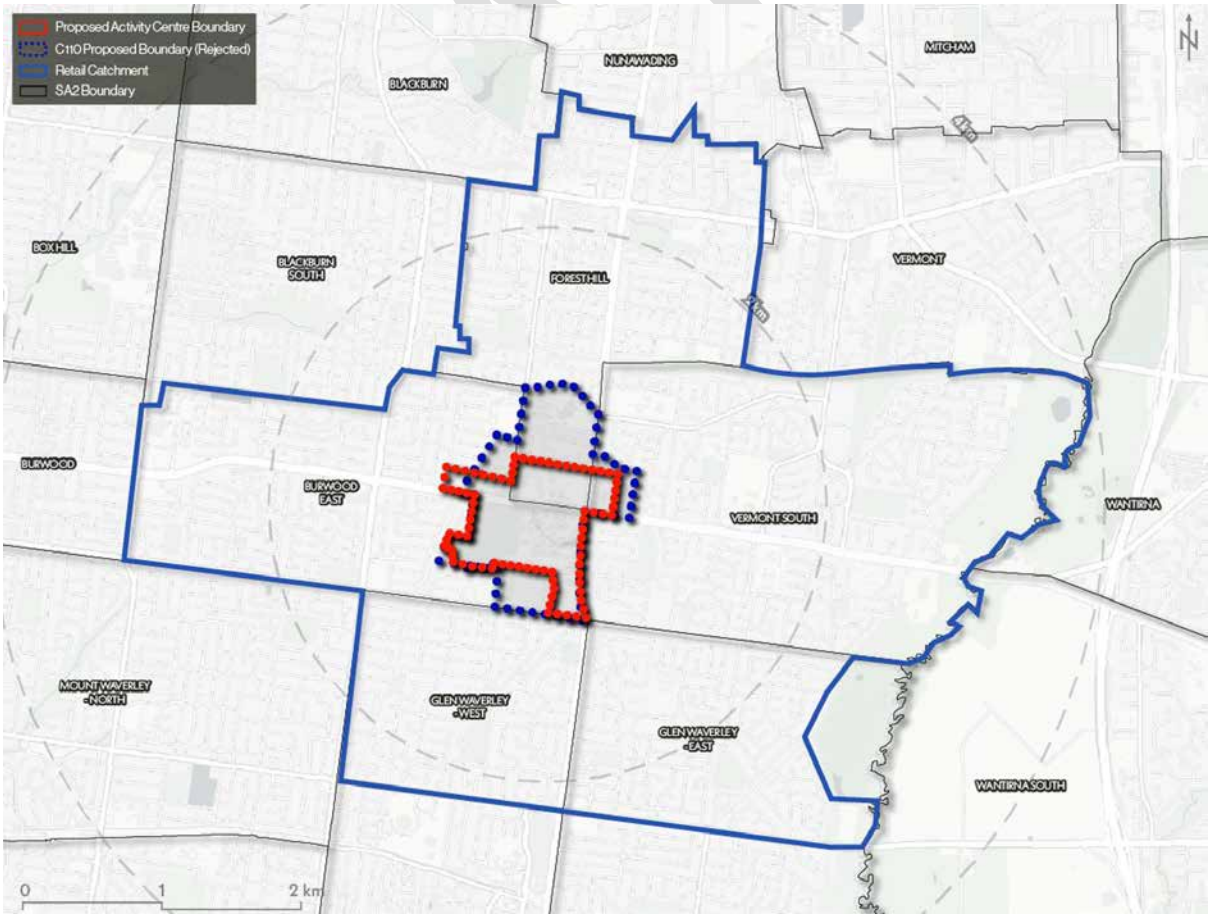
If the current planning permit is acted on, the proposed shopping centre at 383 Burwood Highway would, for the first time, establish a retail anchor within the activity centre. This would increase the attractiveness of the centre to residents and workers alike and create a considerably greater diversity of land uses and activities.

CATCHMENT

Demand for retail floorspace at the Activity Centre will primarily be driven by existing and future residents of the catchment area that can conveniently access the centre, having regard to convenient alternatives. Demand will also be driven by the local workforce within the centre – with more than 5,000 employees working in the Activity Centre and immediate surrounds, substantial demand for retail and hospitality goods and services from workers can be captured in the centre.

The retail catchment adopted for this assessment is shown in Figure 12 and includes the suburbs of Burwood East, Forest Hill, Vermont South and the northern section of the suburb of Glen Waverley.

F12. RETAIL CATCHMENT AREA



Source: Urban Enterprise.

EXISTING SUPPLY IN THE CATCHMENT

Table 12 shows the scale and retail mix of existing centres in the retail catchment.

Forest Hill Chase is clearly the largest retail centre in the catchment with more than 50,000sqm of retail space, while Burwood One (located less than 1.5km from the Tally Ho Activity Centre) also accommodates substantial floorspace of more than 22,000sqm.

T12. EXISTING RETAIL CENTRES

Centre	Supermarkets	Other Major Tenants	Specialty Retail	Total Retail
Forest Hill Chase	9,600	14,500	25,700	55,200
Burwood One	7,100	8,000	7,200	22,300
Vermont South	6,700	0	4,000	10,700
Burwood Brickworks	4,200	2,400	3,900	10,500
Brentford Square	3,600	1,000	4,100	8,700
Burwood East	2,700	0	3,000	5,700
Total Catchment	33,900	25,900	48,000	113,200

Source: Urban Enterprise, based on PCA Shopping Centre Directory and desktop research.

The competing network of centres represents strong competition to any future retail role of Tally Ho, especially given the range of food and non-food retailers and the close spatial proximity of the centres to Tally Ho and the residents living in its surrounding catchment.

These conditions will, to an extent, limit the market share that can be achieved by new retailers operating in Tally Ho over the planning period for the structure plan.

RESIDENT SPENDING

Table 13 shows the existing and projected future retail expenditure of residents within the retail catchment area which comprises the suburbs of Burwood East, Vermont South, Forest Hill and Glen Waverley North. Residents of the retail catchment have an estimated annual retail spending of $804m – this is projected to increase to $997m by 2041, an increase of $193m or 24%.

Assuming an average turnover density of $7,000/sqm, this additional spending would support in the order of an additional 26,000sqm of retail floorspace across the network of major shopping centres, bulky goods retailers, neighbourhood centres and local retailers.

T13. RETAIL SPENDING AND PROJECTED GROWTH

	2023	2031	2041	Change 23-41
Retail catchment population	48,832	55,155	60,562	11,730
Retail Spending per capita				
Food, Liquor, Groceries	$7,440	$7,440	$7,440	0
Food Catering	$2,180	$2,180	$2,180	0
Apparel, Homewares and Leisure	$4,390	$4,390	$4,390	0
Bulky Goods	$1,830	$1,830	$1,830	0
Retail Services	$620	$620	$620	0
Total Retail	$16,460	$16,460	$16,460	0
Total Retail Spending				
Food, Liquor, Groceries	$363.3m	$410.4m	$450.6m	$87.3m
Food Catering	$106.5m	$120.3m	$132.1m	$25.6m
Apparel, Homewares and Leisure	$214.4m	$242.2m	$265.9m	$51.5m
Bulky Goods	$89.1m	$100.7m	$110.5m	$21.4m
Retail Services	$30.2m	$34.1m	$37.5m	$7.3m
Total Retail	$803.6m	$907.6m	$996.6m	$193.0m

Source: Forecast ID; Market Info; Urban Enterprise.

As a comparison, the Whitehorse DCP includes projections of retail floorspace for each suburb in the municipality based on projected population growth and the existing distribution of floorspace. This assessment projects the need for an additional 32,000sqm of retail floorspace in the suburbs of Burwood East, Forest Hill and Vermont South over the period 2022 – 2042.

TALLY HO MARKET SHARE

Existing spending of catchment residents is currently distributed to neighbourhood and major retail centres in the area, especially The Glen, Forest Hill Chase, Burwood One and Vermont South Shopping Centres, as well as the recently established Burwood Brickworks centre.

A small proportion of current spending is directed to existing retailers in the Tally Ho Activity Centre and immediate surrounds. As shown in Table 14, this is estimated at approximately 5%, made up primarily of spending at the restaurants, Dan Murphy's Liquor Store and 289 Asian Supermarket. Given the relatively specialised nature of the current retailers, it is expected that a relatively substantial proportion of the current retail trade is generated from outside the local resident catchment (i.e. residents of other areas, and workers based in the activity centre). For the purposes of this assessment, this proportion is indicatively estimated at 30%.

T14. TALLY HO ACTIVITY CENTRE CURRENT RETAIL MARKET SHARE (2023)

Existing Retail Turnover	Floorspace	Approximate Turnover	Turnover from outside local resident catchment @ 30%	Turnover from catchment residents	Catchment resident spending	Market share
Food retail	6,837	$54.6m	$16.4m	$38.2m	$469.8m	8%
Non-food retail	0	$0	0	0	$333.8m	0%
Total retail	**6,837**	**$54.6m**	**$16.4m**	**$38.2m**	**$803.6m**	**5%**

Source: Whitehorse Rates Database; Marketinfo; Urban Enterprise.

If current market shares were to continue into the future, then the amount of additional supportable floorspace over the period 2023 to 2041 would be approximately 1,600sqm as shown in Table 15. This scenario would be a continuation of a very low market share and limited retail offer in the centre.

T15. SUPPORTABLE FLOORSPACE BASED ON CURRENT MARKET SHARE

	2023	2041	Change
Catchment Resident expenditure			
Food retail	$469.8m	$582.7m	$112.9m
Non-food retail	$333.8m	$413.9m	$80.2m
Total retail	$803.6m	$996.6m	$193.0m
Tally Ho Market Share			
Food retail	8%	8%	
Non-food retail	0%	0%	
Total Retail	5%	5%	
Tally Ho Turnover from catchment residents			
Food retail	$38.2m	$47.4m	$9.2m
Non-food retail	$0	$0	$0
Total Retail	$38.2m	$47.4m	$9.2m
Non-resident turnover @ 30%	$16.4m	$20.3m	$3.9m
Total turnover	$54.6m	$67.7m	$13.1m
Supportable floorspace	6,800	8,500	1,600

Source: Marketinfo; Urban Enterprise.

OPPORTUNITY FOR A NEIGHBOURHOOD RETAIL ROLE

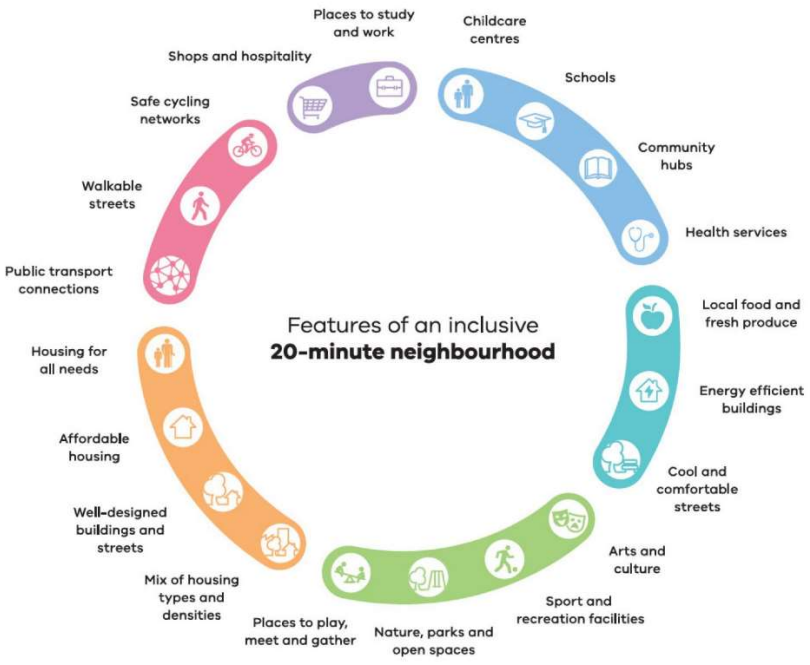
The Activity Centre is uncommon in that it does not perform a substantial retail role, and yet is categorised as a Major Activity Centre, a setting where retail development (including larger scale retail) is encouraged.

A question for the Structure Plan, therefore, is what future retail role the Activity Centre should perform within the existing Activity Centre network. As noted in this section, there are seven established shopping centres within 3km of the Activity Centre, including two regional centres and 5 supermarket-based centres. Any new retail centre will need to operate within this existing competitive context.

Burwood One is located approximately 1.5km to the west of the centre of the Activity Centre, and Vermont South is approximately 1.3km to the east. The distances of centres to the north (Forest Hill Chase, 2.1km) and south (The Glen, 2.3km) are greater. This means that, from an accessibility and walkability perspective, retail and related services in Tally Ho should be planned to meet the local and convenience needs of local residents and workers that cannot access nearby centres within a comfortable walk (800m). This is particularly important for professional workers seeking access to hospitality and convenience retail during workdays and before or after work.

The provision of shops and hospitality within a 20 minute walk of residents is a cornerstone of the 20-minute neighbourhood concept which is a key policy objective within Plan Melbourne and current State planning policy. The key features of 20 minute neighbourhoods are shown in Figure 13.

F13. FEATURES OF AN INCLUSIVE 20 MINUTE NEIGHBOURHOOD



Source: Department of Transport and Planning.

As an indication of the potential scale of neighbourhood retail that could be accommodated within the Activity Centre over the planning horizon of the Structure Plan, Table 16 shows the floorspace that would be supportable within the centre if a market share of 15% of catchment resident food spending and 5% of non-food spending was achieved. These market shares are considered reasonable for the context of Tally Ho where there are already several neighbourhood level centres readily available to catchment residents.

The table shows that these market shares would result in a total supportable floorspace of approximately 16,000sqm of retail space by 2041, an increase of approximately 9,500sqm on existing levels.

T16. SUPPORTABLE FLOORSPACE – NEIGHBOURHOOD CENTRE

Indicator	Amount
Retail spending of retail catchment residents (2041)	
Food retail	$582.7m
Non-food retail	$413.9m
Total retail	$996.6m
Indicative Tally Ho Market Share as Neighbourhood Centre	
Food retail	15%
Non-food retail	5%
Resident turnover at Tally Ho (2041)	
Food retail	$87.4m
Non-food retail	$20.7m
Total Retail	$108.1m
Turnover including non-residents @ 20%	
Food retail	$112.4m
Non-food retail	$26.6m
Total	$139.0m
Total Supportable Floorspace (2041)	
Food retail	12,500
Non-food retail	3,800
Total	16,300
Existing floorspace	
Food retail	6,800
Non-food retail	0
Total	6,800
Additional supportable floorspace 2023 - 2041	
Food retail	5,700
Non-food retail	3,800
Total	9,500

Source: Urban Enterprise.

It is noted that the permitted development proposal at 353 – 383 Burwood Highway could include 13,000sqm of retail floorspace, greater than the supportable floorspace estimate shown in Table 16. The proposal includes a relatively substantial scale of non-food floorspace, including a mini-major tenancy of 3,900sqm, which would compete with existing non-food floorspace in the catchment, especially comparison and specialty retailers at Burwood One, The Glen and Forest Hill Chase.

5.5. COMMERCIAL

The need for additional commercial (office) space will be driven by population and employment growth in the vicinity of the centre and will be supported by the existing critical mass of office-based businesses and organisations in the centre.

The centre is currently highly accessible to the broader catchment by road, with tram and bus connections also providing public transport accessibility. Over the Structure Plan period, the proposed completion of the Suburban Rail Loop will generate substantial improvements to public transport accessibility to the Activity Centre. Due for completion in 2035, new SRL stations at Glen Waverley and Burwood will significantly increase the number of residents who can efficiently access the area for work (and other services) which will underpin demand for both housing and employment land uses in the area.

CATCHMENT WORKER PROFILE

In 2021, there were 176,292 people living in the catchment in the labour force. As shown in Table 17, a greater proportion of workers in the catchment area employed in professional services, finance, health and education sectors than the Melbourne average, as well as accommodation and food services and wholesale trade.

T17. CATCHMENT AREA LABOUR FORCE PROFILE, 2021

Industry of Employment	% of employed residents	
	Catchment	Greater Melbourne
Agriculture, Forestry and Fishing	0%	1%
Mining	0%	0%
Manufacturing	6%	7%
Electricity, Gas, Water and Waste Services	1%	1%
Construction	7%	10%
Wholesale Trade	4%	3%
Retail Trade	10%	10%
Accommodation and Food Services	7%	6%
Transport, Postal and Warehousing	3%	5%
Information Media and Telecommunications	2%	2%
Financial and Insurance Services	6%	5%
Rental, Hiring and Real Estate Services	2%	2%
Professional, Scientific and Technical Services	12%	10%
Administrative and Support Services	3%	3%
Public Administration and Safety	5%	6%
Education and Training	10%	9%
Health Care and Social Assistance	15%	14%
Arts and Recreation Services	2%	2%
Other Services	3%	4%
Total	100%	100%

Source: Census of Population and Housing, 2021.

REGIONAL DEMAND FOR OFFICE SPACE

The extent to which demand for office space in Tally Ho materialises will be influenced by a wide range of factors and variables. A key factor is the extent to which demand for physical office space in Melbourne's east responds post-pandemic to the increased opportunities for home and remote work and the high vacancies in CBD and some inner urban markets.

Early indications are the demand in the eastern region has rebounded strongly, with estimates prepared by Knight Frank (Figure 14) showing that the outer east region[15] has continued to achieve positive net absorption throughout

[15] See map shown in Appendix A. Outer East Region includes Whitehorse, Knox, Manningham, Maroondah and parts of Monash and Boroondara municipalities.

the pandemic and post pandemic periods at considerably higher rates than other metropolitan regions, many of which have experienced negative absorption over the past 18 months.

Across the period 2012 – 2022, the average annual net absorption[16] in Melbourne's outer east is estimated at approximately 25,000sqm.

F14. MELBOURNE METRO OFFICE ABSORPTION (SQM)

Source: Knight Frank, 2023.

FUTURE NEEDS

The need for additional commercial space in the broader area has been projected through other studies and Plans as follows:

- The Eastern Metropolitan Framework Plan projects that in the region, employment is projected to increase from 396,000 in 2016 to 483,000 jobs in 2031, an average increase of 1.3% per annum. For Whitehorse, the Plan assumes an average rate of employment growth of 2% over the period.[17]
- The Whitehorse Development Contributions Plan projects the need for an additional 61,000sqm of commercial space in the local catchment (Burwood East, Vermont South, Forest Hill) from 2022 – 2042, a 22% increase on current levels.[18]

Table 18 shows a projection of the workforce living within the regional catchment of the Activity Centre, using Forecast ID projections as a base. The table then shows the potential implications for office space demand in the area, assuming that:

- The current level of labour force participation (55%) continues; and
- The current proportion of residents employed in sectors typically occupying office space continues.

The projection shows that the number of office workers in the regional catchment is expected to increase by 28% over the planning period for the structure plan, requiring an additional 301,000sqm (assuming an average of 20sqm per worker and no increase in utilisation / employment density of existing space).

The locations where this workforce growth actually work will be influenced by a range of factors, including available land supply for office developments, the relative attractiveness of employment precincts and activity centres to talent and businesses, improvements to transport accessibility and the extent to which clusters of knowledge-based activity (and associated economic benefits of agglomeration) grow, among other factors.

The structure plan should seek to maximise opportunities for employment growth to be attracted to and accommodated in Tally Ho to promote further economic agglomeration and to ensure that employment opportunities are available locally for the growing professional labour force.

[16] Net absorption refers to the amount of office floorspace that was occupied compared with previous, taking into account vacancy rates and the construction of new space.

[17] Draft Eastern Metro Framework Plan, p.18-19.

[18] Whitehorse Development Contributions Plan, p.16.

Allowing for an indicative share of 5% - 10% of the projected office-based employment growth in the region to be attracted to Tally Ho, the resulting need for office space would be between 15,000 – 30,000sqm over the period to 2041.

T18. OFFICE DEMAND INDICATORS, TALLY HO REGIONAL CATCHMENT

Item	2021	2041	Change
Regional Catchment Population	322,036	413,762	+91,726
Regional Catchment Population in the Labour Force	176,293	226,507	+50,214
Labour force % of population	55%	55%	0
Workers in sectors using office space (30%)	52,888	67,952	+15,064 (+28%)
Office floorspace required			**+ 301,000sqm**

Source: Forecast ID; ABS Census 2021; Urban Enterprise.

The following alternative indicators of the potential demand for office space have also been considered with results shown in Table 19:

1. Applying the projected rate of employment growth adopted in the Eastern Metro Land Use Framework Plan for Whitehorse (2%) or the Eastern Region (1.3%) to the current office employment in Tally Ho over the projection period[19]. The results of this method provide an indication of the scale of office employment growth which would occur in Tally Ho if the centre achieves employment growth consistent with the projected growth across the municipality or region.
2. The Whitehorse DCP projects the increase in commercial floorspace required over the period 2022 – 2042 in the local catchment of Burwood East, Forest Hill and Vermont South. The activity centre currently accommodates approximately 41% of commercial space in this catchment – this method assumes this share remains constant over the projection period.

T19. ALTERNATIVE INDICATORS OF POTENTIAL OFFICE SPACE NEEDS IN ACTIVITY CENTRE

Indicator	2021	2041	Change
Alternative Method 1 – Employment Growth Rates			
Employment in office sectors - 2% per annum	3,901	5,796	1,895
Office Floorspace required @ 20sqm per job			**38,000**
Employment in office sectors – 1.3% per annum	3,901	5,050	1,150
Office Floorspace required @ 20sqm per job			**23,000**
Alternative Method 2 - DCP Projections Share			
Commercial space projection - local catchment	276,200	337,300	61,100
Tally Ho Activity Centre Commercial space	113,000		
Tally Ho % of catchment commercial space	41%	41%	41%
Tally Ho commercial space growth potential			**25,000**

Source: Eastern Metro Land Use Framework Plan, ABS Census 2021, Whitehorse DCP, Urban Enterprise.
Existing office employment in Activity Centre based on Table 4, including all knowledge-based services plus part of other services (World Vision Australia headquarters), increase by 10% to account for Census undercount.
Existing commercial floorspace in the Activity Centre based on Table 2, including all commercial space except medical (Peter James Centre).

[19] It is noted that the recently released Victorian Skills Plan (Victorian Skills Authority, 2023) refers to employment projections for the Eastern Metropolitan Region over the period 2023 to 2026 equating to an average annual growth rate in employment of 1.2% per annum, marginally lower but broadly equivalent to the projected rate which underpins the Eastern Metro Land Use Framework Plan for the longer term of 1.3% per annum.

DISCUSSION

Much of the recently occupied office space in the eastern region has been in higher quality and new buildings (i.e. prime space), such as in Caribbean Gardens (Scoresby), Nexus Business Park (Mulgrave) and Ringwood Activity Centre, indicating the importance of quality to tenants.

Demand for space in Tally Ho will be influenced by its competitive position in the region relative to these and other alternatives. Considerations include:

- The building stock in Tally Ho is ageing and likely to be less appealing to tenants than newer space. This requires reinvestment to retain and attract tenants, and/or redevelopment.
- The successful delivery of stand-alone business parks in areas such as Caribbean Gardens and Nexus Business Park demonstrates strong demand for larger contemporary corporate office floorplates in the region. The proposed office buildings as part of the planning permit for 353 – 383 Burwood Highway could respond to similar demand.
- Further opportunities for office space development exist in the Monash National Employment Cluster approximately 6km to the south of Tally Ho, and new opportunities for office development could also emerge within precincts being planned around the Suburban Rail Loop stations at Monash, Glen Waverley, Burwood and Box Hill, and the Wantirna Health Precinct (if rezoned as proposed by Amendment C185Knox).
- Tally Ho will compete for investment with other Activity Centres in the region with better public transport accessibility, especially Ringwood, Box Hill and Mount Waverley. There is a risk that, without opportunities for reinvestment, redevelopment and an improvement to local worker and visitor amenity, the Activity Centre's competitive position as an employment hub erodes. The recent relocation of the VicRoads office from Tally Ho to a new building in Ringwood is an example of this risk.

As a result of these circumstances, it is considered that underlying demand for commercial space in the vicinity of the activity centre is relatively strong, but that in the context of substantial competition in the region, the Structure Plan should:

- Ensure that reinvestment and redevelopment can occur across the Activity Centre so that precinct remains appealing to current tenant expectations and preferences and retain its current role and agglomeration benefits as a major professional employment hub for the region; and
- Seek to accommodate a broader range of ancillary uses including retail, short-term accommodation and hospitality uses to create a contemporary precinct environment that appeals to the post-pandemic professional workforce.

It is noted that the proposed office development at 353 – 383 Burwood Highway could potentially supply 35,000sqm of office space which would meet the approximate level of demand over the planning period of between 15,000sqm and 38,000sqm. However, realisation of this potential supply would be contingent on a single permit holder, and other parts of the activity centre should also be planned to accommodate additional space and reinvestment.

5.6. KEY FINDINGS

Residential:

- **There is relatively strong demand for housing in the general vicinity of the Activity Centre, as evidenced by the rate of development and diversity of townhouses and low rise apartments being delivered in the local area, and high rise apartments being delivered in the broader sub-region.**
- **The municipal housing demand projection (+1,227 per annum, VIF23) is being exceeded by the rate of new development in Whitehorse over recent years (+1,752 per annum, 2015-2021 average) and the pipeline is particularly strong, especially in Box Hill.**
- **At the local level, a pipeline of smaller apartment developments is evident, primarily within the Burwood Highway corridor. When combined with the presence of strategic sites within and adjacent to the activity centre and increased building heights along the Burwood Highway corridor, the potential to accommodate housing within and near the Tally Ho Activity Centre is already substantial.**
- **Although Tally Ho is unlikely to be required to deliver substantial housing volumes to meet municipal demand, the Structure Plan area could perform a contributory role in accommodating residential development to ensure that the projected need for housing in the local catchment can be accommodated in areas supported by planning policy.**
- **Accounting for the current pipeline of developments, known sites and infill development, approximately 500 – 1,000 dwellings could be planned for within the existing Activity Centre boundary. Larger strategic sites such as the Burvale Hotel are logical candidates to accommodate housing in the activity centre.**
- **It will be important to plan for a suitable balance of employment floorspace and future residential uses to ensure that the core function of the Activity Centre as a regionally significant employment precinct is maintained.**

Retail:

- **The Activity Centre is uncommon in that it does not perform a substantial retail role, and yet is categorised as a Major Activity Centre, a setting where retail development is encouraged, including larger scale retail.**
- **Population growth in the catchment will increase demand for local retail floorspace, however the competing network of centres represents strong competition to any future retail role of Tally Ho.**
- **The Tally Ho Activity Centre should be planned to accommodate a greater scale and mix of retail uses to meet local and neighbourhood scale resident needs, as well as improve the availability and diversity of retail available to workers (especially hospitality).**
- **Neighbourhood-scale retail should be accommodated by the Structure Plan, with an indicative floorspace in the order of 10,000sqm in addition to current levels supportable over the period to 2041.**
- **If the current planning permit at 353-383 Burwood Highway is acted on, there would be no further need for core retail space in the activity centre over the planning period. However, ancillary retail space – especially hospitality – should be encouraged in other parts of the centre to support the worker and visitor base.**

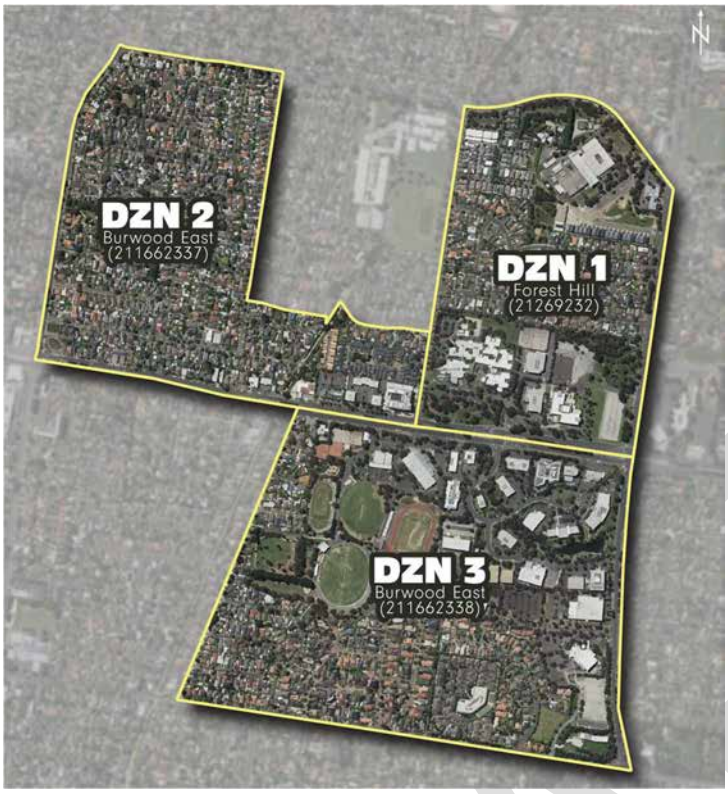
Commercial:

- **Demand for commercial space in Melbourne's east and in the vicinity of the activity centre is relatively strong, however a range of other locations in the region are also well placed to accommodate investment and employment growth.**
- **Estimated demand for office space in the Activity Centre over the period 2023 – 2041 is expected to range from 15,000sqm to 38,000sqm. Ultimately, the rate of demand will be influenced by broader market conditions (in particular the ongoing post-pandemic adjustments) and the relative attractiveness of the environment to talent and new businesses.**
- **The Structure Plan should ensure that reinvestment and redevelopment can occur across the Activity Centre so that precinct remains appealing to current tenant expectations and preferences and retain its current role and agglomeration benefits as a major professional employment hub for the region.**
- **The Structure Plan should aim to accommodate a broader range of ancillary uses including retail, short-term accommodation, entertainment and hospitality uses to create a contemporary precinct environment that appeals to the post-pandemic professional workforce.**

APPENDICES

APPENDIX A DATA AREAS

F15. STUDY AREA DESTINATION ZONES



Source: Australian Bureau of Statistics, annotated by Urban Enterprise, 2023.

Note: the destination zones have remained unchanged from the 2011 and 2016 census periods.

- DZN 1 – Forest Hill 212692321 covers the northern section of the activity centre as well as land further north and west including a residential areas and the former ATV studios.
- DZN 2 – Burwood East 211662337 covers the north-western part of the Activity Centre, as well as a large residential area.
- DZN 3 – Burwood East 211662338 covers the southern part of the Activity Centre, as well as the East Burwood Reserve, retirement village, Cross Way Church and residential areas.

F16. METROPOLITAN OFFICE MARKET REGIONS

Source: Knight Frank, Melbourne Metropolitan Office Market Overview, April 2019.

APPENDIX B INDUSTRY CLASSIFICATIONS

T20. TECHNOLOGY-RELATED SECTORS

ANZSIC Level 4
Computer and Electronic Office Equipment Manufacturing
Professional and Scientific Goods Wholesaling
Computer and Computer Peripheral Wholesaling
Telecommunication Goods Wholesaling
Other Electrical and Electronic Goods Wholesaling
Wired Telecommunications Network Operation
Other Telecommunications Network Operation
Data Processing and Web Hosting Services
Electronic Information Storage Services
Computer System Design and Related Services

Source: Urban Enterprise, based on analysis of study area destination zone employment (excludes sectors with zero employment in study area).

APPENDIX C RESIDENTIAL DEVELOPMENT ASSUMPTIONS AND PROJECTS

FORECAST ID

The Forecast ID population and dwelling projections prepared for suburbs in the local catchment were based on the following assumptions:

- Burwood East:
  - Old China Bar - 122 dwellings (expected to be delivered between 2031 and 2032)
  - 133 Burwood Highway - 168 dwellings (2024-2029)
  - 275-277 Burwood Hwy - 33 dwellings (2024)
  - Burwood Highway apartments - 31 dwellings (2023)
  - Burwood Brickworks- 950 dwellings (2023-2030)
  - Rouge Apartments 213 Burwood Highway - 24 dwellings (2017)
  - High level of infill (5-60 dwellings per annum).
- Vermont South:
  - 108-110 Terrara Road - 13 dwellings (2022)
  - 407 Burwood Highway - 29 dwellings (2023-2024)
  - 500 Burwood Hwy - 300 dwellings (2025-2036)
  - Burwood Highway Apartments - 30 dwellings (2027)
  - Livingstone Road apartment building - 53 dwellings (2025-2026)
  - Ramsay Gardens mixed use development - 102 dwellings (2028-2034)
  - Low level of infill.
- Forest Hill:
  - Low level of infill (35 dwellings per annum).

URBAN DEVELOPMENT PROGRAM

T21. MAJOR REDEVELOPMENT SITES, LOCAL CATCHMENT

ID	Status	Completed	Project name	No.	Street	Suburb	Detached	Townhouses	Apartments	Dwellings	Max. Stories
R18063	Completed	2021		35	NORTHCOTE	BURWOOD EAST	0	85	0	85	3
R18064	Completed	2021		8	ELEY	BURWOOD EAST	16	0	0	16	2
R17121	Completed	2021	Bulkara Dwellings (Stage 2)		BULKARA	FOREST HILL	9	5	0	14	2
R13837	Completed	2021		431-439	BURWOOD	VERMONT SOUTH	0	0	101	101	6
R17443	Completed	2021	Brickworks Gardens Apartments	78	MIDDLEBOROUGH	BURWOOD EAST	0	0	267	267	6
R03286	Completed	2022	Brickworks Townhouses	78	MIDDLEBOROUGH	BURWOOD EAST	0	109	0	109	3
R16642	Completed	2022	Ryman Burwood East (Stage 1)	6	FOUNDATION	BURWOOD EAST	0	0	70	70	5
R17442	Construction		Brickworks Future Apartments (Ardent Stage 6)	78	MIDDLEBOROUGH	BURWOOD EAST	0	0	94	94	5
R18107	Construction		Brickworks Townhouses	78	MIDDLEBOROUGH	BURWOOD EAST	0	54	0	54	4
R17447	Construction		Brickworks Future Apartments (Terrace)	78	MIDDLEBOROUGH	BURWOOD EAST	0	0	135	135	6
R16619	Construction			408-410	BURWOOD	VERMONT SOUTH	0	0	34	34	5
R18106	Construction		Ryman Burwood East (Stage 2)	6	FOUNDATION	BURWOOD EAST	0	0	96	96	11
R17710	Firm		BURWOOD HIGHWAY APARTMENT BUILDING	205	BURWOOD	BURWOOD EAST	0	0	22	22	4
R17711	Firm		BURWOOD HIGHWAY DWELLINGS	209	BURWOOD	BURWOOD EAST	0	14	0	14	3
R16622	Firm		Burwood Highway Apartments	181	BURWOOD	BURWOOD EAST	0	0	32	32	5
R16618	Firm			404-406	BURWOOD	VERMONT SOUTH	0	10	0	10	2
R18367	Firm		Forest Ridge development		BULKARA	FOREST HILL	0	0	115	115	6
R13374	Firm		Morack Road Dwellings	99	MORACK	VERMONT SOUTH	0	16	0	16	1

ID	Status	Completed	Project name	No.	Street	Suburb	Detached	Townhouses	Apartments	Dwellings	Max. Stories
R18366	Firm				RUBY	BURWOOD EAST	0	0	10	10	3
R16621	Likely				TRAVERS	BURWOOD EAST	0	15	0	15	3
R08469	Likely		Victoria Grange Retirement Village	500	BURWOOD	VERMONT SOUTH	0	45	245	290	2
R14331	Likely		Burwood Highway Apartment Building	275-277	BURWOOD	BURWOOD EAST	0	0	36	36	5
R17716	Likely		Forest Ridge estate	104	HAWTHORN	FOREST HILL	0	475	50	525	6
R15335	Likely		467 Burwood Highway Apartments	467	BURWOOD	VERMONT SOUTH	0	0	54	54	5
R16620	Possible		380 Burwood highway	380	BURWOOD	BURWOOD EAST	0	0	122	122	10
R17712	Possible		BURWOOD HIGHWAY DWELLINGS	440	BURWOOD	VERMONT SOUTH	0	0	12	12	4

Source: UDP, 2023.

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