
MEMORANDUM

TO: Paul Buxton - Plan2Place Consulting
FROM: Aaron Tepe, Lachlan Burke, Knowles Tivendale - Movement & Place Consulting (MP&C)
DATE: 16/12/2022

Re: Romsey Structure Plan – Issues & Opportunities

I refer to the above project and provide transport issues and opportunities text for the Romsey Structure Plan.

Transport Context

The *Romsey Issues and Opportunities Paper* (2018) highlights that Romsey will experience significant growth over the next 15 years. The population is forecasted to increase by about 50% from 6,135 (2016) to 9,084 (2036). Romsey is transforming from a district town to a large district town within Macedon Ranges' settlement hierarchy.

Should the town's geographic area continue to expand as the population increases at low density, the viability of new services will be limited, and they will be difficult to access by walking or riding. This will exacerbate existing levels of auto-dependency and entrench high cost of living for current and future residents. The *Romsey Outline Development Plan* (2009), identifies Romsey's low level of job containment. As the population grows, there should be greater opportunity to localise additional services within the existing town, including:

- Regular shopping (such as groceries & supermarkets)
- Schools (primary, secondary and tertiary)
- Community services and social services including childcare
- Eateries and other social places
- Health facilities (medical centres and pharmacies)
- Recreation facilities (such as gyms and open spaces).

Most people travel regionally to access essential services. Amenities and services such as large supermarkets are located in Woodend (20.8 km) and Kilmore (30.4 km), secondary schools in Woodend (18.2 km) and Wallan (28.4 km), and hospitals are located in nearby towns, Kilmore (30.3 km) and Kyneton (32.1 km).

The Romsey Town Centre provides a small number of essential services including:

- Groceries - SUPA IGA
- Health Facilities - Parkwood Green Medical Centre, Lifeline Medical Centre, Connect Hearing (hearing aid shop)
- Eateries – some small restaurants and cafes
- Romsey Primary School



- Recreation facilities – Romsey Recreation Centre, Reserve and Golf Club, Romsey Ecotherapy Park, Deep Creek and Five Mile Creek Reserve Playground
- Community services and social services – Romsey Library and Community Hub, Romsey Kindergarten, Romsey Early Education Centre, Romsey Occasional Care, Kidzone childcare and Romsey Maternal & Child Health Centre.

These are mostly located along Main Street within walking distance of the majority of Romsey residents. Maintaining the proximity of residential growth within 400m of Main Street is an important way to increase viability of these and additional future businesses.

The *Issues and Opportunities Paper* identifies that there is a significant lack of eateries and meeting places for social activities. This can have significant impacts on social engagement and a sense of community within Romsey. The viability of eateries (restaurants, cafes, pubs) relies heavily on a catchment of local residents within walking distance.

For the 2,815 households (50% of total households in Romsey) who live within 1km, this means that errands to Main Street can be easily undertaken on foot. This area has a 'walk score' of 51 out of 100. As a result, these households can minimise their cost of living related to transport and gain incidental exercise that is critical to long-term health, longevity and quality of life in older age.

For the small number of households located further than 2km from Main Street, walking to any service is relatively unattractive, particularly compared to driving. The spread-out nature of the urban area, and lack of compact business intensity in Main Street force many residents to rely on private vehicle transport and services in other towns such as Lancefield, Kilmore, Kyneton, Wallan, Woodend and Sunbury. With the exception of Lancefield which is a 5-10 minute drive to the north, all these other towns require a 20 minute drive to reach. This travel time impacts directly on household cost of living, and quality of life.

Almost three quarters (72%) of Romsey residents work outside of the town, with large proportions travelling to City of Hume (16.45%), City of Melbourne (9.34%), Mitchell Shire (5.14%) and the City of Brimbank (4.04%). Of employed persons in Romsey who travelled to work in 2016, the majority of trips to were made by car only (81%). About 6% of commuters use the train to get to work, 1% walk (well below the 3.9% regional Victoria average) and no-one rode a bicycle to work. The long travel distances and spread-out nature of the Romsey area make public transport (even to key destinations like the Melbourne CBD) difficult to provide in a way that is useful to all.

A PTV bus service from Lancefield to Sunbury includes thirteen services on weekdays (roughly every hour from 6:30am to 7:30pm). There are three services on Saturday.

A V/Line coach service operates between Lancefield and Gisborne twice each weekday and Saturday in the mid-morning and early afternoon. This service would not cater for work trips, and is best suited to shopping, health or recreational journeys.

A second V/line coach service operates from Barham, NSW to Melbourne via Romsey and Melbourne Airport every day of the week. The services arrival at Melbourne Airport are relatively random, and the single service each day is unlikely to meet any journey to work needs.

Focussing residential growth within walking distance of the Main Street corridor will help make public transport viable in future.

The nearest V/Line train station is 15km away in Clarkefield. Alternatively, people can access Metro Trains at Sunbury a further 15km away.



Improving people’s choices to walk and ride will rely on growth occurring in the core of Romsey’s town centre and improving active transport networks to be useful, safe, comfortable and interesting. The community have identified the need for a more complete footpath network, and a utilisation of main roads and open space to improve linkages between neighbourhoods and destinations.

A lack of walking and cycling infrastructure beyond Main Street discourages people from travelling around Romsey by foot or bike due to safety concerns. The Outline Development Plan similarly states that poor footpath provisions means that residents are forced to walk on the road, particularly those with prams, pushchairs or mobility scooters. Based around a linear, grid network with a tree-lined main street, Romsey has the potential for a very walkable township. Walkability is currently hampered by the low intensity built form and vacant land which reduces pedestrian amenity and attraction along Main Street. A lack of priority pedestrian crossing locations further inhibits walkability around the town.

New services become viable when a certain threshold of new residents (potential customers/clients) locate nearby. As more residences locate within 400m, footfall increases significantly, given that more trips can be made within a five to ten-minute walk.

A recent Monash study shows that planning for a 20-minute neighbourhood not only requires a threshold of residents to make the services viable, but also, that new residences are located in critical walking distance thresholds (400m – five-minute walk; 800m – ten-minute walk; 1.2km – 15-minute walk). Studies show that 85% of walking trips are made within 15 minutes.

The research calculates the number of dwellings needed to support services such as local shops and sports facilities in a 20-minute neighbourhood. Many of the services that could become viable require new dwellings to be located within 400m of new services located along Main Street. This is summarised in Table 1 below.

Table 1: Dwelling density required for essential services

| Service | Residents | Dwellings | Catchment |
|-------------------------|-----------|-----------|--------------|
| Local shops | 3,500 | ~1,700 | within 400m |
| Sports Facility | 3,500 | ~1,700 | within 400m |
| Post Office | 3,500 | ~1,700 | within 400m |
| Primary School | 7,100 | ~3,400 | within 800m |
| Community Health Centre | 7,100 | ~3,400 | within 800m |
| Secondary School | 28,000 | ~13,600 | within 1.2km |

Source: Grodach, C., Kamruzzaman, L., Harper, L. (2020). 20-minute Neighbourhood - Living local research project. Monash University

Optimising this must be a critical consideration in planning for this growth. If growth continues to expand Romsey’s geographic boundary it will result in:

- Higher levels of traffic congestion than would be typical in a rural township



- Erosion of township character and rural feel
- Transport-related financial burdens on households
- Significant losses of economic activity
- Adverse health impacts as a result of sedentary lifestyles.

Issues & opportunities

Public transport

Public transport services in Romsey are insufficient to meet many of the needs of existing and future residents. The weekday hourly services from Lancefield to Sunbury cater for some needs, such as connection to Melbourne via Metro Train services (although these operate every 40 minutes, so they will not align with the bus services), shopping and some job opportunities. Key public transport issues and opportunities are outlined below.

Issues

- There are no east-west public transport services to Wallan or Woodend, thereby reducing choice for local residents about how they get to those destinations.
- There are no connections to the Craigieburn railway corridor and limited connections to Melbourne Airport, despite a high proportion of residents working in the City of Hume.
- Bus routes between Kyneton and Lancefield sometimes connect with services between Lancefield and Sunbury via Romsey but the timetable is confusing because there are two separate routes, when they could easily be combined into one.
- The current coach service times do not align with employee needs for those working at Melbourne Airport.
- The current scheduling does not align with the recent V/Line train timetable changes, nor does it suit the needs of people travelling for shopping or social activities in other nearby areas, particularly due to the infrequent services to any destination.
- In the case of buses connecting at Clarkefield Station, the wait time between the train and bus services departing for Romsey is longer than the time required to drive to Romsey (even in the bus). This significantly diminishes the service, because the wait time is valued more highly than the in-vehicle travel time.
- Limited destinations and service levels result in high prevalence of car ownership and use resulting in high cost of living.

Opportunities

- Request that DoT combine the Kyneton-Lancefield and Lancefield-Sunbury bus routes into a single route.
- Request DoT to urgently review the timing of bus services on the Lancefield-Sunbury route to minimise transfer time to and from Melbourne bound train services.
- Explore ways to better meet journey to work needs including connections to the Craigieburn and Seymour railway corridors.



- Work with DoT to investigate an additional daily V/Line return service around midday to suit shopping and social trip needs.
- Request that DoT commit to providing services between Lancefield and Sunbury on Main Street every 30 minutes, once an additional 2,500 residents and employees are located within 400m of the Main Street corridor.
- Work with DoT to improve the shuttle bus service to Clarkefield Station with a mixture of public bus and volunteer car drivers to provide services which align with the V/Line train timetable.
- Consider working with non-profit Community Transport service providers such as Link Community Transport to expand the availability of peri-public transport services in Romsey.

Pedestrian network

The pedestrian network is fragmented and limits accessibility, particularly for those without a car. This disproportionately affects younger, elderly and low-income residents. Main Street in particular, has high volumes of traffic, fewer breaks in traffic and limited priority for pedestrians to cross the road. Current and future businesses and dwellings will benefit from slower speeds and priority pedestrian facilities. Key pedestrian network issues and opportunities are outlined below.

Issues

- Pedestrians feel unsafe due to road design and traffic volume through both Main Street and side streets used to avoid town centre.
- The footpath network in Romsey is severely limited. Segments of paved footpaths are located on:
 - The Barry Street & Main Street roundabout intersection (where paths extend about 500m in each direction and are discontinued)
 - Stawell Street between Main Street and Roger Street on the south side
 - Murphy Street between Main Street and Roger Street on the south side
 - White Avenue between Main Street and Park Lane on the north side
 - Along Roger Street where there have been recent developments
 - Railway Crescent on the south side
 - Kathryn Street on the north side
 - Along Shaw Drive where there have been recent developments on one side of the street (on the right-hand side as the street winds from north to west)
 - Between Main Street and Station Street near the Romsey Primary School.
- Council should prioritise new footpaths along both sides of Main Street and along one side of intersecting streets within 400m of Main Street.
- At intersections the footpaths adopt a traditional kerb-cut, pram crossing that forces pedestrians onto the roadway. This design specification might not comply with the Disability Discrimination Act (DDA), depending on the road surface and any need to re-construct the



roadway. To be DDA compliant the pedestrian access of new crossings should remain level, and the traffic lane should rise up and over the footpath like a speed hump. These are typically known as raised threshold treatments, and are the DDA compliant standard that needs to be applied in any location where the roadway is to be rebuilt.

- There have been two crashes involving struck pedestrians within the last five years in Romsey. One incident occurred on the intersection of Barry and Main Streets in 2015 (before the roundabout was installed at the intersection). To a large extent, this intersection lacks adequate pedestrian priority crossing facilities. Council should consider installing wombat or zebra treatments in addition to the existing pedestrian refuge medians.
- Beyond the grid-like road network between Murphy Street to Barry Street, Romsey's footpath network lacks permeability due to a prevalence of cul-de-sacs. This network forces people to walk longer distances than they should. For example, a walk from the end of Dowie Court to Romsey Primary School (1.07km northeast) takes around 23 minutes, whereas a walk from similarly distanced Greenfields Boulevard (1.05km southwest) takes approximately 16 minutes.
- The street tree canopy is limited, and makes walking uncomfortable in hot or rainy conditions. Council should prioritise tree planting along Main Street (to complement the existing Avenue of Honour) and the first 400m along intersecting streets.
- Main Street prioritises vehicle movements over pedestrians. About 90% of the 60m wide road reserve is allocated for driving, parking and for medians which detract from Main Street as a place for the community to congregate and enjoy.
- The cross-section design of Main Street is highly detrimental to pedestrian activity and safety including the new roundabout at Barry Street which does not have pedestrian priority crossings.
- Other crossings along Main Street do not prioritise pedestrians effectively. Council should consider installing zebra crossings at several points along Main Street.
- Romsey is not as accessible for people with disabilities as it needs to be. The following are key issues:
 - Street furniture on Main Street is not wheelchair accessible
 - The Palmer St/Main St bus stops in both directions are only wheelchair accessible from the road with no connecting path. They do not have seating or shelter
 - Many shopfronts have step-up doorways, and most do not have clear address labels
 - There is no continuous accessible path of travel on many local roads
- The walking trail alongside Deep Creek ends at Main Street and fails to connect through the township.

Opportunities

- Improve safety and completeness of network across the whole town, including along Main Street.
- Ensure essential services such as the supermarket and community hub are easily accessible on foot.
- Improve tree canopy coverage across the whole town.



- Upgrade existing streets to have DDA-compliant footpaths and create more and safer east/west connections within 400m of Main Street.

Enabling students to walk Romsey Primary School safely and independently should be a priority outcome for the town as it grows. This has critical benefits for childrens' confidence & resilience, social engagement, health and wellbeing. To achieve this, Council should:

- Prioritise footpath construction and street tree planting (along both sides of the street) along:
 - Kathryn Street
 - Ewing Drive
 - Digby Drive
 - Coleraine Drive
 - Reynolds Grove
 - Newnham Drive
 - Metcalfe Drive
 - Gordon Crescent
 - William Street
 - Roger Street
 - Wrixon Street
 - Pohlman Street
- Prioritise improving the following key crossings along Main Street to include wombat treatments:
 - Stawell Street
 - Murphy Street
- Facilitate 'walk to school' programs and other education programs to encourage a greater number of households to enable their children to independently walk to school.
- Conduct a DDA compliance assessment along Main Street and prioritise actions to address shortfalls.
- There is potential to unlock access to this natural asset and expand the pedestrian network east of Main Street

Bicycle network

Similarly, bicycle network coverage in Romsey is fragmented. The better the bicycle network and safety in the town, the more people will use this mode of transport for daily trips. Mode shift, even modest, from cars to walking and bicycle riding improve the health of residents, reduce the financial burden of cars, and ease traffic congestion, among other benefits. Key bicycle network issues and opportunities are outlined below.



Issues

- Both pedestrians and bicycle riders have cited concerns of Knox Road and Glenfern Road being used to bypass traffic on Main Street, which furthers feelings of being unsafe on the road alongside vehicles.
- In the absence of protected bicycle lanes, narrow footpaths on the above-mentioned roads may prevent children and parents from riding, particularly to school and early education facilities.
- Station Street, on which Romsey Primary School is located, has 45° parking on both sides along most of its length, with two footpaths either side. A lack of bicycle lane limits space for would-be riders, making them feel unsafe at the start and end of the trip to and from school respectively. Similarly, there are no bicycle lanes along Park Lane to access Romsey Recreation Reserve.
- Painted bicycle lanes exist in each direction along the Main Street service roads and the western portion of Barry Street but are otherwise limited.
- Bicycle riders are at high risk travelling through the roundabout at Barry and Main Streets.

Opportunities

- Establishing an off-road shared path network, particularly linking the Town Centre with the Recreation Reserve, Primary School, childcare facilities and Deep Creek will allow for safe bicycle travel both for transit and recreationally
 - Explore the option of a bicycle lane on Station Street and the connecting streets to enable safe access to the Primary School.
- Design and construct a shared path connection south to Monegetta and Riddells Creek Station, similar to the Lancefield-Romsey inter-town path.
- Design and construct a shared user path along Deep Creek.

Local road network, traffic and parking

Romsey's road network is highly car dominant. It is highly likely that regardless of the level of growth in Romsey, there will be an oversupply of parking due to planning provisions. Clause 52.06 requires a minimum of parking which is designed to exceed foreseeable demand. It applies state-wide and does not account for differences in context (e.g., between a small rural town and Chadstone Shopping Centre).

Excessive parking has a range of negative impacts, including:

- Opportunity cost of other uses due to the large amount of space cars occupy
- Induced car trips that might otherwise be undertaken on foot or by bicycle
- High costs to implement and maintain, funds that could be better spent for greater public benefit.

Council needs to be wary of following the standards without considering the local context. Because the future parking need is uncertain, Council should consider its economic, social and environmental objectives for the Romsey town centre in administering Clause 52.06 and the potential for parking waivers.

Issues

- There are many cul-de-sacs, which are not conducive to future local public transport provision. The Outline Development Plan's recognition of 'future-proofing' new residential areas means that the road network should have the ability to accommodate bus services on more than just the two main roads.
- There have been eleven crashes in the last five years along Main Street between Gordon Crescent and Hutchinsons Lane, meaning on average there are two crashes every year.
 - Nine of these were collisions with other vehicles.
 - Eight of these resulted in serious injury.
 - Most crashes occurred in higher speed areas (70km/hour zones), though four occurred in 50km/h zones and one in a 60km/h zone.

The design of the road reserve often has a more significant impact on vehicle speeds than the signalled limit, particularly in areas where the limit is less likely to be enforced. Streets which prioritise vehicles (wide lanes, free-flowing conditions, maximal vision owing to low levels of street tree canopy) give drivers a higher degree of confidence in making decisions to speed or focus on other things beside activity on the street

- Vehicle priority along Main Street erodes pedestrian amenity and safety (particularly when crossing), hindering economic activity in the town centre
 - Intersecting side streets interrupt pedestrian movement due to lack of crossings
 - Tree coverage in between Main Street and service roads provides little shade of footpath and mainly covers car parks
 - There is little shop front activity at the footpath. This could be due in part to high number of retail vacancies.
 - Future businesses (cafes, restaurants) are likely to be smaller than their potential due to a need to meet the current parking provisions in the Planning Scheme
- There are no dedicated crossings on Barry Street, causing residents to reduce walking and use cars more, thus adding to traffic congestion at key intersections.
- The number of intersections and service road access locations reduces safety of the road network particularly in Main Street.

Opportunities

- Slowing traffic on Main Street and providing pedestrian priority crossings in the main strip of shops would improve safety for both drivers and pedestrians as the area becomes busier.
- Investigate locations for wombat or zebra crossings across Barry Street and Main Street.
- Consider the need for a signalised pedestrian crossing near bus stops in Main Street.
- Renew awareness of the Avenue of Honour with signage and additional canopy trees.
- Consider restricting access to Stawell Street to be from the service lanes only, removing the intersections with Main Street through lanes.



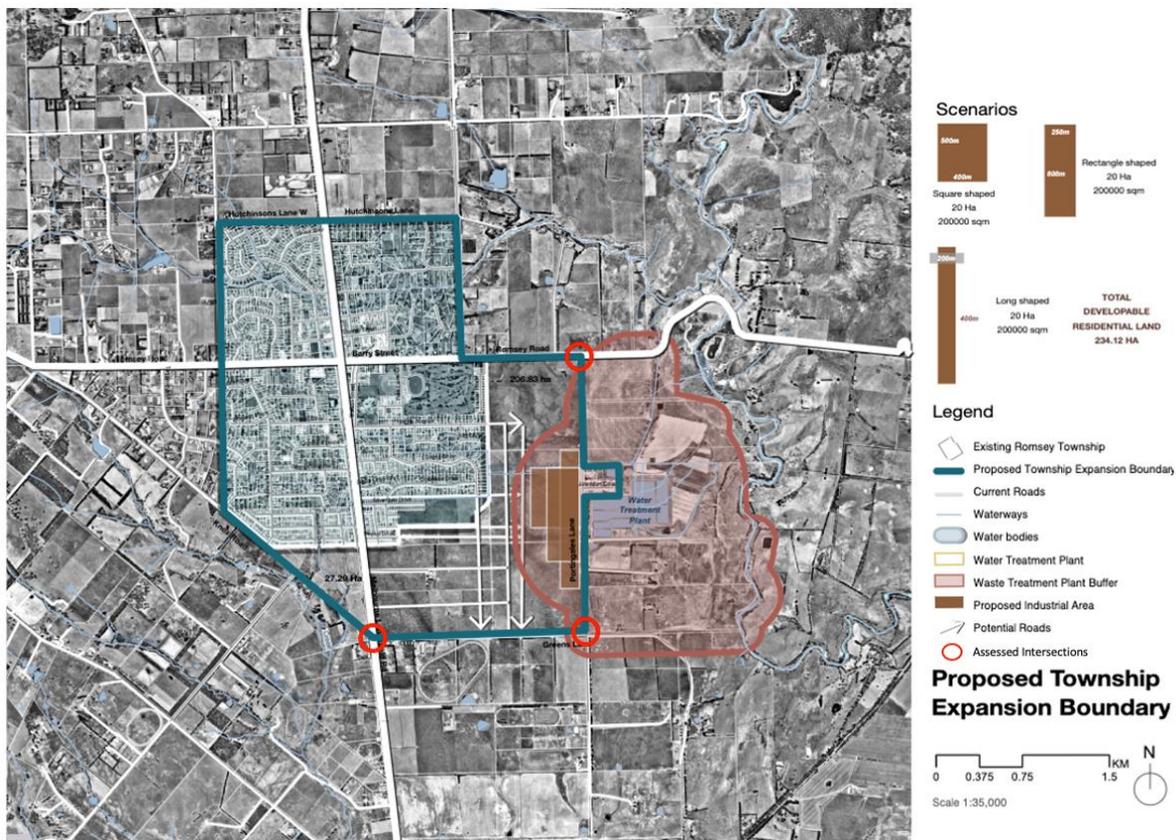
- Investigate parking provision on Main Street and outside Romsey Primary School on Station Street to determine the best use of road space for the community.

Movement and Capacity Assessment for the Proposed Industrial Area

The Romsey township expansion is earmarked to include residential, retail and industrial development. The indicative development includes 1,440 dwellings, 277 medium density houses, 5,255 sqm of additional retail space, and a 10 Ha industrial area.

The population is expected to grow by 3,400 in addition to the existing 4,700 residents. Figure 1 presents the proposed development boundary. This growth is expected to put further pressure on the transport networks.

Figure 1: Romsey township expansion



Source: Plan 2 Place with M&PC inset

This section focuses on determining the feasibility of the proposed industrial area. Specifically, a high-level movement and capacity assessment was undertaken to inform preliminary discussion around infrastructure upgrades which may be required to cope with higher travel demand.

The focus of this analysis was specifically on the following roads:

- Portingales Lane (minor road);
- Greens Lane (minor road);



The following analysis is broken down into the following sections:

- Road network capacity assessment
- Forecast travel demand
- Infrastructure requirements

Road network capacity assessment

The road network capacity is linked to the maximum possible flow of vehicles that can travel on a road segment at a given time period. Traffic flow can be measured at either a midblock location or at an intersection.

Generally, the road network capacity is dictated by the throughput capacity of the intersections (as this is the limiting bottleneck). The capacity of the three links under investigation is likely to be determined by the throughput capacity of intersections at:

- Romsey Road/Portingales Lane
- Portingales Lane/Greens Lane
- Greens Lane/Melbourne-Lancefield Road

Identifying the capacity of the intersections will provide a basis for comparison with forecast travel demand. This will provide justification for future infrastructure needs.

The capacity was calculated according to the Austroads Guide to Traffic Management Part 2: Traffic Theory (see Appendix A for further detail). Unsignalised intersection capacity depends on the turning movement composition and gap acceptance parameters (consisting of a critical gap¹ and a follow up headway²). Due to a lack of available data several overarching assumptions were made:

- The peak hour flow was assumed to be 12.5% of the daily vehicle count³
- As vehicle count data was not disaggregated by direction of travel, a 50/50 directional split was assumed
- Given the lack of turning movement data from Portingales Lane and Greens Lane, the following movement patterns were assumed:⁴
 - Lower capacity bound: 70% right turn & 30% left turn from these minor approaches
 - Upper capacity bound: 30% right turn & 70% left turn from these minor approaches

The lower and upper bound ensured the minor road capacity was calculated within a range.

The capacity of the road segments is summarised in Table 1. Approach specific assumptions are detailed in the 'Further assumptions' column.

¹ Critical gap (Tc): The minimum gap (lag) acceptable to a minor traffic stream unit to perform a given manoeuvre in a given gap acceptance situation

² Follow up headway (Tf): The minimum additional duration of a major traffic stream gap (or lag) required to allow one additional minor traffic stream unit to follow the unit preceding it into the same manoeuvre, utilising the same gap (or lag)

³ Transport and Main Roads, road type and peak hour capacity factor – road type considered as an urban dual carriageway

⁴ For the intersections of interest, two opposing flows exist for right turning movements from the minor road, whereas, only one opposing movement exists for left turning vehicles (see Figure 3 in Appendix A). A greater proportion of right turning vehicles will result in a greater wait time and subsequently a lower road capacity (forming the lower capacity bound)



Table 1: Current capacity estimation for the unsignalised intersections

| Intersection | Approach | Capacity (low-high) (veh/hr) | Further assumptions |
|--|--|------------------------------|---|
| Romsey/Portingales (T intersection) | Portingales Lane Northbound, Single lane | 860 - 919 | <ul style="list-style-type: none"> Tc is 5 sec and 6 sec for left and right turn Tf is 3 seconds for left and right turn |
| | Romsey Road Eastbound, Single lane | 1,513 | <ul style="list-style-type: none"> Tc is 4 sec sec for right turn Tf is 2 seconds for right turn Assuming 20% of vehicles turn right turn for low capacity range |
| | Romsey Road Westbound, Single lane | 1,225 | <ul style="list-style-type: none"> As per Transport and Main Road Technical Guide 2011 - capacity of a two-lane road (6.5-7m) |
| Portingales/Greens (T intersection) | Portingales Lane Northbound, Single lane | 1,225 | <ul style="list-style-type: none"> As per Transport and Main Road Technical Guide 2011 - capacity of unsealed formed road |
| | Portingales Lane Southbound, Single lane | 1,547 | <ul style="list-style-type: none"> Tc is 4 sec sec for right turn Tf is 2 seconds for right turn Assuming 90% of vehicles turn right |
| | Greens Lane Eastbound, Single lane | 1,056 | <ul style="list-style-type: none"> Tc is 5 sec and 6 sec for left and right turn Tf is 3 seconds for left and right turn Assuming 90% of vehicles turn left |
| Greens/Melbourne-Lancefield (T intersection) | Melbourne-Lancefield Road Northbound, Single right-turn lane | 1,272 | <ul style="list-style-type: none"> Tc is 4 sec sec for right turn Tf is 2 seconds for right turn 20% right turn for low capacity range |
| | Melbourne-Lancefield Road Southbound, Single left-turn lane | 1,225 | <ul style="list-style-type: none"> As per Transport and Main Road Technical Guide 2011 - capacity of a two-lane road (7.1-7.6m) |
| | Greens Lane Westbound, Unpaved single lane | 252 - 368 | <ul style="list-style-type: none"> Tc is 5 sec and 6 sec for left and right turn Tf is 3 seconds for left and right turn |

Travel Demand

Observed

Traffic volumes were recorded at three locations in both 2019 and 2022 (see Table 2 overleaf).

Figure 2, to the right, outlines the locations the data was collected.

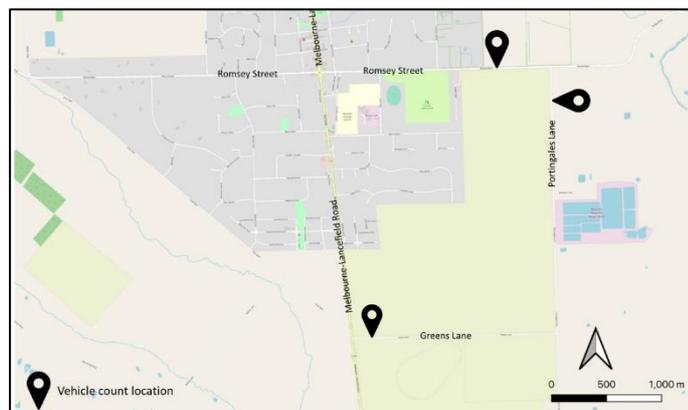


Figure 2: Vehicle count locations



Background travel growth

The observed traffic counts were used as a baseline to forecast the traffic demand in 2041. The following approach was used for forecasting:

- For the first ten years (until 2032), the growth rate observed between 2019 and 2022 was used (this accounts for the substantial greenfield growth anticipated)
- From 2033 to 2041, a more conventional 3% growth rate was used
- A linear traffic growth rate estimation method was applied

Table 2: Travel demand forecast for 2041

| Road segment | 2019 observed volumes AADT | 2022 observed volumes AADT | Growth Rate (until 2032) | Growth Rate (from 2033 to 2041) | 2041 forecast daily volume | 2041 forecast daily volume by direction |
|------------------------------|----------------------------|----------------------------|--------------------------|---------------------------------|----------------------------|---|
| Portingales Lane, Northbound | 101 | 126 | 8% | 3% | 546 | 273 |
| Portingales Lane, Southbound | 101 | 126 | | | | 273 |
| Romsey Road, Eastbound | 544 | 725 | 11.1% | 3% | 3,593 | 1,798 |
| Romsey Road, Westbound | 544 | 725 | | | | 1,798 |
| Greens Lane, Eastbound | 68 | N/A | 3%* | 3% | 215 | 108 |
| Greens Lane, Westbound | 68 | N/A | | | | 108 |

* Given 2022 observations were not available, a static growth rate of 3% was assumed

Development induced travel growth

The Road & Maritime Services (RMS) *Guide to Traffic Generating Developments* was used to forecast the travel demand generated by the proposed development (see Table 3 below).

Table 3: Additional trips resulting from the proposed development

| Proposed development | Trips generation rate | Daily trips | Trip distribution |
|--|--|-------------|---------------------------------|
| Industrial use: 10 Ha | Regional average for business parks and industrial estates = 7.83 daily trips per 100 m ² | 7,830 | Portingales Lanes (50%) |
| | | | Greens Lane (50%) |
| Retail floorspace: 5,255 sqm | Bulky goods retail stores = 17 weekday trips per 100 m ² of gross floor area | 894 | Romsey Road (50%) |
| | | | Melbourne/Lancefield Road (50%) |
| 277 medium density houses within existing urban boundary & additional 1440 dwellings; Household size of 2.72 | Daily trips = 7.4 per dwelling in regional areas | 12,706 | Greens Lane (25%) |
| | | | Romsey Road (25%) |
| | | | Melbourne/Lancefield Road (50%) |



A 85% private vehicle mode share was assumed, in line with the current journey to work census records.⁵ The quantum of vehicle trips is outlined in Table 4 below.

Table 4 Travel demand forecast estimation in year 2041 across various road segments

| Road segments | 2041 background daily traffic volume | Development induced traffic volume (85% of daily trips) | Total vehicle demand (background + development) |
|---------------------------|--------------------------------------|---|---|
| Portingales Lane | 546 | 3,328 | 3,874 |
| Romsey Road | 3,593 | 3,080 | 6,673 |
| Greens Lane | 215 | 6,028 | 6,243 |
| Melbourne/Lancefield Road | 7,238 | 6,800 | 14,038 |

The forecast, peak hour travel demand⁶ was compared against the network capacity to assess the ability to accommodate the extra demand (see Table 5).

Table 5: Capacity and forecast demand check for the road segments in focus

| Approaches | No of lane(s) | Capacity (veh/hr) | Peak hour demand (veh/hr) | Comments |
|----------------------------------|---------------|-------------------|---------------------------|---------------------|
| Portingales Lane, Northbound | One | 860-919 | 242 | Adequate capacity |
| Portingales Lane, Southbound | One | 1,547 | 242 | Adequate capacity |
| Romsey Road, Westbound | One | 1,225 | 417 | Adequate capacity |
| Romsey Road, Eastbound | One | 1,513 | 417 | Adequate capacity |
| Greens Lane, Eastbound | One | 1,056 | 390 | Adequate capacity |
| Greens Lane, Westbound | One | 252-368 | 390 | Inadequate capacity |
| Melbourne/Lancefield, Northbound | One | 1,272 | 877 | Adequate capacity |
| Melbourne/Lancefield, Southbound | One | 1,225 | 877 | Adequate capacity |

Infrastructure requirements

Based on the preliminary analysis, the following infrastructure requirements were flagged for further investigation. These are broken down by:

- Potential road infrastructure upgrades (see Table 6 overleaf)
- Potential intersection upgrades (see Table 7 overleaf)

⁵ Australian Bureau of Statistics (ABS) journey to work data

⁶ Assuming a peak hour flow of 12.5% of the total vehicle demand outlined in Table 4.



Table 6: Road infrastructure upgrades for further investigation

| Road segment | Infrastructure requirements for further investigation |
|------------------|---|
| Portingales Lane | <ul style="list-style-type: none"> Portingales Lane to be fully paved Widen roadway width to accommodate heavy vehicles (7.0m wide bi-directional carriageway – each lane to be 3.5m) Provide footpath on eastern side (a minimum of 1.5m wide) Ensure adequate provision of pedestrian crossing opportunities at regular intervals Investigate the strategic merits of earmarking Portingales Lane as a bicycle riding corridor Provide adequate street tree planting to mitigate excessive noise pollution from heavy vehicle movements |
| Greens Lane | <ul style="list-style-type: none"> Greens Lane to be fully paved Widen roadway width to accommodate heavy vehicles (7.0m wide bi-directional carriageway – each lane to be 3.5m) Provide footpath on northern side (a minimum of 1.5m wide) Ensure adequate provision of pedestrian crossing opportunities at regular intervals Investigate the strategic merits of earmarking Greens Lane as a bicycle riding corridor Provide adequate street tree planting to mitigate excessive noise pollution from heavy vehicle movements |

Table 7: Intersection upgrades for further investigation

| Intersection | Intersection treatment for further investigation |
|---------------------------------------|--|
| Romsey Road/Portingales Lane | <ul style="list-style-type: none"> Intersection channelisation on Romsey Road supporting left and right turning movements to Portingales Lane Provide appropriate crossing opportunities for pedestrians |
| Melbourne-Lancefield Road/Greens Lane | <p>To resolve the capacity constraint on Greens Lane:</p> <ul style="list-style-type: none"> Intersection to support a signalised or roundabout treatment alternatively, A left out only movement configuration from Greens Lane to Melbourne-Lancefield Road Provide appropriate crossing opportunities for pedestrians |
| Portingales Lane/Greens Lane | <ul style="list-style-type: none"> Introduce a <i>give way</i> or <i>stop</i> road sign on Greens Lane Provide appropriate crossing opportunities for pedestrians |

Please contact Lachlan on 04 24 636 844 or by email to discuss any aspect of the above.

—ENDS—



Capacity Calculation for Unsignalised Road

$$C = \frac{qe^{-qT}}{1-e^{-qT_0}} \dots\dots\dots(1)$$

$$C_p = 0.9 C \dots\dots\dots(2)$$

Where:

C= Theoretical maximum volume of minor road traffic which an intersection could accommodate;

q = opposing traffic flow (veh/s);

T = critical gap (s);

T₀ = follow-up headway (s);

C_p = Practical Capacity.

$$C_T = \frac{1}{\frac{P_L + P_R}{C_L + C_R}} \dots\dots\dots(3)$$

Where:

C_T = Total approach capacity;

P_L = Proportion turning left;

P_R = Proportion turning right.

C_L = Left turning capacity

C_R = Right turning capacity

Figure 3: Opposing flows exiting a minor road

