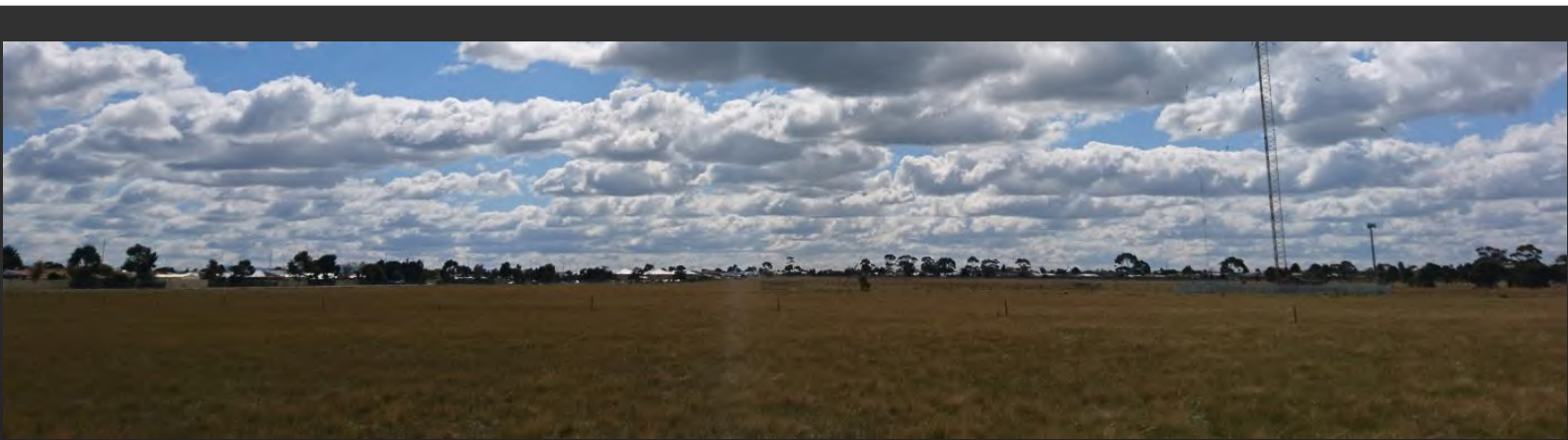


250A Taylors Road, Delahey

Transport Impact Assessment



180532TIA001 J-F.docx

23 September 2019

onemilegrid

ABN: 79 168 115 679

(03) 9939 8250
56 Down Street

COLLINGWOOD, VIC 3066

www.onemilegrid.com.au

DOCUMENT INFORMATION

Prepared for	Broadcast Australia		
File Name	180532TIA001J-F.docx	Report Date	23 September 2019
Prepared by	David Ballock	Reviewed by	Ross Hill
Signature		Signature	

© One Mile Grid Pty Ltd. This document has been prepared by **onemilegrid** for the sole use and benefit of the client as per the terms of engagement. It may not be modified or altered, copied, reproduced, sold or transferred in whole or in part in any format to any person other than by agreement. **onemilegrid** does not assume responsibility or liability to any third party arising out of use or misuse of this document.

CONTENTS

1	INTRODUCTION.....	5
2	EXISTING CONDITIONS	5
2.1	Site Location	5
2.2	Planning Zones and Overlays.....	7
2.3	Road Network.....	8
2.3.1	Taylors Road	8
2.3.2	Kings Road.....	9
2.3.3	Sydenham Road	10
2.4	Movement & Place	11
2.5	Existing Traffic Conditions	13
2.5.1	Traffic Volumes.....	13
2.5.2	Intersection Capacity Assessment.....	16
2.6	Crash History.....	17
2.7	Sustainable Transport	18
2.7.1	General.....	18
2.7.2	Public Transport.....	19
2.7.3	Bicycle Facilities	20
2.7.4	Pedestrian Accessibility.....	22
3	DEVELOPMENT POTENTIAL	23
3.1	General	23
3.2	Vehicle Access	23
4	TRAFFIC CONSIDERATIONS.....	24
4.1	Traffic Generation	24
4.2	Traffic Distribution	25
4.3	Future Traffic Volumes	27
4.4	Intersection Analysis.....	29
5	CONCLUSIONS.....	33

TABLES

Table 1	Turning Movement Survey Times.....	13
Table 2	SIDRA Intersection Parameters.....	16
Table 3	Friday – AM Peak Hour Intersection Analysis Summary – Existing Conditions.....	16
Table 4	Public Transport Provision.....	19
Table 5	Site Facilities.....	22
Table 6	Traffic Distribution (1400 dwellings plus 1500m ² retail land use).....	24
Table 7	Kings Road/Taylors Road – Analysis Summary (Degree of Saturation)	30
Table 8	Kings Road/Site Access – Analysis Summary (Degree of Saturation).....	31
Table 9	Taylors Road/Site Access – Analysis Summary (Degree of Saturation)	32

FIGURES

Figure 1	Site Location.....	5
Figure 2	Site Context (Friday 19 th October 2018).....	6
Figure 3	Planning Scheme Zones.....	7
Figure 4	Principal Public Transport Network	8
Figure 5	Taylor's Road, looking west from the railway line overpass.....	8
Figure 6	Kings Road, looking north from the intersection with Delahey Village	9
Figure 7	Sydenham Road, looking north from its termination adjacent Taylor's Road	10
Figure 8	SmartRoads Road User Hierarchy Map.....	12
Figure 9	Traffic Movement Survey Areas	13
Figure 10	Existing Traffic Volumes – AM Peak - Friday 7 th September 2018	14
Figure 11	Existing Traffic Volumes – PM Peak - Friday 7 th September 2018.....	14
Figure 12	Existing Traffic Volumes – Peak - Saturday 8 th September 2018	15
Figure 13	Crash Locations	17
Figure 14	TravelSmart Map.....	18
Figure 15	Public Transport Provision.....	19
Figure 16	Principal Bicycle Network	20
Figure 17	Brimbank Cycling and Walking Strategy – Updated Cycling and Walking Network Map	21
Figure 18	Pedestrian Walk-Time Map.....	22
Figure 19	Potential Site Access – Southern Half of Subdivided Lot.....	23
Figure 20	Weekday AM Peak Hour Traffic Generation	25
Figure 21	Weekday PM Peak Hour Traffic Generation	26
Figure 22	Weekend Peak Hour Traffic Generation.....	27
Figure 23	Future Weekday AM Peak Hour Volumes.....	28
Figure 24	Future Weekday PM Peak Hour Volumes	28
Figure 25	Future Weekend Peak Hour Volumes	29
Figure 26	Kings Road/Taylor's Road	30
Figure 27	Kings Road/Site Access.....	31
Figure 28	Taylor's Road/Site Access	32

APPENDICES

APPENDIX A	CONCEPT INTERSECTION LAYOUT PLANS	34
-------------------	--	-----------

1 INTRODUCTION

onemilegrid has been requested by Broadcast Australia to undertake a Transport Impact Assessment of the proposed rezoning of land for the purposes of redevelopment at 250A Taylors Road, Delahey.

This Transport Impact Assessment has particularly assessed the change in use of the site from Special Use Zone and the anticipated impacts of additional vehicle movements to be generated by the potential future uses.

As part of this assessment the subject site has been inspected with consideration of the anticipated impacts of additional vehicle movements, traffic data has been sourced and relevant background reports have been reviewed.

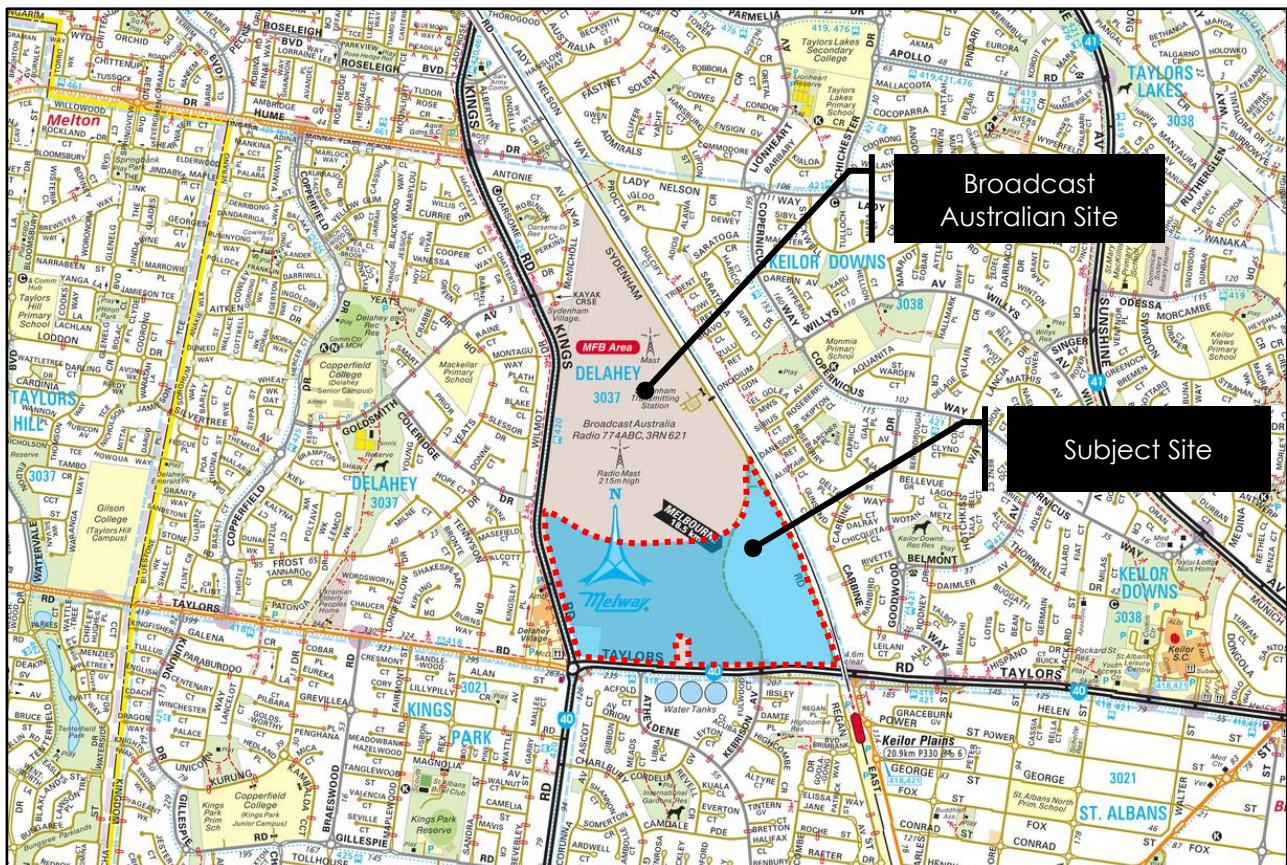
2 EXISTING CONDITIONS

2.1 Site Location

The subject site is located on the northern side of Taylors Road and is bound by Kings Road to the west and the Sunbury Railway Line to the east, as shown in Figure 1 below, and is addressed as 250A Taylors Road, Delahey.

The site is large and irregular in shape with frontages to the recently duplicated Kings Road to the west, Sydenham Road to the east, and Taylors Road to the south. The northern portion of the site abuts the existing Broadcast Australia radio transmission site.

Figure 1 Site Location



Copyright Melway Publishing

The site was formerly part of a larger site occupied by the Broadcast Australia radio transmission towers and associated offices, as shown in Figure 1 above.

The site excludes the former landscaping supplies development at 238 Taylors Road, approximately midway along the Taylors Road frontage.

The site is currently vacant, other than a small parcel of land in the southwest corner of the site, which is currently utilised as the head office for a residential builder, with left-in left-out only vehicle access to Taylors Road.

Locations of significance within the vicinity of the site include Watergardens Shopping Centre south-west of the Kings Road intersection with Melton Highway, Sydenham Train Station accessed from East Esplanade south of Taylors Road, and Delahey Village shopping centre located north-west of the Taylors Road/Kings Road intersection. A number of social service facilities are also provided within close proximity of the site, including several primary and secondary schools.

An aerial view of the subject site is provided in Figure 2.

Figure 2 Site Context (Friday 19th October 2018)



Copyright Nearmap

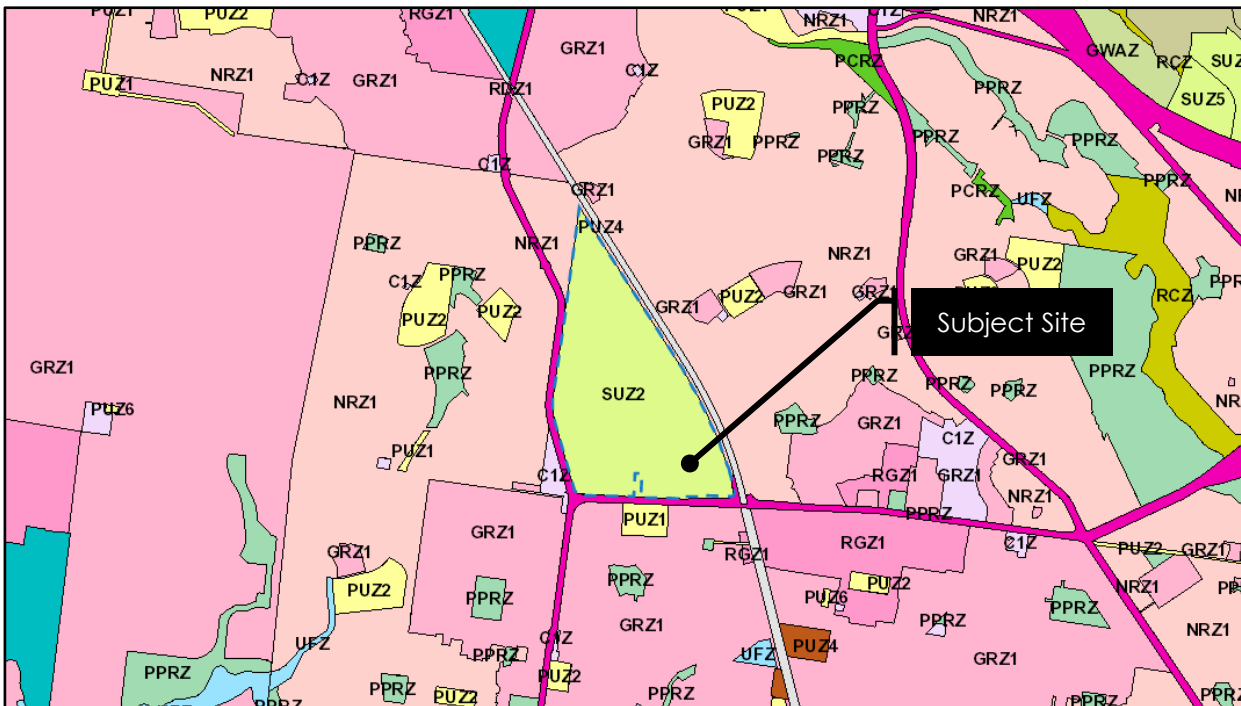
2.2 Planning Zones and Overlays

It is shown in Figure 3 that the site is located within a Special Use Zone (SUZ), for which the permitted uses are listed in Clause 37.01 of the Brimbank Planning Scheme. Furthermore, the site is subject to the following Planning Overlays:

- Special Building Overlay (SBO);
- Environmental Significance Overlay (ESO1 & ESO2);
- Environmental Audit Overlay (EAO); and
- Development Contributions Plan Overlay (DCPO2).

It is noted that Taylors Road and Kings Road are both located within a Road Zone – Category 1 (RDZ1).

Figure 3 Planning Scheme Zones



The subject site is partially located within the Principal Public Transport Network Area, as demonstrated within Figure 4.

Figure 4 Principal Public Transport Network



2.3 Road Network

2.3.1 Taylors Road

Taylors Road is a VicRoads controlled arterial road generally aligned east-west, running between Kings Road in west and Sunshine Avenue in the east. At the site's frontage, Taylors Road operates with three traffic lanes in each direction to the east of the signalised intersection with Kerrison Avenue, and with two traffic lanes in each direction between the signalised intersections with Kings Road and Kerrison Avenue. Taylors Road's carriageway is divided by a central grassed median with turning lanes provided at intersections to allow for entry to side streets and U-turns.

Kerbside parking within the Taylors Road carriageway is not permitted.

It is noted that to the west of the intersection with Kings Road, Taylors Road is a Council owned major road and reduces to a single traffic lane in each direction, with a painted median strip providing intermittent turn lanes for access to side streets.

A 70km/h speed limit applies to Taylors Road in the vicinity of the site.

The cross-section of Taylors Road at the frontage of the site is shown in Figure 5.

Figure 5 Taylors Road, looking west from the railway line overpass



2.3.2 Kings Road

Kings Road is an arterial road generally aligned north-south, running between Main Road West in the south and Calder Freeway in the north. In the vicinity of the site, Kings Road operates with two traffic lanes and a bicycle lane in each direction, separated by a central grassed median with turn lanes provided at the signalised intersection with Delahey Village shopping centre.

Kerbside parking within the Kings Road carriageway is not permitted.

A signed speed limit of 70km/h applies to Kings Road in the vicinity of the site.

The cross-section of Kings Road at the frontage of the site is shown in Figure 6.

Figure 6 Kings Road, looking north from the intersection with Delahey Village



The intersection of Kings Road and Taylors Road has recently been upgraded from a two-lane roundabout to a fully signalised and raised intersection.

2.3.3 Sydenham Road

Sydenham Road is a Council controlled local road generally aligned north-south, running south along the subject site's eastern boundary from Hume Drive, through to its termination adjacent to the Taylors Road reservation. Access along Sydenham Road at the northern end of the Broadcast Australia site (to the south of McNicholl Way) is restricted to Broadcast Australia staff only via a gated control point.

In the vicinity of the site, Sydenham Road provides a single traffic lane in each direction and operates with a posted speed limit of 60km/h.

The cross-section of Sydenham Road at the frontage of the site is shown in Figure 6.

Figure 7 Sydenham Road, looking north from its termination adjacent Taylors Road



Sydenham Road previously connected to Taylors Road, though was severed as part of works associated with the rail overpass of Taylors Road.

2.4 Movement & Place

The SmartRoads framework is a relatively new approach of road network management developed by VicRoads in consultation with local government, government agencies and many stakeholders over the past several years.

In essence, SmartRoads framework is an approach that manages competing interests for limited road space by giving priority use of the road to different transport modes at particular times of the day. The framework identifies transport modes throughout Melbourne's road network that should be afforded priority in decision-making, having consideration to individual access needs and land-uses in the surrounding areas.

The framework recognises the increasing importance of public transport, walking and cycling as transport modes. It uses a set of guiding principles to establish the priority use of roads by transport mode, time of day, and place of activity. This approach also ensures that decisions about the operation of the road network support integrated land use and transport planning.

Under the SmartRoads framework, all road users continue to have access to all roads, but over time, changes are being made to how roads are operated to:

- Facilitate good pedestrian access into and within activity centres in periods of high demand;
- Prioritise trams and buses on key public transport routes that link activity centres during morning and afternoon peak periods;
- Encourage cars to use alternative routes around activity centres to reduce the level of 'through' traffic;
- Encourage bicycles through further developing the bicycle network; and
- Prioritise trucks on important transport routes that link freight hubs and at times that reduce conflict with other transport modes.

These priority movements are assigned to arterial roads across the network forming SmartRoads Framework Network Operating Plan.

This approach links with an emerging thought process for understanding the role a street as a **movement** conduit and a **place**, a destination in its own right.

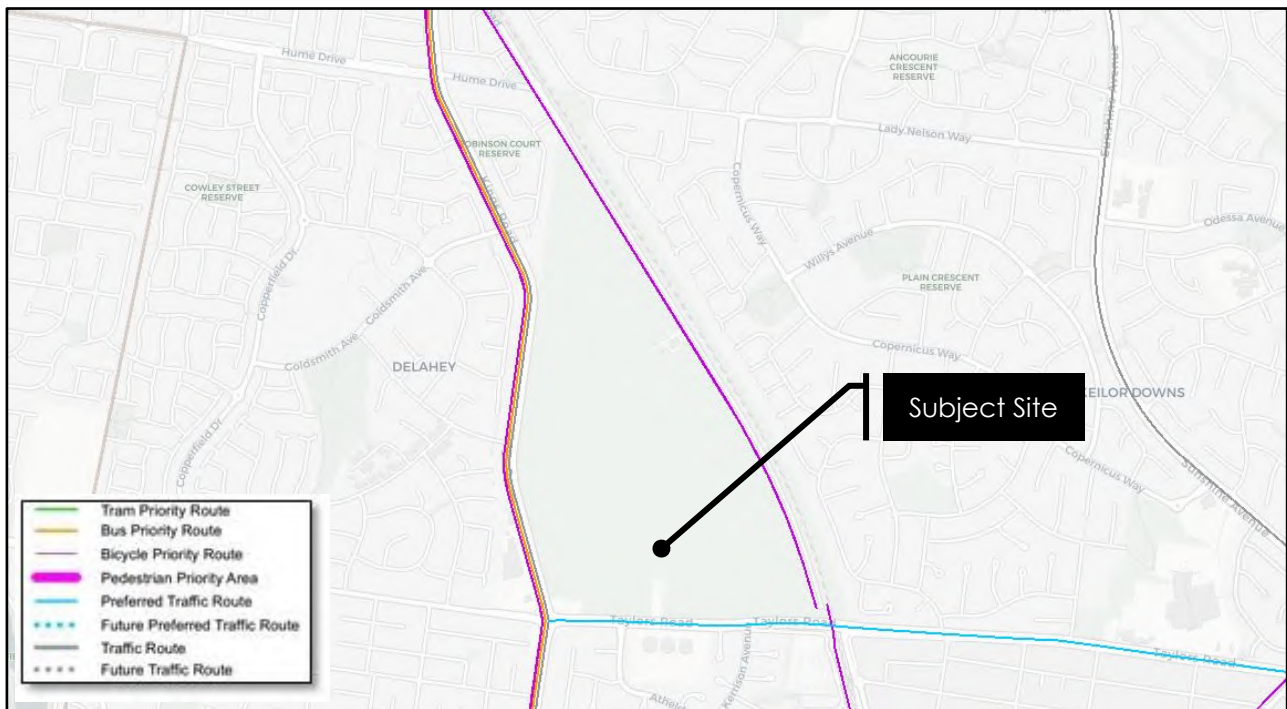
With the movement and place thinking, the SmartRoads framework will be enhanced to consider the role streets play as a destination in their own right, as places we visit for leisure, recreational and other 'unnecessary activities', not just to access 'necessary' places for work or residence or to move through.

Movement and place is a way of thinking that helps us to:

- Create better places by supporting the design of people-friendly streets
- Prioritise travel modes for different streets and contexts
- Define the way in which we understand problems, consider future needs, and look at the best outcomes for cycling, walking, and place making
- Support productivity by facilitating movement of goods and people.

The SmartRoads map for the study area is provided in Figure 8 below.

Figure 8 SmartRoads Road User Hierarchy Map



The SmartRoads map identifies the following:

- Bus priority along the length of Kings Road, identifying the importance bus connectivity between the north and south;
- Bicycle priority is identified along the entire length of Kings Road and the railway line reserve, linking Sydenham Principal Activity Centre in the north and to other bicycle priority routes to the south. Whilst on-road bicycle lanes are provided along Kings Road, no facilities are currently provided along the rail corridor; and
- A Preferred Traffic Route is identified along Taylors Road, east of signalised intersection with Kings Road, recognising the importance of traffic capacity in this section.

2.5 Existing Traffic Conditions

2.5.1 Traffic Volumes

In order to understand the existing operation of the surrounding road network and establish the existing traffic volumes, **onemilegrid** commissioned Trans Traffic Surveys to conduct traffic movement counts at the following intersections surrounding the subject site:

- Taylors Road / Kings Road;
- Kings Road / Commercial Lot Access;
- Taylors Road / Atheldene Drive; and
- Taylors Road / Kerrison Avenue / Regan Street.

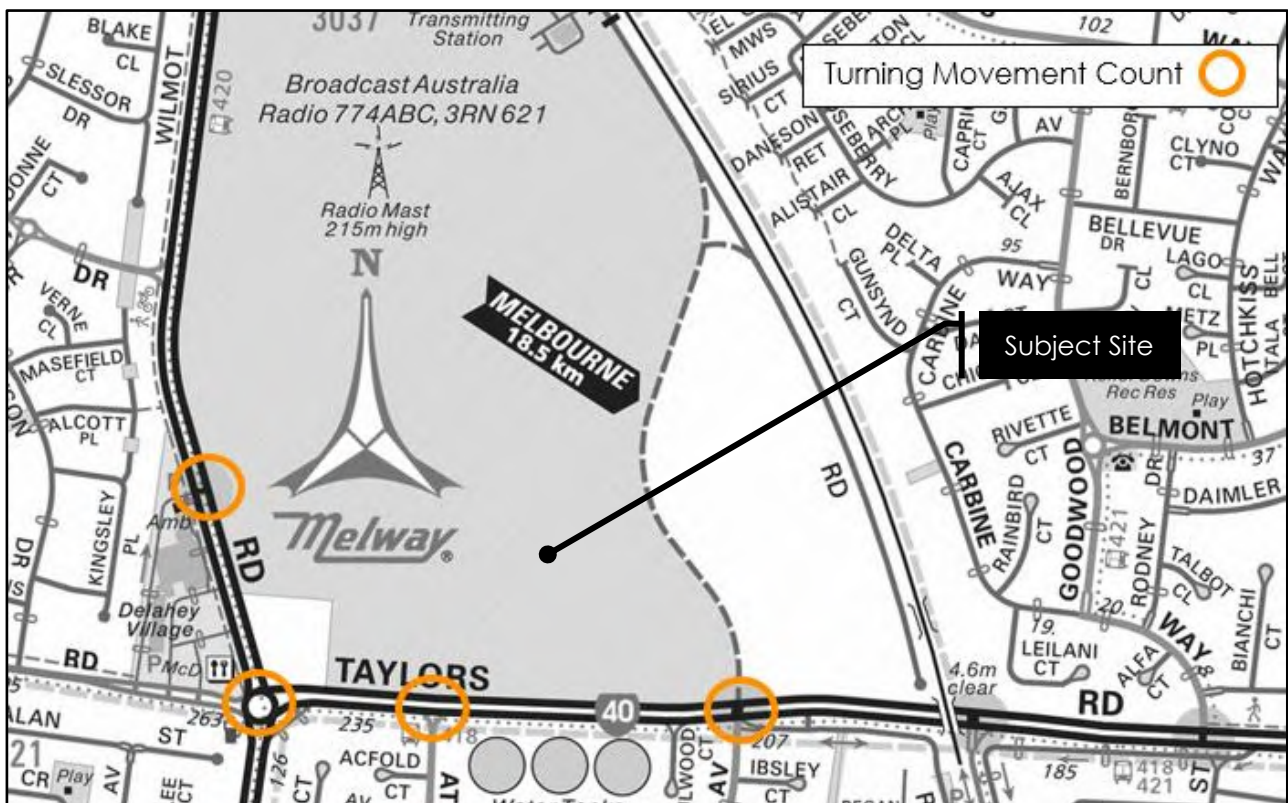
The turning movement counts were undertaken and recorded in 15-minute intervals on the following days and times:

Table 1 Turning Movement Survey Times

Day	Date	Time 1	Time 2	Interval
Friday	07/09/2018	6:00am – 9:30am	2:30pm – 6:30pm	15 minutes
Saturday	08/09/2018	9:00am – 4:00pm	N/A	15 minutes

An aerial view of the surveyed areas is shown in Figure 9 below.

Figure 9 Traffic Movement Survey Areas



A summary of the combined peak hour counts at the identified intersections during the morning and evening peak periods are shown for the Friday surveys are shown in Figure 10 and Figure 11, whilst the combined peak hour counts during the Saturday surveys are shown in Figure 12.

Figure 10 Existing Traffic Volumes – AM Peak - Friday 7th September 2018

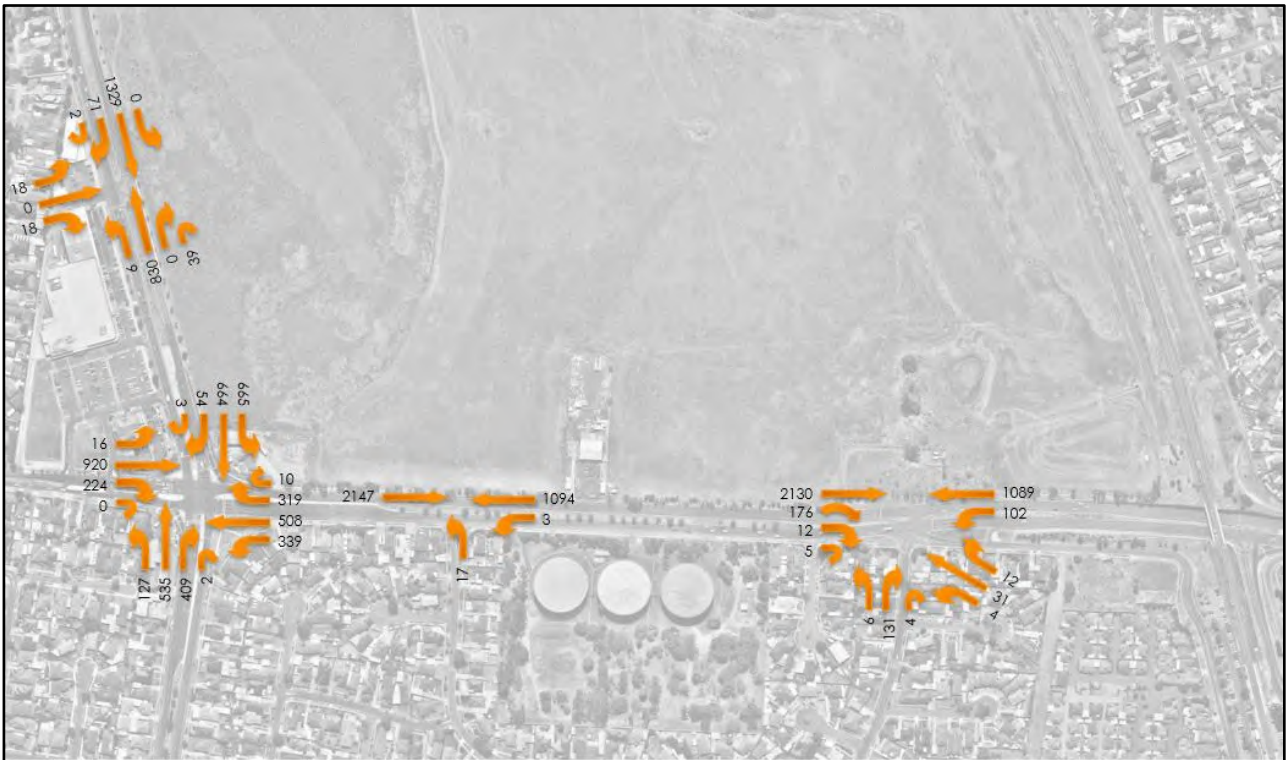
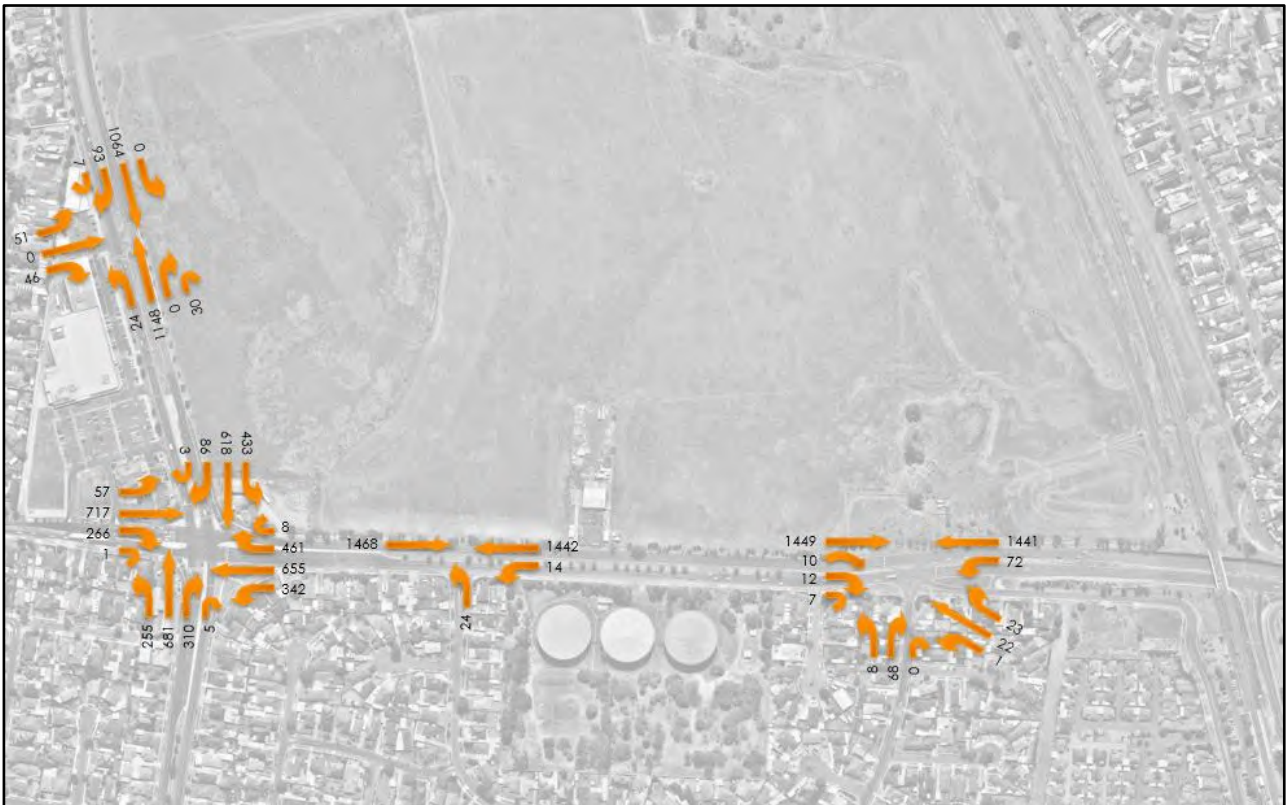


Figure 11 Existing Traffic Volumes – PM Peak - Friday 7th September 2018



Figure 12 Existing Traffic Volumes – Peak - Saturday 8th September 2018



2.5.2 Intersection Capacity Assessment

To assess the operation of the surveyed intersections, the surveyed traffic volumes have been input into SIDRA Intersection, a traffic modelling software package.

The SIDRA Intersection software package has been developed to provide information on the capacity of an intersection with regard to a number of parameters. Those parameters considered relevant are, Degree of Saturation (DoS), 95th Percentile Queue, and Average Delay as described below.

Table 2 SIDRA Intersection Parameters

Parameter	Description														
Degree of Saturation (DoS)	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 border="1"> <thead> <tr> <th>Degree of Saturation</th> <th>Rating</th> </tr> </thead> <tbody> <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> </tbody> </table>	Degree of Saturation	Rating	Up to 0.60	Excellent	0.61 – 0.70	Very Good	0.71 – 0.80	Good	0.81 – 0.90	Fair	0.91 – 1.00	Poor	Above 1.00	Very Poor
	Degree of Saturation	Rating													
	Up to 0.60	Excellent													
	0.61 – 0.70	Very Good													
	0.71 – 0.80	Good													
	0.81 – 0.90	Fair													
0.91 – 1.00	Poor														
Above 1.00	Very Poor														
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.															
Average Delay (seconds)	Average delay is the time delay that can be expected for all vehicles undertaking a particular movement in seconds.														
95th Percentile (95%ile) Queue	95%ile queue represents the maximum queue length in metres that can be expected in 95% of observed queue lengths in the peak hour														

The results of the existing intersection capacity analysis during the peak periods are detailed in Table 3 below.

Table 3 Friday – AM Peak Hour Intersection Analysis Summary – Existing Conditions

Intersection	D.o.S	Avg Delay (sec)	Queue (m)
Friday AM Peak Hour			
Taylors Road / Kings Road	0.901	47.1	251.5
Kings Road / Shopping Centre Access	0.752	14.3	130.3
Taylors Road / Regan Street / Kerrison Avenue	0.579	22.9	207.5
Friday PM Peak Hour			
Taylors Road / Kings Road	0.884	49.1	243
Kings Road / Shopping Centre Access	0.865	19.3	194.7
Taylors Road / Regan Street / Kerrison Avenue	0.844	19.2	198.8
Saturday Peak Hour			
Taylors Road / Kings Road	0.867	41.6	170.4
Kings Road / Shopping Centre Access	0.755	17	97.7
Taylors Road / Regan Street / Kerrison Avenue	0.528	14.8	147.4

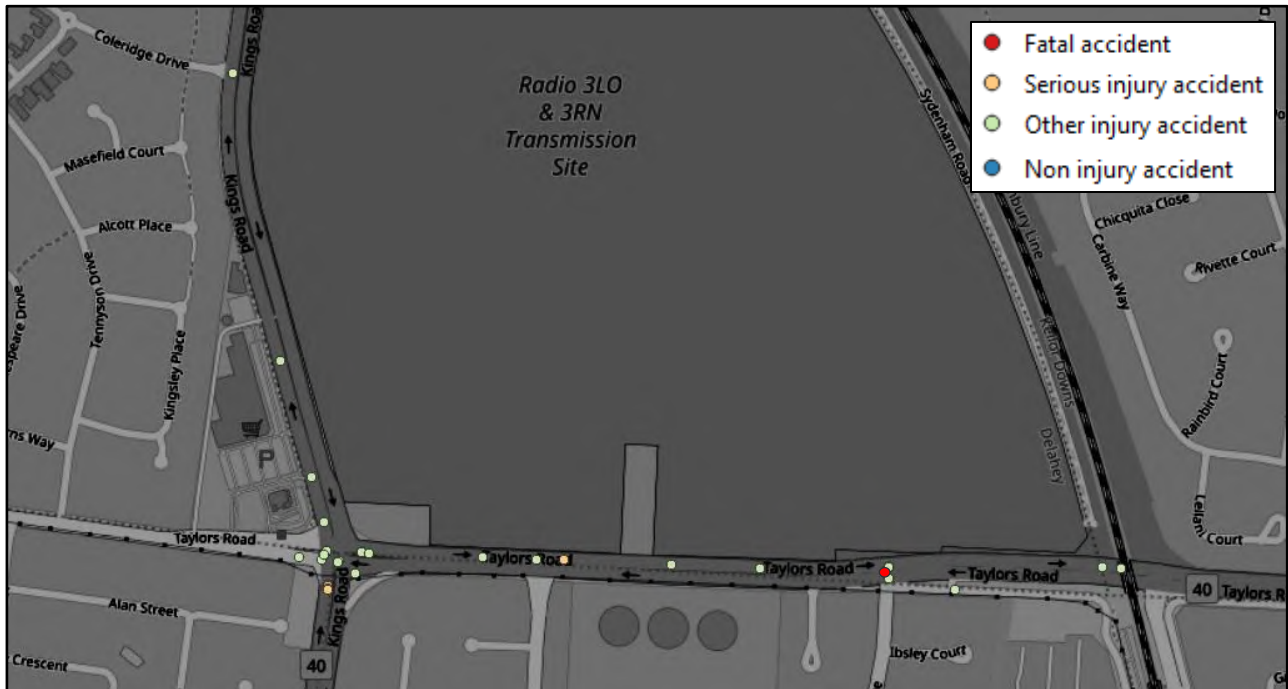
It is shown that the existing conditions of each intersection analysis are operating within capacity during each survey period, with some delays and queues experienced.

2.6 Crash History

Crash history information for the subject site and surrounding area was obtained through VicRoads CrashStats (the Victorian accident statistics and mapping program) for the latest 5-year period (2012 – 2017 inclusive).

A view of the map of crash locations is provided in Figure 13 below.

Figure 13 Crash Locations



The crash information collated recorded a total of 39 crashes over the 5-year period, comprising 1 fatal crash, 6 serious injury crashes and 32 other injury crashes.

Notable observations from the data included:

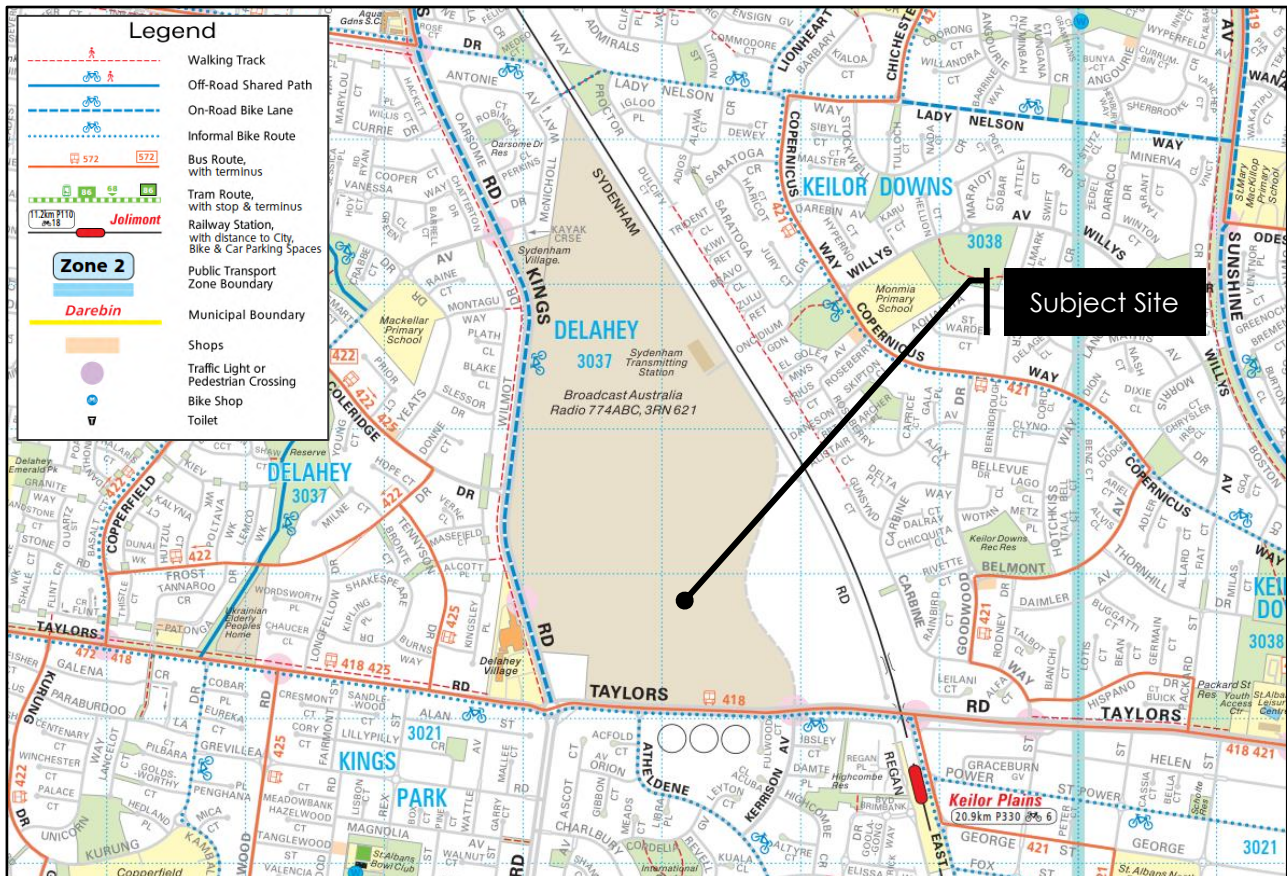
- The fatal crash occurred at the signalised intersection between Taylors Road and Kerrison Avenue; and
- 22 crashes occurred at the intersection of Kings Road and Taylors Road, prior to the construction of the signalised intersection.

2.7 Sustainable Transport

2.7.1 General

An extract of the TravelSmart Map for the City of Brimbank is shown in Figure 14, highlighting the public transport, bicycle and pedestrian facilities in the area.

Figure 14 TravelSmart Map



2.7.2 Public Transport

The full public transport provision in the vicinity of the site is shown in Figure 15 and detailed in Table 4.

Figure 15 Public Transport Provision

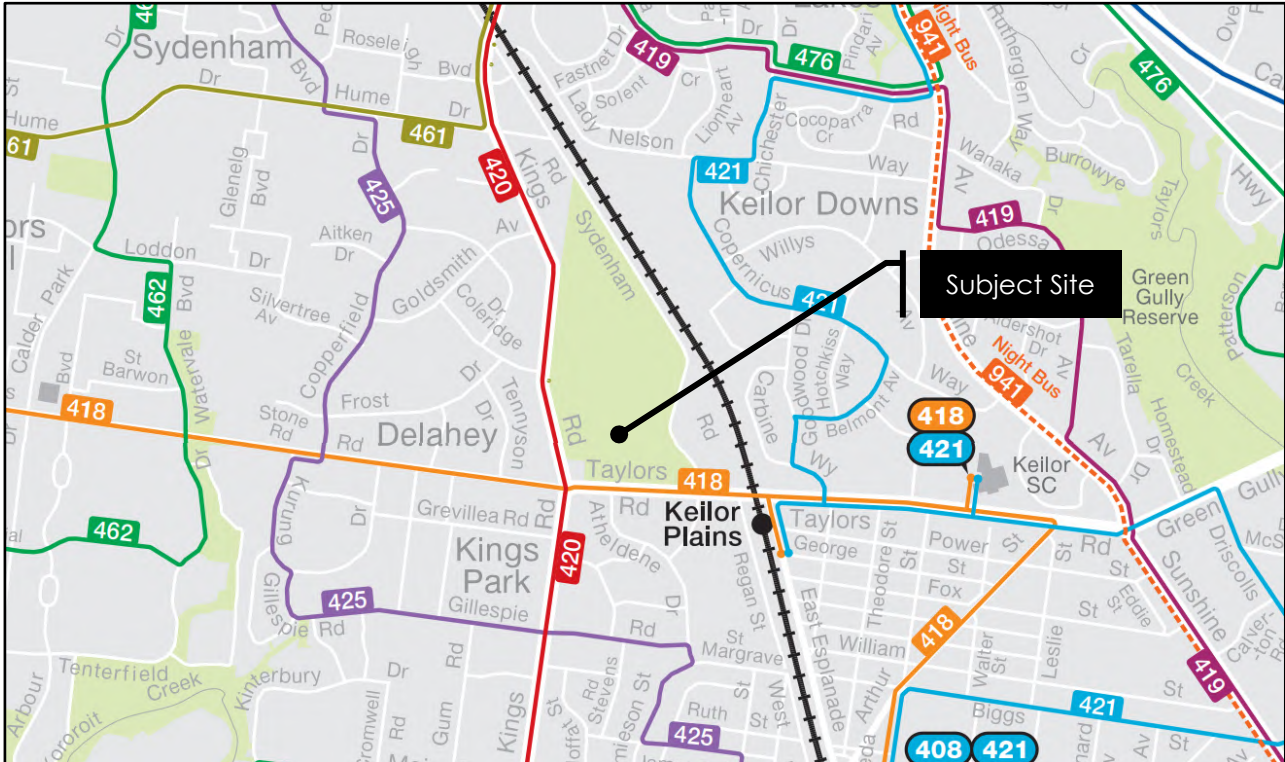


Table 4 Public Transport Provision

Mode	Route No	Route Description	Nearest Stop/Station
Train		Sunbury Line	Keilor Plains Train Station
Bus	418	St Albans Station - Caroline Springs via Keilor Plains Station	Fulwood Court Atheldene Drive
	420	Sunshine Station - Watergardens Station via Deer Park	Delahey Village
	421	St Albans Station - Watergardens Station via Keilor Plains Station	Carbine Way

The site has good public transport accessibility, with Keilor Plains Train Station within walking distance and multiple bus routes servicing the vicinity of the site.

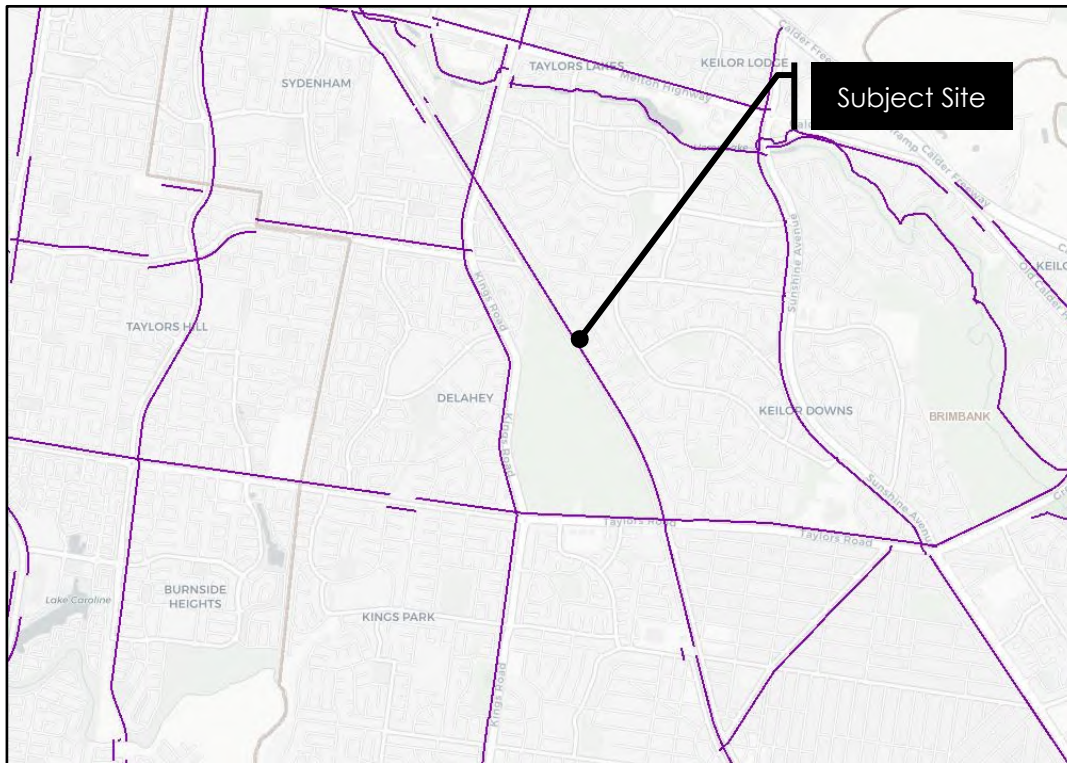
2.7.3 Bicycle Facilities

2.7.3.1 Principal Bicycle Network

Melbourne's Principal Bicycle Network PBN was originally established in 1994. VicRoads undertook an extensive review of the PBN between 2009 and 2012 and identified numerous improvements.

The Principal Bicycle Network is shown in Figure 16 below, and indicates that Kings Road, Taylors Road and the Sunbury Railway Line reserve are components of the Principal Bicycle Network within the vicinity of the subject site.

Figure 16 Principal Bicycle Network



2.7.3.2 Brimbank Cycling and Walking Strategy

Brimbank City Council adopted the Cycling and Walking Strategy (Strategy) in 2008 with the aim of making cycling and walking more attractive throughout the municipality. The Strategy laid out a framework for a well-integrated strategic infrastructure network that has guided Council thus far in transforming the cycling and walking environment in Brimbank.

The initial implementation of the Strategy focussed on connecting the creek network via recreational trails, with Council having constructed around 20km of off-road trails, and around 21km of on-road cycle routes, as well as many cycle related improvements, such as directional way-finding signage throughout the municipality.

In August 2016, the Brimbank City Council adopted the updated Brimbank Cycling and Walking Strategy, following consultation with the public via an online public survey and through workshops with two key cycling groups in Brimbank, which identified a number of opportunities and innovative new ideas for the future development of the cycling and walking network.

The updated Strategy outlines 32 strategic network improvements which have been categorised into High, Medium and Low priority, which has provided Council with a clear plan for implementation for Brimbank's cycling and walking network over the next 7-10 years.

A view of the updated Cycling and Walking Network Map is provided in Figure 17 below.

Figure 17 Brimbank Cycling and Walking Strategy – Updated Cycling and Walking Network Map



In context with the subject site, the Updated Cycling and Walking Network Map identifies an existing off-road shared path along the western side of Kings Road, whilst Sydenham Road has been earmarked as a future component of the proposed off-road cycle network along the eastern boundary of the subject side. Additionally, a proposed main road route has been identified along Taylors Road at the subject site's southern boundary frontage.

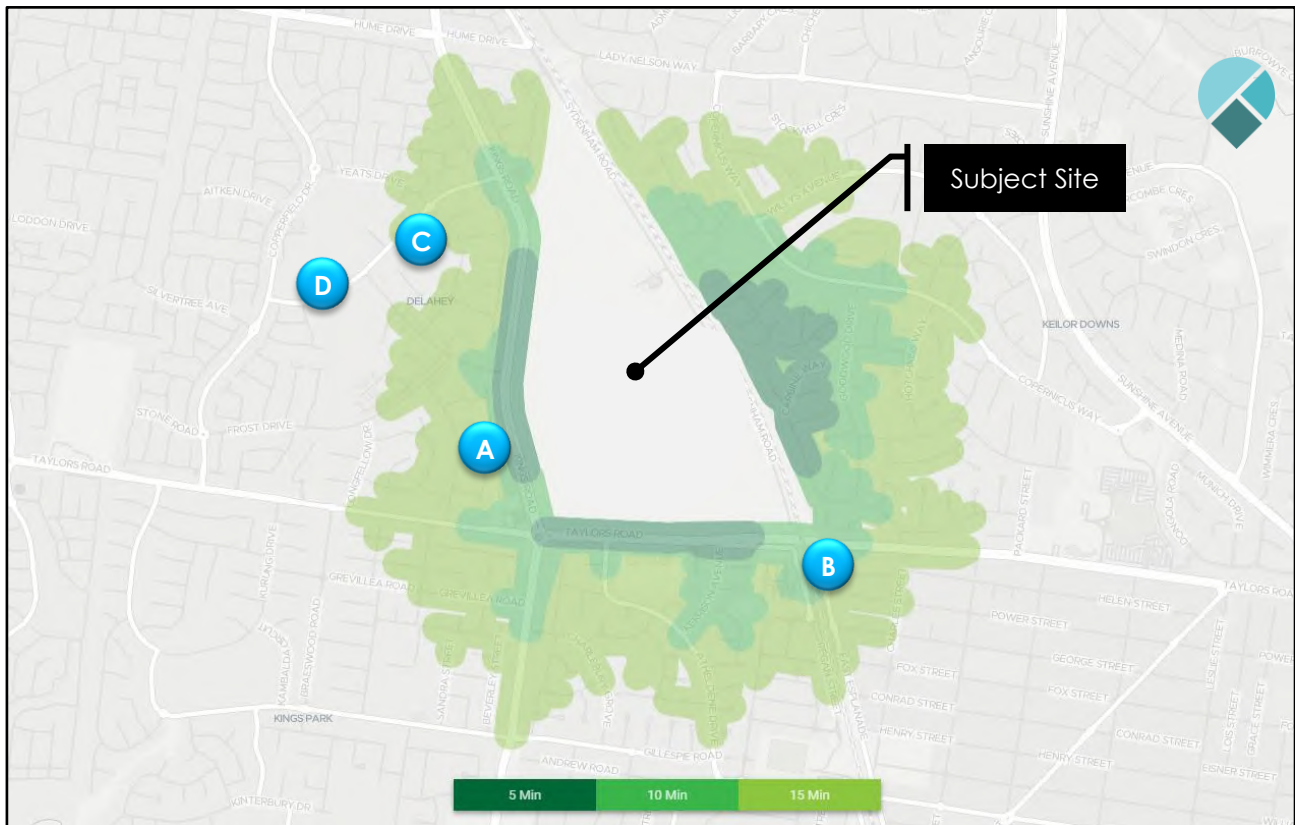
It is understood that all associated strategic network improvements outlined within the Brimbank Cycling and Walking Strategy will be undertaken by Brimbank City Council.

2.7.4 Pedestrian Accessibility

In addition to having good access to public transport modes, the site is reasonably well located for pedestrian accessibility, with a number of recreational, educational, shopping and employment uses located within 10 - 15 minutes' walk of the site.

Figure 18 shows a pedestrian walk time map for the site, with the major facilities in the vicinity of the site identified in Table 5.

Figure 18 Pedestrian Walk-Time Map



Courtesy of Targomo

Table 5 Site Facilities

Ref	Facility	Approx. Distance
A	Delahey Village shopping centre	Adjacent
B	Keilor Plains Railway Station	250m
C	Mackellar Primary School	600m
D	Copperfield College	1km

Interestingly, it is noted that the accessibility to locations on the east side of Sunbury Railway Line is noted as being within 5 minute walk of the site, which is not considered to be an accurate depiction of the existing site conditions due to the lack of safe pedestrians crossing facilities, with the nearest crossing point located to the east of the intersection between Sydenham Road and McNicholl Way.

Furthermore, a review of the subject site's 'Walkability' was undertaken. Walkability is a measure of how friendly an area is to walking. Walkability has many health, environmental, and economic benefits. Factors influencing walkability include the presence or absence and quality of footpaths or other pedestrian rights-of-way, traffic and road conditions, land use patterns, building accessibility, and safety.

3 DEVELOPMENT POTENTIAL

3.1 General

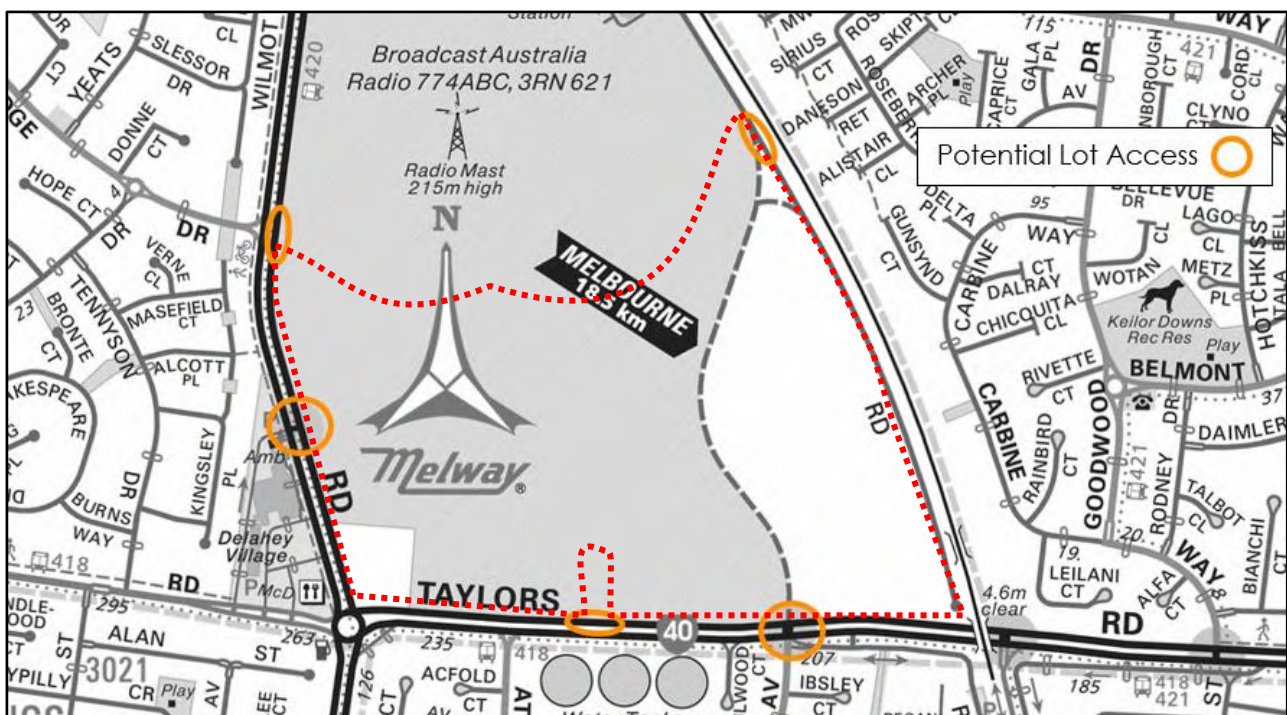
It is proposed to rezone the land at 250A Taylors Road, Delahey, to allow for future development, noting that the current rezoning request does not propose any development. It is understood that a variety of development options have been reviewed, including predominantly residential options, though with the potential for some mixed-use. A hypothetical site yield with a range in the order of 1,200-1,400 residential dwellings and 1,500m² of retail floor area is assumed, based upon the indicative analysis undertaken by Hassell.

3.2 Vehicle Access

Vehicle access to the external road network for the subject site has been investigated in consultation with Broadcast Australia and VicRoads, as detailed below and in Figure 19:

- Access directly via the signalised intersection between Kings Road and Delahey Village;
- Left-in/left-out access to Kings Road at the north-western corner of the site, adjacent the intersection with Coleridge Drive (no connection);
- Left-in/left-out access option from Taylors Road approximately midblock along the southern boundary to the southern portion of the site;
- Access directly via the signalised intersection between Taylors Road, Kerrison Avenue and Regan Street; and
- Access connection to the existing Sydenham Road alignment in the north-eastern corner of the site.

Figure 19 Potential Site Access – Southern Half of Subdivided Lot



Preliminary discussions were held with VicRoads in January 2019 to discuss the appropriateness of the proposed vehicle access locations to the external road network. VicRoads provided **no objection** to the creation of access generally as per the above, subject to detailed analysis of the expected traffic generation and intersection configuration.

Concept designs for the potential layout of each site access point are provided in Appendix A, though each indicative access location and the site's internal road network will need to be confirmed and informed by a dedicated traffic analysis based on the development proposal identified at the master plan stage, and in conjunction with VicRoads and Council.

4 TRAFFIC CONSIDERATIONS

4.1 Traffic Generation

Surveys undertaken by other traffic engineering firms at residential dwellings have shown that the daily traffic generation rates vary depending on the size, location and type of the dwelling, the parking provision and proximity to local facilities and public transport.

It is generally accepted that single dwellings on a lot in outer suburban areas may generate traffic at up to 10 vehicle trips per day, whilst in areas with good existing public transport, and for higher density dwellings, lower traffic generation rates are often recorded.

Considering the location of the site, the proximity of the site to public transport and importantly the potential scale and density of development, it is anticipated that each residential dwelling may generate up to 8 vehicle trips per day per dwelling during both the AM and PM weekday peaks, and up to 7 vehicle trips during the weekend peak period.

With regard to the retail, a rate of 8 trips per 100m² has been adopted in the weekday PM peak and Saturday peak, and 0.8 trips per 100m² in the AM peak.

Application of the above rates indicates that the potential development high yield of 1,400 dwellings is expected to generate up to approximately 11,200 vehicle trips per weekday, approximately 1,120 vehicle trips per hour during the weekday AM and weekday PM peaks, and approximately 980 vehicle trips per hour during the weekend peak.

The retail land uses is expected to generate approximately 120 vehicle trips during weekday PM and Saturday peak periods with up to 12 vehicle trips expected during AM peak periods.

Furthermore, during the weekday AM and weekend peaks, it is estimated that 70% of the residential traffic will be outbound, while during the weekday PM peak, 60% of the residential traffic will be inbound, whilst retail traffic will be distributed evenly between inbound and outbound movements.

The anticipated peak hour traffic generation is summarised in Table 6.

Table 6 Traffic Distribution (1400 dwellings plus 1500m² retail land use)

<i>Land Use</i>	<i>Peak Hour</i>	<i>Inbound</i>	<i>Outbound</i>	<i>Total</i>
Residential	AM	336	784	1,120
	PM Peak	672	448	1,120
	Weekend Peak	294	686	980
Retail	AM	6	6	12
	PM Peak/Weekend Peak	60	60	120

4.2 Traffic Distribution

Based on the site's proposed vehicle access locations to the external road network, the existing road layout and the surveyed traffic movements, it is anticipated that the development traffic will be distributed to the following areas:

- Kings Road (North) – 19%
- Taylors Road (East) – 30%
- Regan Street (South) – 2%
- Kerrison Avenue (South) – 2%
- Kings Road (South) – 35%
- Taylors Road (West) – 8%
- Delahey Village (West) – 4%

The anticipated weekday peak hour vehicle movements to be generated by the potential development yield are shown in Figure 20 for the AM peak hour and in Figure 21 for the PM peak hour periods, whilst the weekend peak hour vehicle movements to be generated by the proposed residential dwelling and retail land uses are shown in Figure 22.

Figure 20 Weekday AM Peak Hour Traffic Generation



Figure 21 Weekday PM Peak Hour Traffic Generation



Figure 22 Weekend Peak Hour Traffic Generation



4.3 Future Traffic Volumes

The projected traffic volumes generated during the weekday and weekend peak hour periods has been applied to the existing traffic volumes at the identified intersections surrounding the subject site. The resultant future traffic volumes are presented in Figure 23 to Figure 25.

Figure 23 Future Weekday AM Peak Hour Volumes



Figure 24 Future Weekday PM Peak Hour Volumes



Figure 25 Future Weekend Peak Hour Volumes



4.4 Intersection Analysis

A SIDRA intersection analysis has been undertaken for the three identified signalised intersections in the vicinity of the site, based on the expected future traffic volumes. **It is noted that no traffic volume growth has been added at this stage**, though VicRoads identified that the traffic volumes in the area were generally static, and limited growth is expected.

A comparison summary of the SIDRA results for the existing and post-development conditions are provided in the tables below for each of the three main intersections.

The below summarises the intersection layout, and expected Degree of Saturation of the intersections during the peak periods, under existing and post development conditions. Note that the Degree of Saturation (DoS) is a measure of the intersection capacity. A DoS of over 1.0 means that the intersection is operating over capacity, and therefore cannot accommodate the expected traffic volumes during the modelling period. Preferably, the DoS should be below 0.9, though not commonly achieved in inner urban areas. As the intersection DoS approaches 1.0, the queues and delays increase exponentially.

Figure 26 Kings Road/Taylors Road

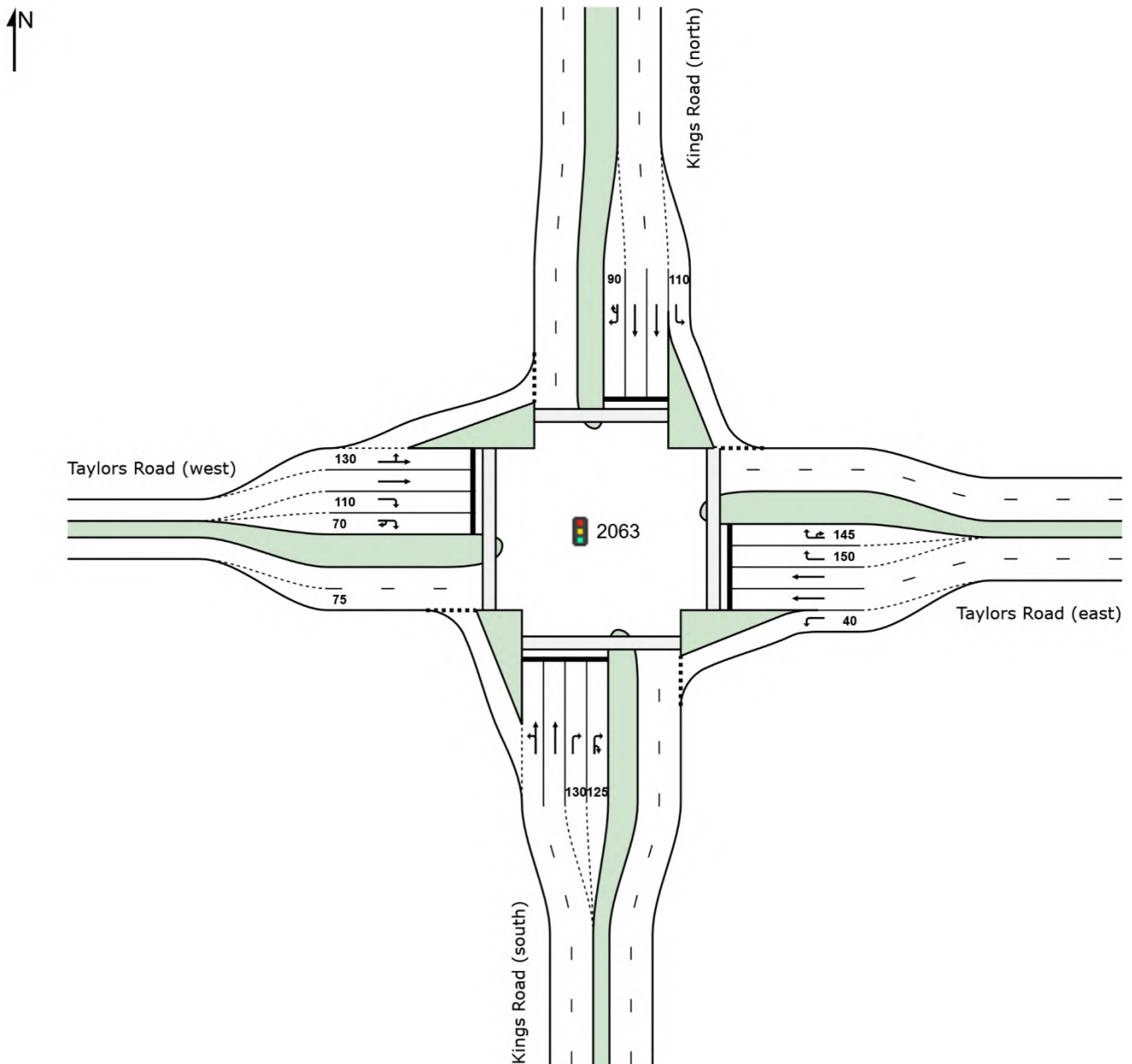


Table 7 Kings Road/Taylors Road – Analysis Summary (Degree of Saturation)

<i>Period</i>	<i>Existing Conditions</i>	<i>Post Development</i>
AM Peak	0.926	0.967
PM Peak	0.885	0.988
Saturday Peak	0.867	0.953

Figure 27 Kings Road/Site Access

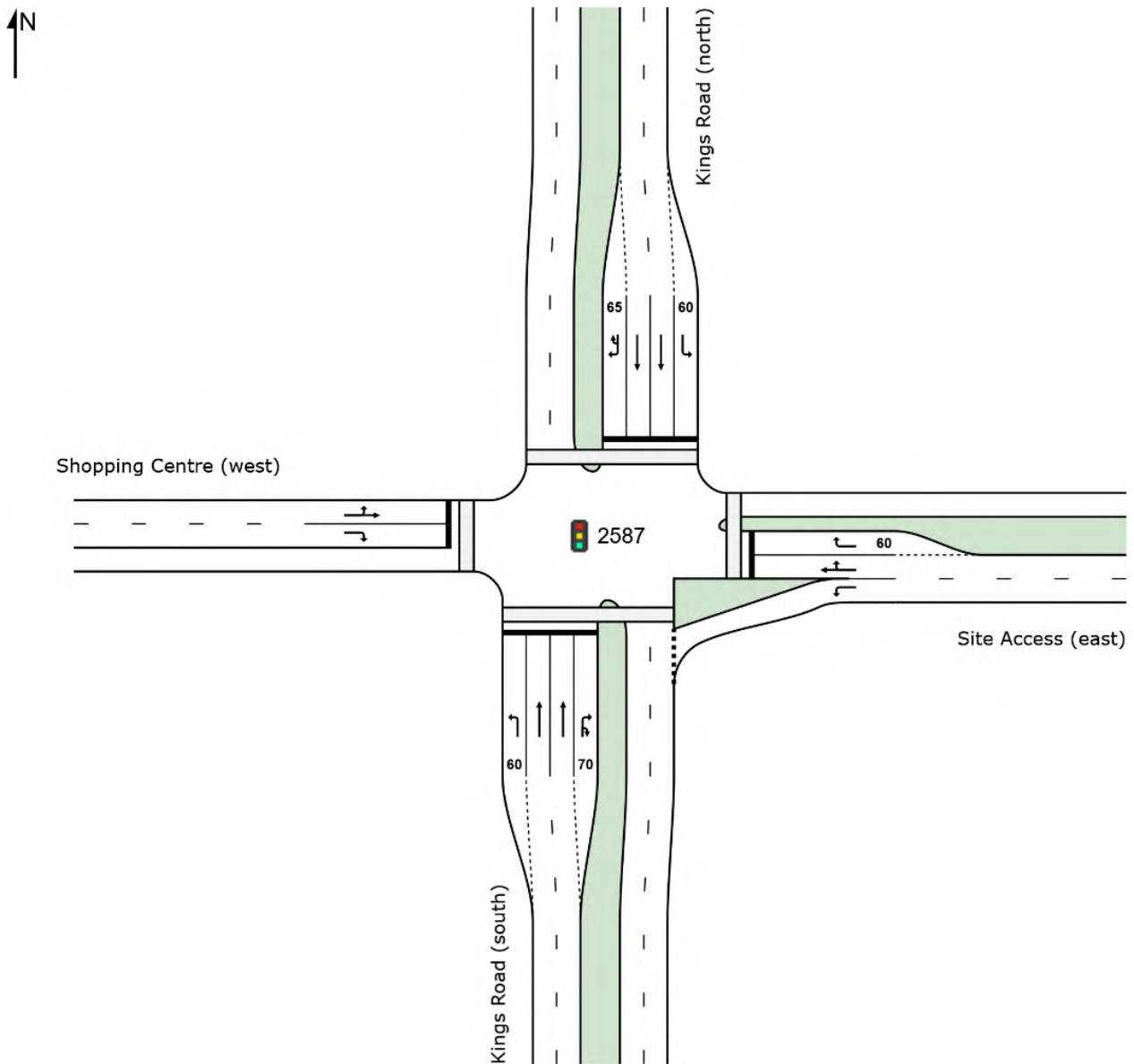


Table 8 Kings Road/Site Access – Analysis Summary (Degree of Saturation)

<i>Period</i>	<i>Existing Conditions</i>	<i>Post Development</i>
AM Peak	0.752	0.832
PM Peak	0.865	0.895
Saturday Peak	0.755	0.891

Figure 28 Taylors Road/Site Access

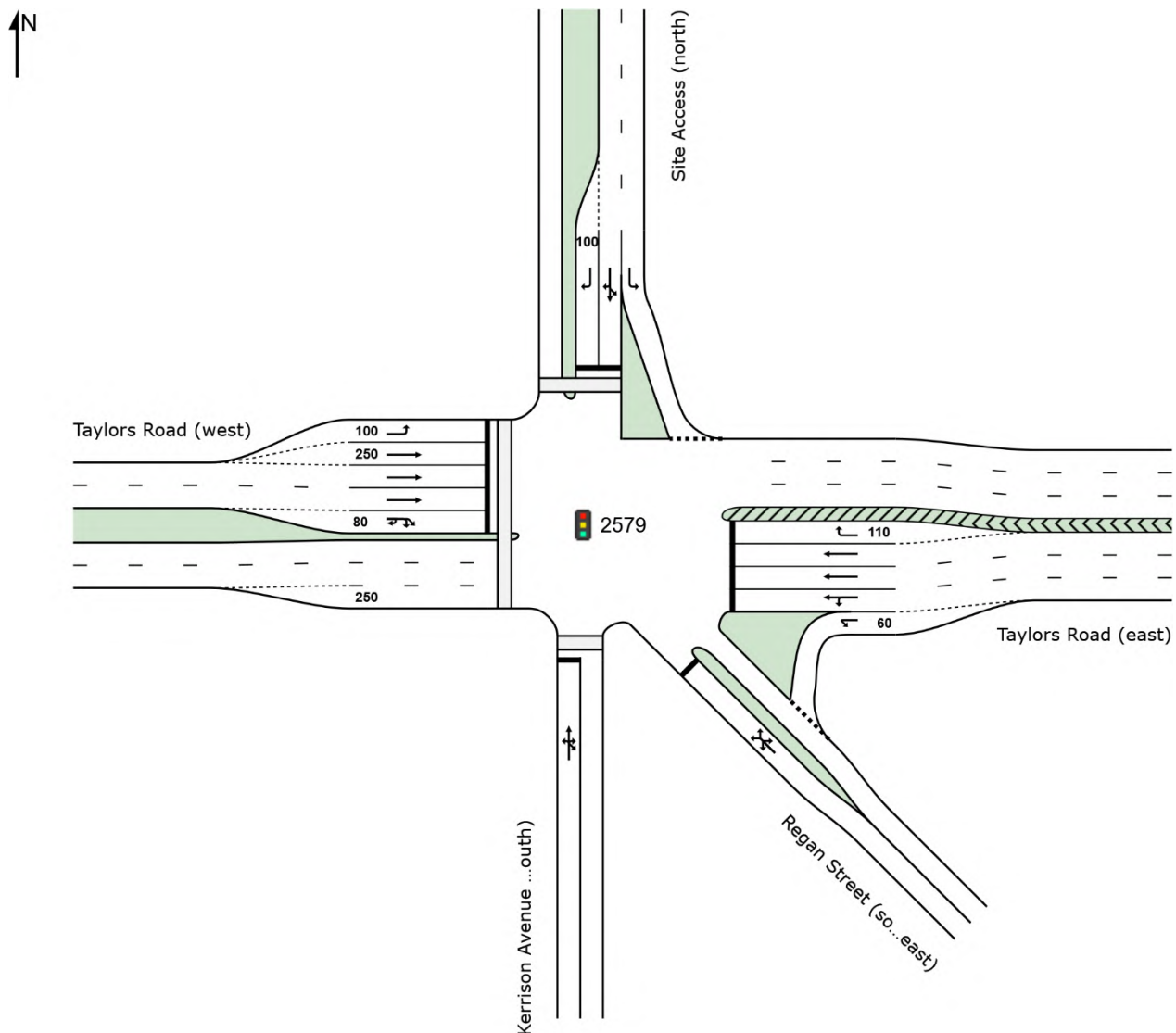


Table 9 Taylors Road/Site Access – Analysis Summary (Degree of Saturation)

<i>Period</i>	<i>Existing Conditions</i>	<i>Post Development</i>
AM Peak	0.579	0.886
PM Peak	0.844	0.879
Saturday Peak	0.782	0.589

Review of the above demonstrates that both the signalised site access intersections onto Kings and Taylors Road, and the intersection of Kings and Taylors Road, are expected to accommodate the anticipated traffic volumes under the adopted development scenario, and based on the concept layout plans for each intersection as shown within Appendix A.

In relation to the Kings Road and Taylors Road intersections, whilst the current configuration of this intersection accommodates the anticipated traffic volumes, the Degree of Saturation is close to 1.0, indicating that the intersection is expected to operate at close to capacity, with considerable queues and delays resulting.

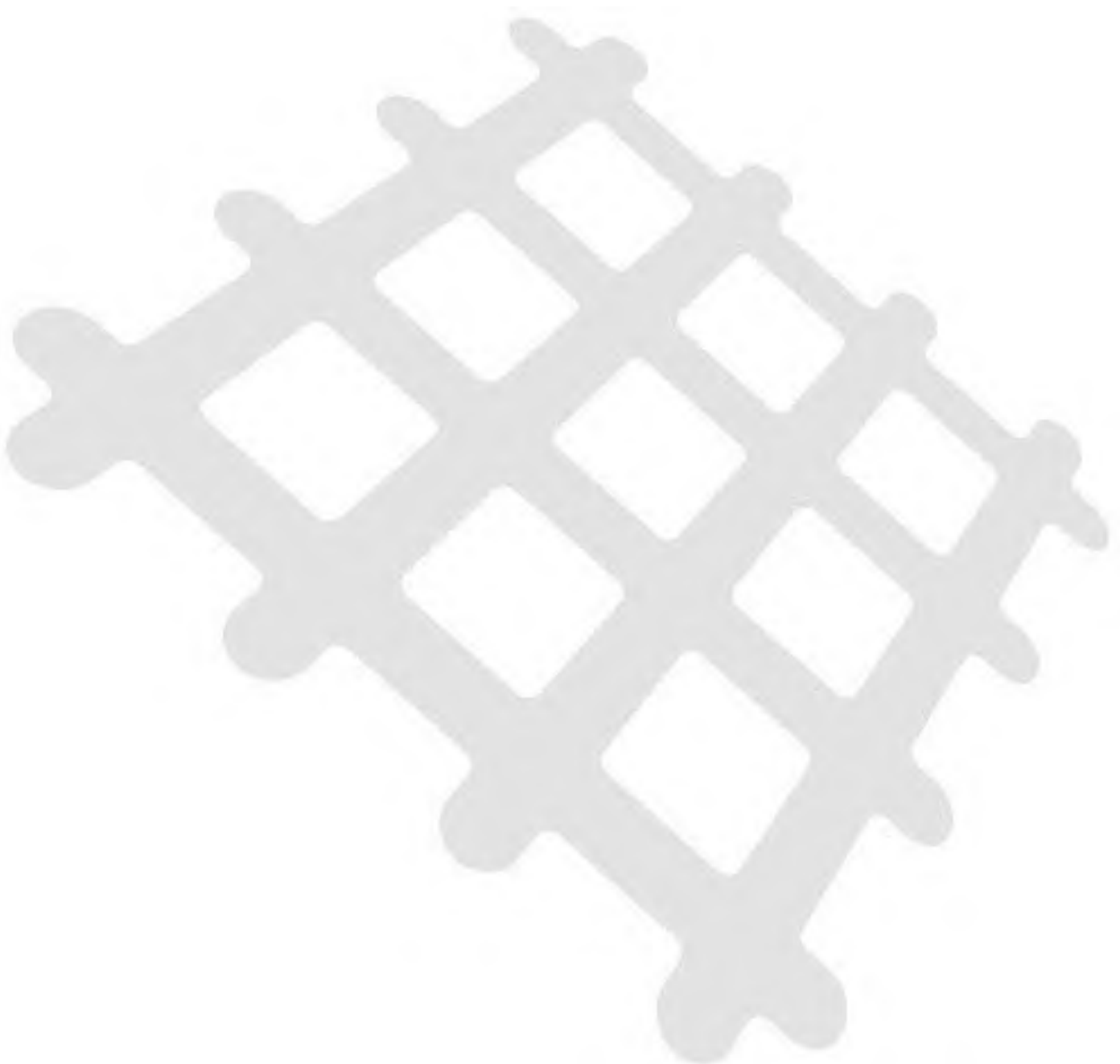
5 CONCLUSIONS

It is proposed to rezone the land at 250A Taylors Road, Delahey, to allow for future development, noting that the current rezoning request does not propose any development. It is understood that a variety of development options have been reviewed, including predominantly residential options, though with the potential for some mixed-use. A hypothetical site yield with a range in the order of 1,200 - 1,400 residential dwellings and 1,500m² of retail floor area is assumed, based upon the indicative analysis undertaken by Hassell, and has been utilised for analysis of traffic impacts.

Based on the preceding assessments, the following is concluded:

- A residential development yield in the order of 1,400 dwellings has a projected traffic generation of 11,200 daily vehicle movements and 1,120 vehicle movements during the weekday peak hour periods;
- The retail land use in order of 1,500m² is expected to generate approximately 120 vehicle trips during weekday PM and Saturday peak periods with up to 12 vehicle trips expected during AM peak periods;
- Intersection analysis identifies that both the signalised site access intersections onto Kings and Taylors Road, and the intersection of Kings and Taylors Road, are expected to accommodate the anticipated traffic volumes under the adopted development scenario, and based on the concept layout plans for each intersection; and
- Each indicative access location and the site's internal road network will need to be confirmed and informed by a dedicated traffic analysis subject to the development proposal identified at the master plan stage, and in conjunction with VicRoads and Council.

Appendix A Concept Intersection Layout Plans





SUBJECT SITE
250 TAYLORS ROAD

LEFT TURN LANE (75.0m)
DESIGNED IN ACCORDANCE WITH AUSTRROADS GUIDE TO ROAD DESIGN
PART 4A, TABLE 5.2 (& TABLE 5.1 FOR TAPER LENGTH) FOR 70KM/H

7.75 3.5 2.5 3.5 3.5 3.5 7.75
32.0

- PROPOSED LINE MARKING
- PROPOSED KERB AND CHANNEL
- PROPOSED BOUNDARY
- PROPOSED FOOTPATH
- MATCH TO EXISTING

EXISTING BOUNDARY

TAYLORS ROAD

RIGHT TURN LANE (125.0m)

REGAN STREET

FULWOOD COURT

KERRISON AVENUE



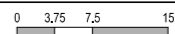
onemilegrid
TRAFFIC ENGINEERING
56 Down Street, Collingwood, VIC 3066
Email: info@onemilegrid.com.au Web: www.onemilegrid.com.au
Phone (03) 9939 8250

Drawing Title
250 TAYLORS ROAD, SYDENHAM
PROPOSED SITE ACCESS
CONCEPT LAYOUT PLAN

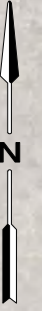
Designed RG	Approved RBH	Metway Ref 13 G8
----------------	-----------------	---------------------


Project Number 180532	Drawing Number CLP100	Revision A
--------------------------	--------------------------	---------------

Scale
1:750 @ A3



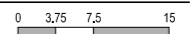
Date Plotted: 25-03-2019 12:31:31 [CAD File: N:\Projects\2018\180532\Drawings\180532CLP100.dgn]




TRAFFIC ENGINEERING
56 Down Street, Collingwood, VIC 3066
Email: info@onemilegrid.com.au Web: www.onemilegrid.com.au
Phone (03) 9939 8250

Drawing Title 250 TAYLORS ROAD, SYDENHAM PROPOSED SITE ACCESS CONCEPT LAYOUT PLAN		
Designed RG	Approved RBH	Metway Ref 13 G8
Project Number 180532	Drawing Number CLP101	Revision B

Scale
1:750 @ A3



CAD File: N:\Projects\2018\180532\Drawings\180532CLP102.dgn

Date Plotted: 26-03-2019 5:23:43 PM



onemilegrid
TRAFFIC ENGINEERING

56 Down Street, Collingwood, VIC 3066
Email: info@onemilegrid.com.au Web: www.onemilegrid.com.au
Phone (03) 9939 8250

Scale: 1:500 @ A3

Drawing Title 250 TAYLORS ROAD, SYDENHAM PROPOSED SITE ACCESS CONCEPT LAYOUT PLAN		
Designed RG	Approved RBH	Melway Ref 13 G8
Project Number 180532	Drawing Number CLP102	Revision B