North Shearwater Residential Subdivision

Wolin Pty Ltd

Traffic Impact Assessment

April 2018

SECA solution

North Shearwater

Residential Subdivision Development Application

Traffic Impact Assessment

Author: Sean Morgan

Client: Tattersall Lander Pty Ltd

Issue: Ver02/18 April 2018

Reference: P1117

18 April 2018

Quality Review and Document History

Version	Date	Description	Prepared By	Reviewed By
Ver01	14/02/18	Draft	S.Morgan	C.Thomas
Ver02	18/4/18	Final	S.Morgan	C.Thomas

SECA solution

Ground Floor, 161 Scott Street, Newcastle NSW 2300
Ph (02) 4032 7979
Central Coast 0438 754 171
www.secasolution.com.au

Contents

1. Introduction

Background

Seca Solution Pty Ltd has been commissioned by Tattersall Lander Pty Ltd, on behalf of Wolin Pty Ltd, to provide a traffic impact assessment to support the proposed development of the North Shearwater Residential subdivision off Viney Creek Road East, Tea Gardens. A development application is to be submitted to MidCoast Council as the determining road authority.

Planning Context

In preparing this document, the following guides and publications were used:

- RTA Guide to Traffic Generating Developments, Version 2.2 Dated October 2002;
- RMS Technical Direction TDT 2013/ 04a Updated traffic surveys:
- Great Lakes Development Control Plan 2015;
- Australian / New Zealand Standard – Parking Facilities Part 1: off-street car parking (AS2890.1:2004).

Proposed Development

The proposed development is stages 1-3 of the North Shearwater Residential Subdivision, to comprise 220 lots. The subject site has a road frontage to Viney Creek Road East, with all access to the initial stages of the development be provided from this road.

The site location is shown below (Figure 1).

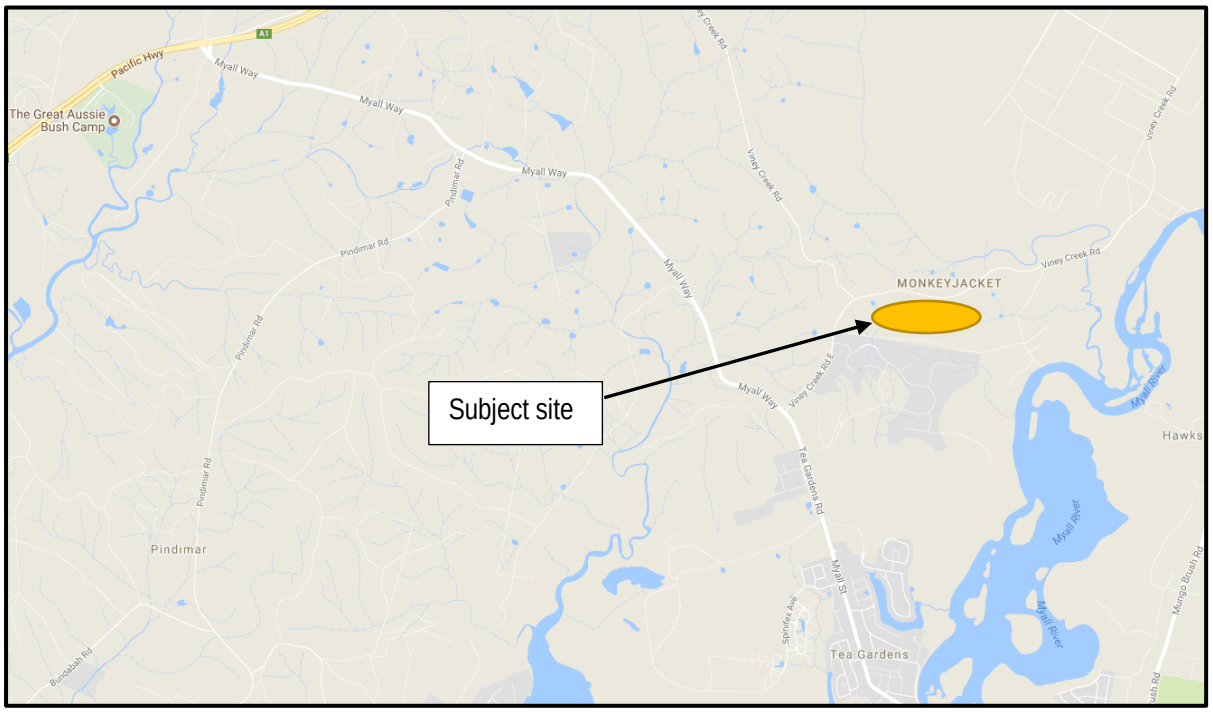


Figure 1 – Site Location

2. Traffic Impact Assessment Summary

The following assessment has been completed in accordance with Austroads Guidelines and the requirements of the RTA Guide to Traffic Generating Developments, which provide the structure for the reporting of key issues to be addressed when determining the impacts of traffic associated with a development. This guide indicates that the use of this format and checklist ensures that the most significant matters are considered by the relevant road authority.

Item	Comment
Existing Situation	
2.1 Site Location and Access	The site is located to the north of Tea Gardens Town Centre off Viney Creek Road East, with this road running along the northern boundary of the site and providing the only road frontage. It is bounded to the south by the Riverside residential development. The site is currently vacant land.
2.2.1 Road Hierarchy	The main road through the locality is Myall Way (Tea Gardens Road). It provides the road link between the locality of Hawks Nest / Tea Gardens to the east and the regional road network, being the Pacific Highway, to the west. It provides a single lane of travel in each direction and operates under the posted speed limit of 80 km/hr. Traffic flows along Myall Way are governed by seasonal demands, with significantly higher traffic movements during the summer months and over the weekends, associated with tourist traffic visiting this popular seaside centre. The intersections along its length are all priority control, with Myall Way having priority. Myall Way connects with the Pacific Highway to the west of the locality, with the Pacific Highway forming part of the regional and national road network. The intersection of Myall Way and the Pacific Highway is an at-grade intersection allowing for all turning movements with the Pacific Highway being the priority road. The Pacific Highway carries a significant volume of both regional and interstate traffic movements, forming the primary route between Sydney and Newcastle to the south and through to Queensland to the north. The Pacific Highway provides two lanes of travel in both directions with sealed shoulders allowing for cyclists and broken down vehicles. Access to the site is provided via Viney Creek Road East, which intersects with Myall Way / Tea Gardens Road at a priority controlled T-intersection, with Myall Way the priority road. In the vicinity of the subject site Viney Creek Road East / Viney Creek Road operates under the posted speed limit of 80km/hr and provides a sealed surface in the order of 6 metres wide, with no kerb or guttering. There are no pedestrian facilities or lights.
2.2.2 Current and Proposed Roadworks, Traffic Management Works and Bikeways	There are no road works or traffic management works occurring within the general locality of the subject site. Other than road maintenance work, Council have no plans for road works to occur within the general locality of the subject site. Current traffic flows are typically well within acceptable limits including during the peak summer demands when the delay and congestion remain well within acceptable limits.

<table>
<tr><th>Item</th><th>Comment</th></tr>
<tr><td></td><td>Council has updated their bike plan and there are a number of routes identified including a shared path between Myall Quays and Tea Gardens (Appendix D). Construction work for this shared path has commenced along the eastern side of the road south of Myall Quays Boulevard.</td></tr>
<tr><td>2.3 Traffic Flows</td><td></td></tr>
<tr><td>2.3.1 Daily Traffic Flows</td><td>As part of the project work, Seca Solution collected traffic data at the intersection of Myall Way / Tea Gardens Road and Viney Creek Road East to determine the current road operation and traffic volumes at this intersection. Traffic surveys were completed during the morning (7:15am to 9:30am) and afternoon (3:00pm to 5:30pm) on Tuesday 2nd February 2018, with the peak hours determined as 8:15am to 9:15am and 3pm to 4pm. The survey data is provided in Attachment C.

A summary of the current traffic flows during the peak hours is provided below in Table 2:

Table 1 - Peak Hour Traffic Flows
<table>
<tr><th colspan="2" rowspan="2">Location</th><th colspan="2">Peak Flow</th></tr>
<tr><th>AM</th><th>PM</th></tr>
<tr><td rowspan="2">Tea Gardens Road (East of Viney Creek Road East)</td><td>Eastbound (Towards Tea Gardens)</td><td>207</td><td>195</td></tr>
<tr><td>Westbound (Towards Pacific Highway)</td><td>176</td><td>223</td></tr>
<tr><td rowspan="2">Viney Creek Road East</td><td>Northbound</td><td>3</td><td>16</td></tr>
<tr><td>Southbound</td><td>11</td><td>11</td></tr>
</table>

The RMS Guide to Traffic Generating Developments provides advice on the hourly capacity of two-lane rural roads. For the peak two-way traffic flows of 418 vehicles per hour (occurring in PM peak), with rolling terrain and 5% heavy vehicles, this guide specifies a Level of Service (LoS) B, indicating that Tea Gardens Road is operating at a good level of service with plenty of spare capacity.

For Viney Creek Road East the peak vehicle movements occur in the PM peak with 27 vehicles recorded. Given the very low flows in this location it operates at the highest LoS for rural roads (B).

Typically, peak hour flows represent, on average, some 10% of daily traffic flows. The daily flows along Viney Creek Road East would be in the order of 200 vehicles per day. For Tea Gardens Road daily flows would be in the order of 4,000 vehicles per day.</td></tr>
<tr><td>2.3.2 AADT</td><td>No AADT data available in the locality.</td></tr>
<tr><td>2.3.3 Daily Traffic Flow Distribution</td><td>As indicated by the AM and PM counts outlined above, daily traffic movements are reasonably balanced in both directions along Myall Way / Tea Gardens Road. There was a slight bias in vehicles travelling eastbound in the AM, with the reverse occurring in the PM.

Along Viney Creek Road East the majority of vehicle movements in the AM were southbound left turns towards Tea Gardens, with the reverse occurring in the PM, being right turns in off Tea Gardens Road.</td></tr>
</table>

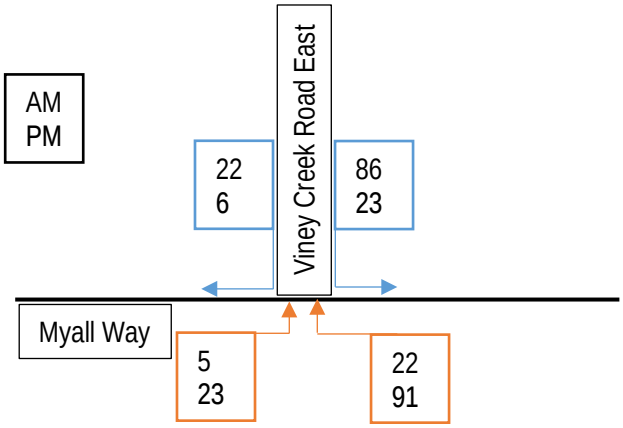
Item	Comment
2.3.4 Vehicle Speeds	No speed surveys were completed as part of the study work.
2.3.5 Existing Site Flows	The subject site is vacant and as such currently generates no traffic.
2.3.6 Heavy Vehicle Flows	During the peak hour traffic surveys, heavy vehicle volumes accounted for 8% of the traffic movements (29 total movements) at the intersection in the AM peak and 6% in the PM peak (22 total movements). Of these only 1 heavy vehicle was observed to travel along Viney Creek Road East.
2.3.7 Current Road Network Operation	Observations on site during the traffic surveys show that the intersection operates well, with minimal delays for road users. Drivers turning in /out of Viney Creek Road East are able to utilise regular gaps in the flow of traffic to complete these turn movements.
2.4 Traffic Safety and Crash History	Crash data provided by the RMS indicates that this is not an area of high risk. During the five-year period up to the end of 2016 there were no accidents recorded in close proximity to the intersection of Myall Way/Tea Gardens Road/Viney Creek Road East. One accident occurred along Viney Creek Road relating to a vehicle going off the road on a bend. The accident data obtained from the RMS is provided in Attachment B.
2.5 Parking Supply and Demand	
2.5.1 On-street Parking Provision	There are no sealed shoulders along Viney Creek Road East, with minimal road reserve available for vehicles to pull over in the case of an emergency.
2.5.2 Off-street Parking Provision	The subject site is currently vacant with minimal surrounding infrastructure. There is no off-street parking provided within the vicinity.
2.5.3 Current Parking Demand and Utilisation	There is no demand for on-street parking in the locality with any parking demands contained within rural lots.
2.5.4 Short term set down or pick up areas	There are no dedicated drop off zones in the locality of the subject site.
2.6 Modal Split	Given the semi-rural nature of the location it is considered that the vast majority of residents will rely on private vehicle use.
2.7 Public Transport	
2.7.1 Rail Station Locations	The area is not serviced by trains.
2.7.2 Bus Stops and Associated Facilities	Bus facilities are limited in the vicinity of the site.
2.7.3 Transport Services	There are no public transport services operation along Viney Creek Road East, reflecting the limited demand for public transport in the locality. There are two bus services that travel through the Tea Gardens area which are provided by busways: • 152 - Newcastle to Hawks Nest (via Raymond Terrace, Karuah and Tea Gardens): This service runs once a day in each direction Monday to Friday (excluding public holidays) • 150 - Newcastle to Taree (via Raymond Terrace, Karuah, Tea Gardens and Forster): This service operates daily with one service in each direction, with an additional service in each direction provided Monday to Friday.

Item	Comment
2.8 Pedestrian Network	The pedestrian demands in the locality are negligible, given the proximity of the subject site to the Tea Gardens Town Centre and the low number of dwellings. Pedestrian facilities are limited within the general locality of the subject site with pedestrians able to walk along the road verge as required.
2.9 Other Proposed Developments	There is approved zoning for the masterplan Riverside development, to the south of the subject site. This development could allow for up to 935 dwellings over the course of the staged development. Included in the proposal is the potential for future road links, including a link through to the North Shearwater Estate development.
The Development	
3.1.1 Nature of Development	The masterplan for North Shearwater Estate allows for a staged residential subdivision, to occur over 6 stages. This assessment is only to provide for stages 1-3, being 220 lots. Future stages 4-6 will be to the east of the initial stages for the development and will include an internal connection to the ongoing Riverside development to the south. These shall be assessed as part of a separate Development Application.
3.1.2 Access and Circulation Requirements	All vehicle access for this development will be provided off Viney Creek Road East and Viney Creek Road, with four access points allowing for all turning movements. The design of the internal road layouts shall meet the requirements of the Great Lakes DCP ensuring that all vehicles will enter and exit the site in a forward direction.
3.2 Access	Four access roads will be provided for connection to the subdivision, with two located off Viney Creek Road East with a further two off Viney Creek Road. The first of these access roads on Viney Creek Road East is located 110 metres north of the existing Gannet Place intersection. There is a further access located 80 metres to the north of the initial access road. The third access is located on Viney Creek Road, 65 metres north east of the junction where Viney Creek Road East terminates. The final access is located a further 515 metres east along Viney Creek Road. There is adequate spacing between the proposed and existing intersections to alleviate any conflicts between turning movements.
3.2.1 Driveway Location	The driveway location to the individual lots will be determined and designed during the development application stage for each of the individual lots and will take into account the requirements of the Council design code.
3.2.2 Sight Distances	Sight distance has been assessed against the requirements outlined in the Austroads Guide to Road Design Part 4A. The intersection of Viney Creek Road East and Myall Way / Tea Gardens Road has been reviewed, with the critical requirement being Safe Intersection Sight Distance (SISD). For the posted speed limit of 80km/hr along Myall Way/Tea Gardens Road, a sight distance of 181 metres is nominated in each direction out of Viney Creek Road East.

Item	Comment
	Sight distance to the right has been measured on sight with 116 metres available, whilst visibility to the left has been determined as 200 metres. As such the Austroads requirement is satisfied to the left. Visibility to the right of 116 metres is however less than the desired SISD of 181 metres. The Road Design Guide provides values for stopping sight distances, which is the minimum distance required for an average driver to react and stop prior to reaching an object in the vehicle path. For the 80km/hr speed limit a total stopping distance of 100 metres is required. This distance is available on the eastbound and westbound approach to the intersection, providing sufficient reaction time for a vehicle to avoid a collision at this intersection if required. Turning movements out of Viney Creek Road East are assisted by the road layout and geometry. Vehicles approaching the intersection from the west are required to navigate a steep hill and bend on the approach to the intersection, with the potential for vehicles to travel below the posted 80km/hr speed limit in this location. There is a dedicated left turn lane on the approach to Viney Creek Road East with an acceleration lane for left turns out of Viney Creek Road onto Tea Gardens Road. There is also a short acceleration lane provided to assist the right turn out. This short lane also allows for the right turn movement to be completed in two steps if necessary, with sufficient area for a vehicle to hold after crossing the eastbound through lane, prior to joining westbound traffic. The posted speed limit along Viney Creek Road is 80 km/h, with the existing road along the boundary of the subject site providing a good vertical alignment. The proposed access locations for the development are to be designed to ensure appropriate visibility is maintained to allow for the safe operation of these intersections. For the internal road network, the design is to be in accordance with Council design requirements which ensures that visibility is available at each of the intersections to ensure safe and appropriate traffic movements.
3.2.3 Service Vehicle Access	As a residential development there will not be a high demand for servicing of the site. There will be a requirement for regular access for Council refuse collection vehicles as well as occasional large delivery vehicles. As the internal roads and access will be designed in accordance with Council requirements these will cater for the movements of such large service vehicles as well as fire appliances.
3.2.4 Queuing at entrance to site	No vehicle queues expected at site entry / exit point. Relatively low traffic demands associated with the future development and on the adjacent road network.
3.2.5 Comparison with existing site access	The site currently has a gated access to the south of the property. This access shall be maintained with three additional accesses to be provided.
3.2.6 Access to Public Transport	Public transport (bus services) are available along Tea Gardens Road/Myall Way. This is however more than one kilometre from the proposed development.
3.3 Circulation	

Item	Comment
3.3.1 Pattern of circulation	All vehicles will be able to enter and exit the site in a forward direction from the local road network. The internal site layout is to be designed at the detailed design stage in accordance with Council requirements. The concept plan indicates that vehicles shall be able to circulate through the development with internal roads eventually connecting the various stages of the subdivision.
3.3.2 Internal Road width	All internal roads will be designed in accordance with Council requirements, allowing for two-way traffic movements as required.
3.3.3 Internal Bus Movements	The current bus services and routes within the general locality of the subject site are limited, with no services along Viney Creek Road East. It is not anticipated the development will have a demand for internal bus movements. As the roads are being designed in accordance with Council requirements and as waste vehicles can circulate through the subdivision it is anticipated that buses could access the subdivision along the internal roads if required.
3.3.4 Service Area Layout	No dedicated service area is required for a residential subdivision, with occasional service vehicles able to park on the roads outside the specific dwellings as required.
3.4 Parking	
3.4.1 Proposed Supply	The parking for the development will be provided in accordance with Council requirements and will be assessed in conjunction with individual DAs.
3.4.2 Authority Parking	Council DCP requirements are: • A dwelling with a floor area equal to or less than 125m^2 must be provided with a minimum of one covered car parking space. • A dwelling with a floor area great than 125m^2 must be provided with a minimum of two spaces, at least of one of which must be covered.
3.4.3 Parking Layout	Driveways and parking to be designed and constructed in accordance with DCP requirements.
3.4.4 Parking Demand	Normal parking demands will be accommodated on site in accordance with DCP requirements. All parking shall be able to be contained within the site with no impact on the external road network.
3.4.5 Service Vehicle Parking	No dedicated service vehicle parking required.
3.4.6 Pedestrian and Bicycle Facilities	Pedestrians and cyclists will be provided for on the internal road links. The Council design guide requires a footpath to be provided on one side of future roads to cater for pedestrian movements. This will allow pedestrians to move safely around the subdivision as well as gain access to the wider network. Cyclists will be accommodated on road with potential for off road paths to connect to future adjacent residential subdivisions.
Traffic Assessment	

Item	Comment
4.1 Traffic Generation	When determining the potential volume of traffic generated by the development, it is important to review the mix of residents that live within the Hawks Nest / Tea Gardens area. A significant portion of the dwellings are used for holiday and weekend use only. Retired people (60yo+) make up 57.9% of the residents in the Tea Gardens area based on 2016 Census data (source: profile.id.com.au), with older workers and pre-retirees making up a further 12.1%. By comparison workers between the ages of 25 – 50yo only constitute 15% of the local residents. This is consistent with the limited work opportunities within the area although it is noted that the vast majority of people who live in this area also work in the Great Lakes Council area, although not necessarily in Tea Gardens or Hawks Nest. The trip generation rate should be discounted from the standard rate, to allow for this level of retired residents, holiday use and trip containment. The RMS updated guide to residential development provides the following rates for peak periods: • Evening peak hour rate of 0.78 per dwelling • Morning peak hour rate of 0.71 per dwelling • Housing for seniors rate of 0.4 per dwelling No rates are provided for holiday lets / weekend use. Assuming a conservative approach of 33% of the lots being occupied by retired people and the balance being typical residential lots, this would give a composite rate of 0.61 trips per lot in the AM peak and 0.65 trips per lot in the PM peak. Although it is recognised that trips associated with retirees do not typically coincide with the AM peak, these trips have been included in this calculation to provide for a robust assessment. Applying the above rates to the proposed 220 lots gives: • 135 vehicles per hour in the AM • 143 vehicles per hour in the PM The RMS updated guide indicates a daily rate of 7.4 trips per dwelling for regional centres and a rate of 2.1 vehicle trips per dwelling for seniors. Applying the same split of housing as above would give a composite rate of 5.7 daily trips per dwelling, equating to 1254 vehicles per day.
4.1.1 Daily and Seasonal Factors	The locality of Tea Gardens and Hawks Nest generate significant weekend / holiday use, with reduced movements outside of these periods. For permanent residents living in this location there will be no seasonal variation in traffic flows. This locality is traditionally busiest over the summer months and weekends with much lower traffic flows outside of these periods. No discount in traffic flows has been allowed for holiday use.
4.1.2 Pedestrian Movements	Pedestrian movements would be relatively low, given the proximity of the subject site to commercial and retail developments.

Item	Comment
4.2 Hourly distribution of trips	Typical residential development sees peak demands relating to the AM and PM peak periods. A number of trips for this development will occur throughout the working day given the high percentage of retirees in the area, with these evenly distributed. The RMS Guide to Traffic Generating Developments acknowledges that retirees' trips typically coincide with the PM peak but not the AM commuter peak.
4.2.1 Origin / destinations assignment	Although there is the opportunity for drivers to travel north-west along Viney Creek Road to connect with the Pacific Highway, this road is unsealed for the majority of its length and does not carry a high volume of traffic. It is considered that this route would generally have less appeal to drivers. For the purposes of this assessment therefore all vehicle movements associated with the development have been assumed to utilise the intersection of Myall Way/Tea Gardens Road and Viney Creek Road East to connect between the subject site and the broader road network. Given the demographics of the area and the high number of residents likely to be retirees (based on census data), the majority of traffic has been assumed to have an origin / destination to the east of the intersection towards Tea Gardens. The demand for westbound travel will relate to residents who work away from the area, accessing the Pacific Highway for connection to employment to the north and south. Traffic has been assigned as: • Eastbound 80% • Westbound 20% Allowing a standard 80/20 split for residential traffic outbound in the morning and the reverse in the evening, will see the following traffic distribution in the AM and PM peak periods: 
4.3 Impact on Road Safety	A review of the accident data shows there has been no accidents recorded at this intersection in the period between 2011 – 2016 indicating that the intersection currently operates well and in a safe manner. As part of the site work it was noted that the current layout does not allow for full sight distance for drivers looking right out of Viney Creek Road East. The distance measured was 116 metres which is less than the minimum sight distance requirement of 170 metres for the posted speed

Item	Comment
	limit of 80 km/h in this location. The distance of 116 metres exceeds the stopping sight distance requirement for 80 km/h (100 metres) which would allow a driver approaching the intersection on Myall Way to observe a vehicle pulling out of the side road and brake to a halt if required to avoid a collision. It is considered that drivers in this location westbound on Myall Way travel below the posted speed limit, as prior to this point there is a tight bend with an advisory speed limit of 55 km/h which also occurs at the commencement of the steep uphill section which further reduces vehicle speeds, especially heavy vehicles and light vehicle / trailer combinations. For the right turn into Viney Creek Road East, the sheltered turn lane ensures any vehicle waiting to turn right into the side road will not impact upon the through traffic movements. Drivers approaching this turn will be able to adjust their vehicle speed so that they complete the right turn into this side road without the need to stop, due to the low traffic flows westbound along Myall Way. It is considered that the additional traffic movements in and out of Viney Creek Road East at this location will not have a significant impact upon the overall road safety at this location. Allowing for the additional right turning traffic from Viney Creek Road East it is considered the intersection can continue to operate at its current standard. With regard to the site access points, these will be designed and constructed in accordance with the road authority requirements and hence road safety will be maintained. Given the very low vehicle movements in this location it is considered that the four new site accesses onto Viney Creek Road East and Viney Creek Road will be able to operate in a safe and efficient manner.
4.4 Impact of Generated Traffic	
4.4.1 Impact on the capacity of the existing road network.	The development is expected to generate around 143 total trips in the PM peak hour, while daily traffic movements associated with the development could be in the order of 1,254 per day. Allowing for these vehicles to travel along Viney Creek Road East, the existing PM peak hour flows (27 vehicles) could increase by 143 vehicles to 160 vehicles per hour. Under the RMS Guide this will see Viney Creek Road East maintain the highest LoS (B) available for rural roads. The current traffic volumes along Tea Gardens Road towards Tea Gardens Town Centre vary between 383 and 418 vehicles per hour in the peak periods or around 4,000 vehicles per day. Allowing for the above distribution Tea Gardens Road, east of Viney Creek Road East would increase by 114 vehicles in the PM peak. This equates to peak two-way flows of 532 vehicles corresponding to LoS C (760 vph) under the RMS Guide for rolling terrain with 5% heavy vehicles.
4.4.2 Peak Hour Impacts on Intersections	The critical intersection in relation to this development is Myall Way / Tea Gardens Road and Viney Creek Road East. The operational performance of this intersection has been assessed for the following scenarios: • Existing situation (2018) based on surveyed traffic flows; • 2018 traffic flows with full development of the subject site;

Item	Comment
	• Future design year (2028) allowing for growth along Myall Way / Tea Gardens Road. The results of this assessment are provided following this table.
4.4.3 Impact of Construction Traffic	The majority of the construction work will be contained within the site so minimal impact upon the external road network. There will be a requirement for construction machinery to access the site and traffic associated with workers. A Traffic Management Plan (TMP) will be required for work on site and to provide access controls. This will be completed as part of the construction certificate by the contractor on site. During the construction of the site access there will be a need to manage traffic flows along Viney Creek Road East and Viney Creek Road with a Traffic Control Plan for this work to be prepared as part of the TMP.
4.4.4 Other Developments	The ongoing staged development of the Riverside residential to the south of the subject site allow up to 935 lots in total. Staging of this is determined by demand in the area.
4.5 Public Transport	
4.5.1 Options for improving services	Limited options specific to this site, with low demand for these services.
4.5.2 Pedestrian Access to Bus Stops	Given the rural location of the development there is no requirement for pedestrian access to bus stops which are more than 800m from the subject site.
4.6 Recommended Works	
4.6.1 Improvements to Access and Circulation	None required over that proposed.
4.6.2 Improvements to External Road Network	None required.
4.6.3 Improvements to Pedestrian and Cyclist Facilities	Given the location of the development and its distance to shops and services there is no improvement required to pedestrian facilities along Viney Creek Road East. The existing cycle network is considered adequate for the subject site.
4.6.4 Effect of Recommended Works on Adjacent Developments	No impact on adjacent development.
4.6.5 Effect of Recommended Works on Public Transport Services	Nil
4.6.6 Provision of LATM Measures	None required
4.6.7 Funding	All internal works are to be funded by the developer.

<u>SIDRA assessment – Intersection of Myall Way/Tea Gardens Road and Viney Creek Road East</u>

The key intersection of Myall Way/Tea Gardens Road and Viney Creek Road has been assessed with SIDRA, based on the traffic data collected by Seca Solution for the critical morning and afternoon peak periods. The traffic flows associated with the proposed development have been assigned in accordance with Section 4.2.1 above, the volume of traffic has been applied as per Section 4.1 above.

Three scenarios have been assessed:

- Existing situation (2018) based on surveyed traffic flows;
- 2018 traffic flows with full development of the subject site;
- Future design year (2028) allowing for growth along Myall Way / Tea Gardens Road.

The results of the SIDRA analysis are presented below:

Table 2 – SIDRA results, AM / PM peak existing flows 2018

Approach	Movement	Level of service	Delay (seconds)	Queue (metres)
East: Tea Gardens Road	Through	A / A	0.0 / 0.0	0.0 / 0.4
	Right	A / A	6.3 / 6.4	0.0 / 0.4
North: Viney Creek Road East	Left	A / A	5.7 / 5.5	0.1 / 0.0
	Right	A / A	8.5 / 8.8	0.1 / 0.0
West: Myall Way	Left	A / A	5.5 / 5.5	0.0 / 0.0
	Through	A / A	0.0 / 0.0	0.0 / 0.0

As seen above the intersection currently operates at the highest LoS for all turning movements, with minimal delays and congestion.

The intersection was then modelled to include the development traffic.

Table 3 – SIDRA results, AM / PM peak existing plus development 2018

Approach	Movement	Level of service	Delay (seconds)	Queue (metres)
East: Tea Gardens Road	Through	A / A	0.0 / 0.0	0.0 / 0.0
	Right	A / A	6.3 / 6.5	0.6 / 2.8
North: Viney Creek Road East	Left	A / A	5.7 / 5.5	0.1 / 0.4
	Right	A / A	8.7 / 10.1	0.1 / 0.4
West: Myall Way	Left	A / A	5.5 / 5.5	0.0 / 0.0
	Through	A / A	0.0 / 0.0	0.0 / 0.0

The above results show that the intersection will continue to operate at the highest LoS with the additional traffic generated by the development.

As per normal RMS requirements, the intersection was then assessed with background traffic growth on Myall Way / Tea Gardens Road for the future design year of 2028 (plus 10 years). A background growth value of 20% has been applied (2% per annum), consistent with normal RMS requirements. The results of the SIDRA assessment for the future design year are shown below.

Table 4 - SIDRA results, AM / PM peak existing plus development plus background growth 2028

Approach	Movement	Level of service	Delay (seconds)	Queue (metres)
East: Tea Gardens Road	Through	A / A	0.0 / 0.0	0.0 / 0.0
	Right	A / A	6.5 / 6.7	0.6 / 2.9
North: Viney Creek Road East	Left	A / A	5.7 / 5.5	0.2 / 0.4
	Right	A / A	9.6 / 11.3	0.2 / 0.4
West: Myall Way	Left	A / A	5.5 / 5.5	0.0 / 0.0
	Through	A / A	0.0 / 0.0	0.0 / 0.0

The SIDRA analysis above shows that the existing intersection of Myall Way / Tea Gardens Road and Viney Creek Road East can continue to operate to a satisfactory level with minimal delays and congestion for the future design year of 2028.

Site Photos

Photo 1 - Myall Way looking right (west) from Viney Creek Road East showing sight distance

Photo 2 Myall Way looking left (east) from Viney Creek Road East showing sight distance

Photo 3 - Cross section of Viney Creek Road East looking southbound (Subject site located on the right)

Photo 4 - Cross section of Viney Creek Road East to the north of the intersection with Myall Way/Tea Gardens Road

3. Conclusion

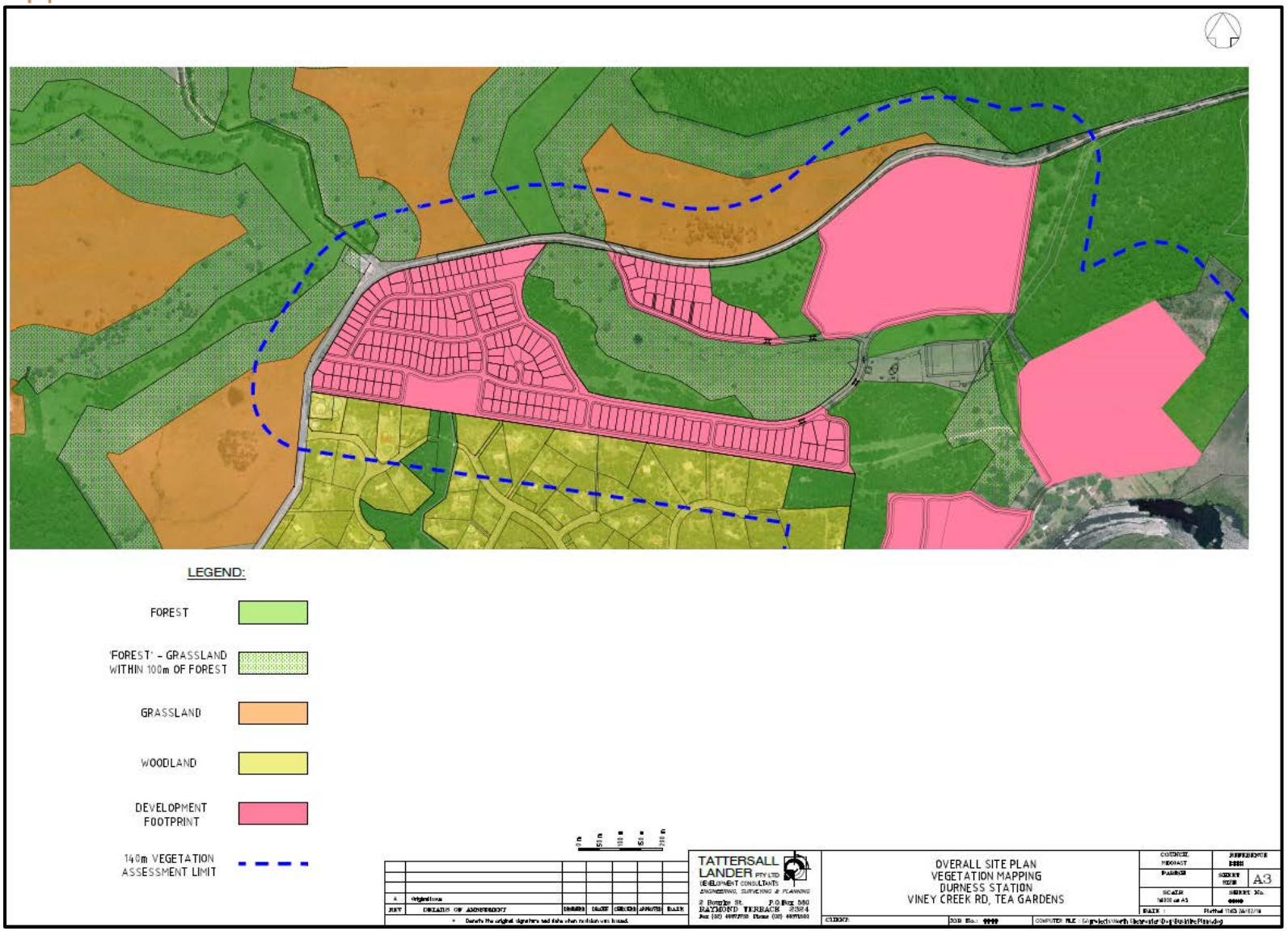
The subject site provides for a proposed residential subdivision consisting of 220 lots located 2.5 kilometres to the north-east of Tea Gardens Town Centre. Access to the site is proposed from Viney Creek Road East and Viney Creek Road. The internal roads for the subdivision shall be designed in accordance with council requirements ensuring appropriate circulation.

The development of individual dwellings and associated parking shall be subject to individual DAs.

The intersection of Myall Way/Tea Gardens Road and Viney Creek Road East has been assessed using Sidra, accounting for additional traffic movements generated by the development as well as 2% growth along Myall Way with a design horizon of ten years (2028). The increased flows were found to have a minimal impact upon the local road network, with all turning movements maintaining a Level of Service A. Allowing for the additional right turning traffic from Viney Creek Road East it is considered this intersection can continue to operate at its current safety standard.

From the site work completed and a review of the development proposal against the requirements of the RMS Guide to Traffic Generating Developments, it is considered that the proposal should be approved on traffic and access grounds.

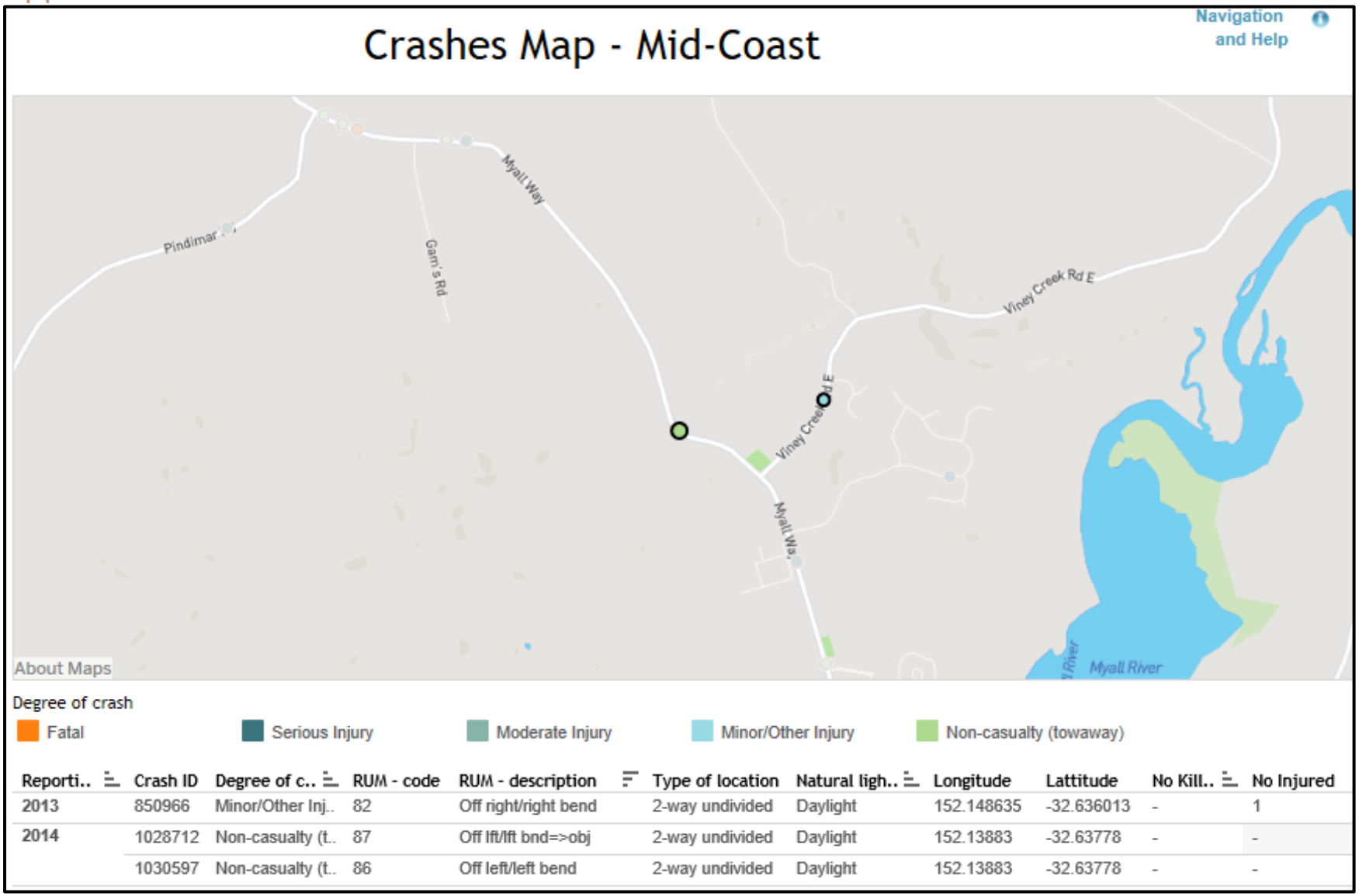
Appendix A Site Plan



TATTERSALL LANDER PTY LTD
DEVELOPMENT CONSULTANTS
ENGINEERING, SURVEYING & PLANNING

OVERALL SITE PLAN
DURNESS STATION RESIDENTIAL SUBDIVISION
LOT 2 DP 1154170
VINEY CREEK ROAD, NORTH SHEARWATER

Appendix B Crash Data



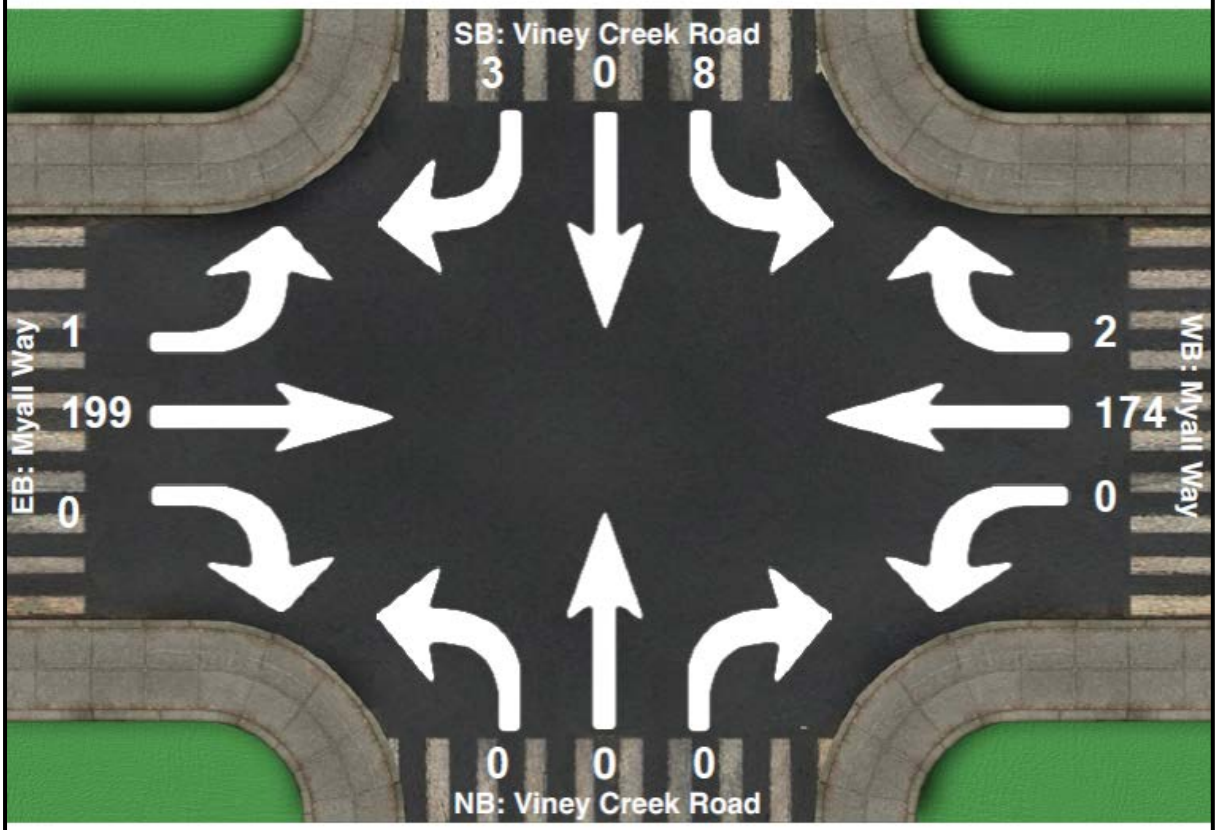
Reporti..	Crash ID	Degree of c..	RUM - code	RUM - description	Type of location	Natural ligh..	Longitude	Lattitude	No Kill..	No Injured
2013	850966	Minor/Other Inj..	82	Off right/right bend	2-way undivided	Daylight	152.148635	-32.636013	-	1
2014	1028712	Non-casualty (t..	87	Off lft/lft bnd=>obj	2-way undivided	Daylight	152.13883	-32.63778	-	-
	1030597	Non-casualty (t..	86	Off left/left bend	2-way undivided	Daylight	152.13883	-32.63778	-	-

Appendix C Traffic Survey Results

AM Peak

Intersection Peak Hour

Location: Viney Creek Road at Myall Way,
GPS Coordinates:
Date: 2018-02-06
Day of week: Tuesday
Weather:
Analyst: TM



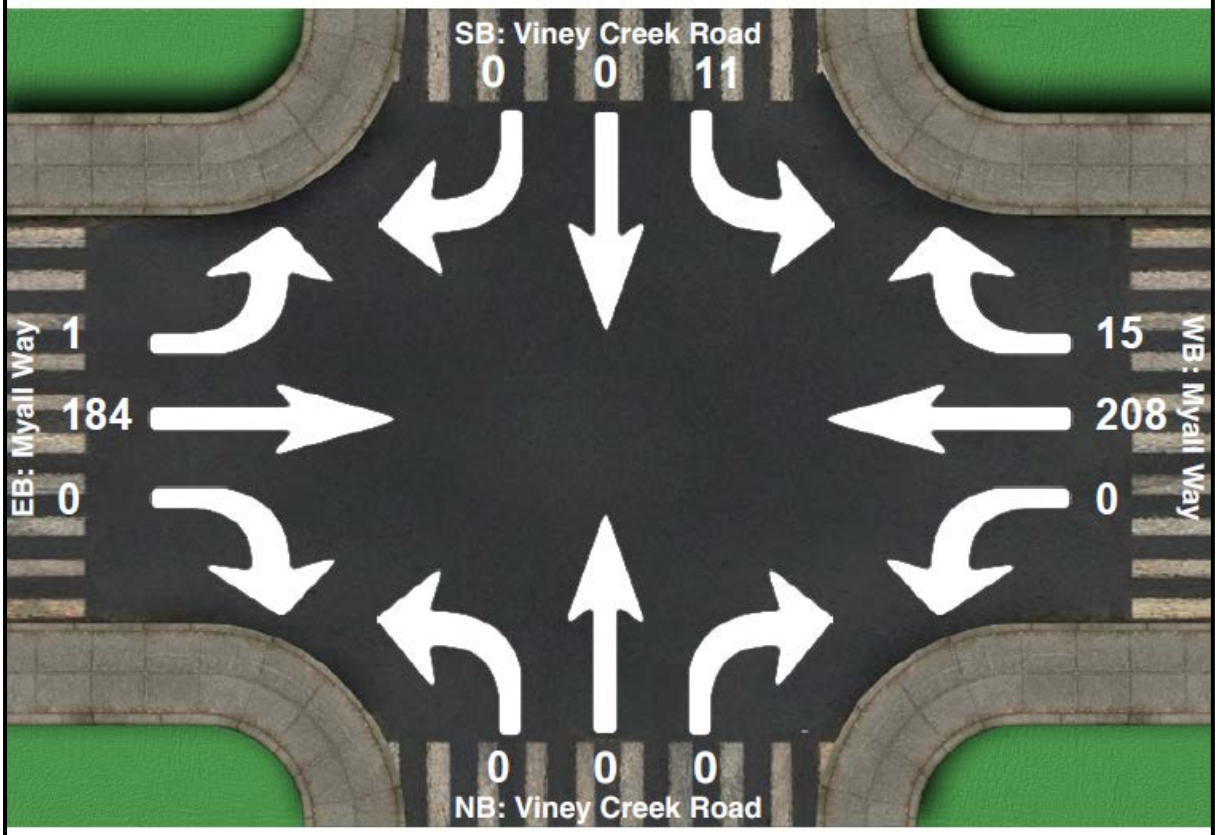
Intersection Peak Hour

08:15 - 09:15

PM Peak

Intersection Peak Hour

Location: Viney Creek Road at Myall Way,
GPS Coordinates:
Date: 2018-02-06
Day of week: Tuesday
Weather:
Analyst: TM



Intersection Peak Hour

15:00 - 16:00

Appendix D Tea Gardens Cycleway Map