

**TRAFFIC  
ASSESSMENT  
REPORT  
FOR  
PROPOSED  
RETIREMENT VILLAGE**

**BURTON ROAD**

**MOUNT HUTTON**

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## 1.0 INTRODUCTION

The purpose of this Traffic Assessment Report is to examine potential traffic impacts of a proposed Retirement Village development at Mount Hutton.

The proposed development involves the change of use of two existing residential sites to provide a Retirement Village on Burton Road, Mount Hutton.

The proposed Retirement Village will be known as "Eleebana Shores".

## 2.0 LOCALITY DIAGRAM



### **3.0 EXISTING USE OF SITE**

The existing site contains two residential dwellings and several other structures and facilities. The site also has several trees and shrubs and landscaping.

### **4.0 TRAFFIC ENVIRONMENT ON BURTON ROAD**

Burton Road is a local road under the control of Lake Macquarie City Council.

Burton Road is generally west of the site and oriented generally north-south past the site.

Burton Road has relatively low gradients near the site with a slight general uphill gradient towards the north just north of the site.

There is existing street lighting on Burton Road.

The existing speed zone on this section of Burton Road is 50km/h.

There is kerb and gutter along both sides of Burton Road for much of the frontage of the site, and mountable kerb and gutter along both sides generally south of Glad Gunston Drive.

Burton Road has residential properties in the vicinity of the site, with a restaurant and accommodation cabins immediately south of the site. There is a pre-school on the corner of Glad Gunston Drive and Burton Road.

Burton Road has bus stops on both sides just north of the junction with Glad Gunston Drive. The southbound bus stop is indented from the through-lane.

The northbound lane on Burton Road is approximately 6.0 metres wide and the southbound lane on Burton Road is approximately 5.2 metres wide in the vicinity of the development.

### **5.0 TRAFFIC ENVIRONMENT ON GLAD GUNSTON DRIVE**

Glad Gunston Drive is a local road aligned generally east-west just south of Burton Road connecting with Burton Road at its eastern end and Macquarie Drive at its western end.

There is mountable kerb and gutter along both sides of Glad Gunston Drive in the vicinity of the site.

Glad Gunston Drive has a carriageway width of approximately 10.5 metres. Glad Gunston Drive provides access for residential properties along its length.

There is street lighting on Glad Gunston Drive and there is linemarking along its length.

There are paved footpaths along both sides of Glad Gunston Drive.

There is centerline marking along Glad Gunston Drive.

There is a sheltered right-turn lane for northbound traffic to turn right into Burton Road.

## 6.0 TRAFFIC VOLUMES ON BURTON ROAD AND GLAD GUNSTON DRIVE

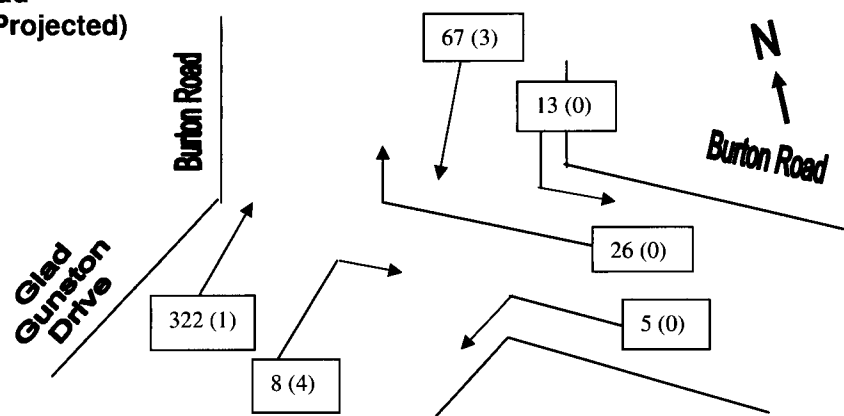
Traffic surveys were conducted at the junction of Burton Road and Glad Gunston Drive on Wednesday 31 March 2010, between 7.30am and 9.30am and also between 3.30pm and 5.30pm.

Peak hourly volumes during the above survey periods were found to occur between 7.45-8.45am, and also between 4.30pm and 5.30pm.

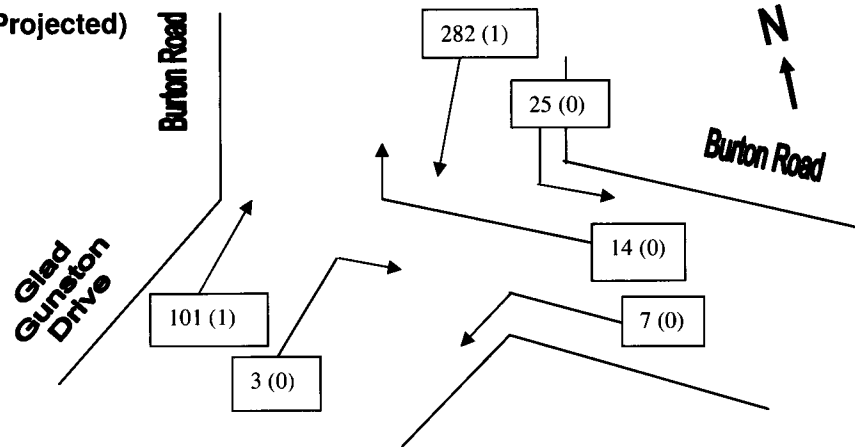
The peak hourly volumes on Burton Road during the above survey periods are shown diagrammatically below:

Traffic volumes on Burton Road since the 2010 surveys are unlikely to alter significantly because of the extent of existing development. The 2010 traffic volumes have therefore been increased by 3% to represent an average annual traffic growth rate of 1%.

### Burton Road AM (2013 Projected)

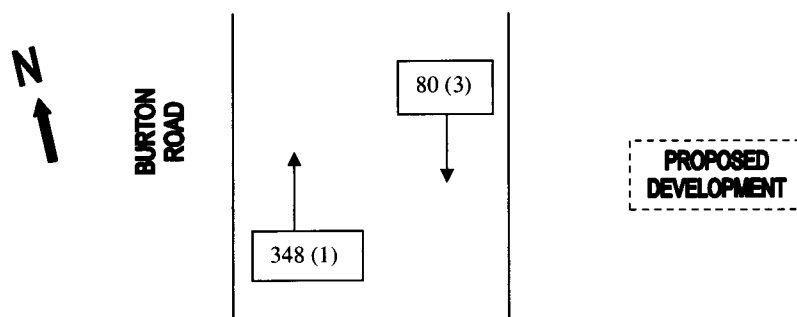


PM (2013 Projected)

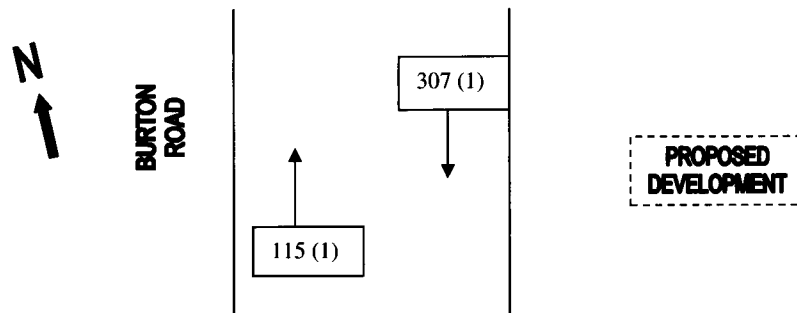


Traffic volumes along the frontage of the proposed development are as shown in the following diagrams.

AP Peak



PM Peak



NOTE: Numerals in brackets represent heavy vehicle volumes

## **7.0 PROPOSED DEVELOPMENT**

The proposed development will remove the existing residential dwellings and other improvements to provide 104 residential dwellings, a recreation centre, and an indoor lap pool. The proposed Retirement Village will be appropriately landscaped.

Internal access roads will provide a loop road and other access roads to provide access to all dwellings and facilities. The main loop road will be one-way operation with a short section of two-way operation.

Access roads will have a 6 metre wide carriageway. The carriageway widths comply with the recommendations in AS 2890.1 – 2004.

Traffic calming devices will consist of raised humps as specified in AS 1742.13 – 2009.

## **8.0 SERVICING REQUIREMENTS**

The proposed Retirement Village development will require negligible servicing.

The occasional servicing requirements would consist of:

- ♦ Building maintenance;
- ♦ Lawn and garden maintenance;
- ♦ Garbage removal.

Garbage will be transported to a central collection point using a small vehicle with trailer and a garbage truck will access the central collection point.

There will also be some minor servicing of the community building to provide deliveries for the kitchen / clubhouse. These deliveries would not require a service larger than a small van or pantech.

## **9.0 PARKING PROVISION**

Lake Macquarie City Council's DCP 1 Revision 9 defers to SEPP Seniors Living car parking requirements for accommodation for people aged over 55 or people with disabilities.

This development is lodged under the SEPP Seniors Living legislation - the parking requirements as per the SEPP Seniors Living are:

#### Parking

- (i) 0.5 spaces for each bedroom where the development application is made by a person other than the Department of Housing or a local government or community housing provider, or
- (ii) 1 space for each 5 dwellings where the development application is made by, or is made jointly with, the Department of Housing or a local government or community housing provider

There are no specific parking requirements for recreation centres at SEPP Seniors Living development as they are a component of the overall development.

The proposed development will provide 104 residential units, each to contain 2 bedrooms. The parking requirement is therefore:

#### Residential Dwellings

104 x 2 bedrooms @ 0.5 spaces per bedroom → 52 car spaces

#### Visitors

The current SEPP Seniors Living legislation does not require visitor parking. However, visitor parking will be provided.

Total SEPP Seniors Living Car Parking Requirement → 52 Spaces

It is proposed that 109 garages will be provided, 36 basement spaces to the apartments and 9 visitor spaces will also be provided. One space will also be provided for a mini-bus to be located adjacent to the maintenance shed.

There will also be 1 car spaces for the caretaker's residence which is to be located on the upper floor of the recreation centre. The caretaker's parking space will be located on the northern side of the recreation centre.

The car parking provision will considerably exceed the SEPP Seniors Living requirement.

## **10.0 PUBLIC TRANSPORT ACCESSIBILITY**

Newcastle Buses and Ferries currently operate Route 310 along Burton Road.

Bus Route 310 operates between Belmont, Belmont Hospital, Valentine, Eleebana, Mount Hutton, Charlestown, Merewether, The Junction and Newcastle.

Bus Route 310 operates past the site with 6 morning services towards Newcastle Monday to Friday between approximately 6.12am and noon and 11 services between 12.05pm and 9.26pm Monday to Friday. There are another 5 services

from Newcastle Monday to Friday between approximately 7.26am and noon and 14 services between 12.33pm and 3.08am.

There are 5 inward services on Saturdays between approximately 7.05am and 11.01am and 12 inward services between approximately 12.01pm and 10.53pm, and 5 return services on Saturdays between approximately 7.59am and 11.59am and 13 return services between approximately 12.59pm and 3.07am.

There are 5 inward services on Sundays and Public Holidays between approximately 7.53am and 11.53am and 9 inward services between approximately 12.53pm and 8.48pm, and 4 return services on Saturdays between approximately 9.24am and 11.54am and 10 return services between approximately 12.54pm and 9.50pm.

Bus Route 310 provides a connection with railway services at Newcastle Railway Station.

There are signposted bus stops on both sides of Burton Road just outside the site of proposed retirement village. The proposed location of the entry driveway to the development will require the relocation of the existing southbound bus zone outside the site. The relocation of the southbound bus zone would require consultation with and approval of Newcastle Buses and Ferries.

## **11.0 TRAFFIC GENERATION FROM PROPOSED DEVELOPMENT**

RTA Guidelines for Traffic Generating Developments include a category for "Housing for aged and disabled persons".

The RTA Guide to Traffic Generating Developments suggests traffic generation from aged housing to be:

Daily vehicle trips = 1 – 2 per dwelling  
Evening peak hour vehicle trips = 0.1 – 0.2 trips per dwelling.

The access to the proposed Retirement Village will be off Burton Road.

The higher of the traffic generation rates suggested in the RTA Guide to Traffic Generating Developments will be assumed for this development to assess the worst-case scenario.

The traffic generation for the proposed Retirement Village in the evening peak hour based on the suggested RTA generation rates is therefore estimated to be:

104 dwellings @ 0.2 trips per dwelling = 20.8 trips

Say 22 trips



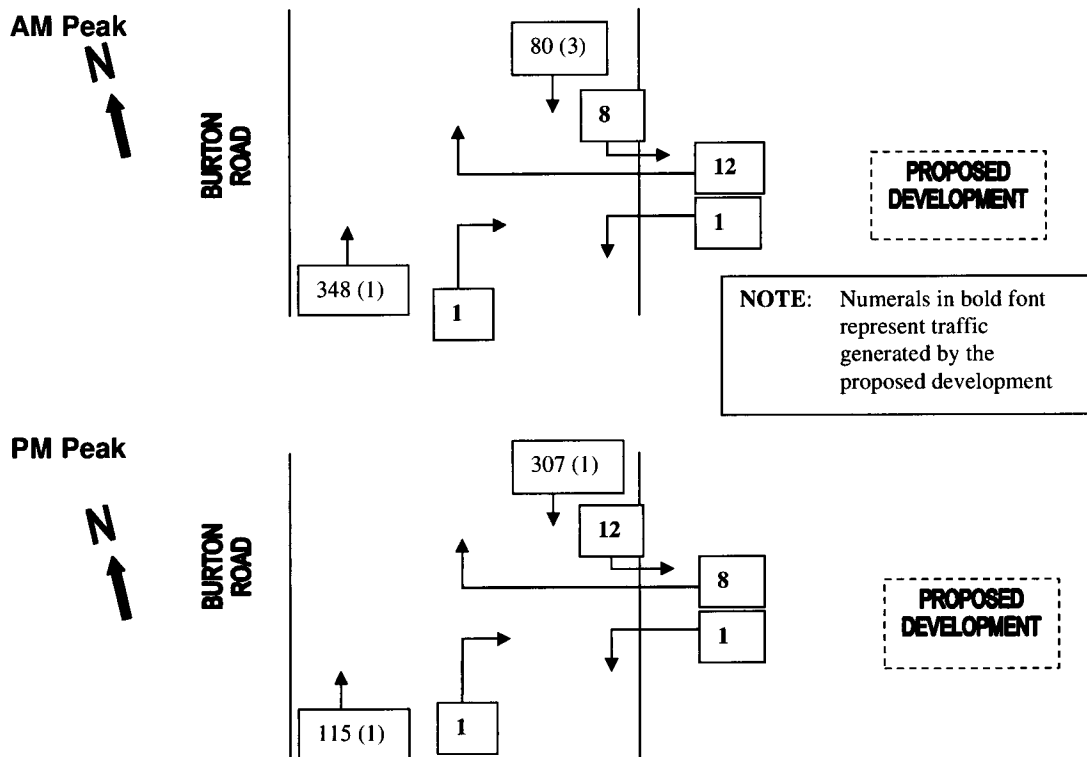
The RTA Guide to Traffic Generating Developments does not provide an indication of the morning peak hour traffic generation. It is assumed that the morning peak hour generation rates will be the same as the evening peak hour rates.

## 12.0 TRAFFIC DISTRIBUTION

The location of the proposed Retirement Village suggests that the majority of traffic will be oriented towards the north along Burton Road to Mount Hutton, the Charlestown Bypass, Charlestown and Newcastle.

It is therefore assumed that approximately 90% of trips associated with the proposed development will therefore be to and from the north along Burton Road.

It is also assumed that approximately 60% of trips in the morning peak will be outward trips and 40% inward, with the reverse in the evening peak.



### **13.0 ACCESS ON BURTON ROAD**

It is proposed that the proposed Retirement Village will provide new separated entry and exit driveways onto Burton Road. The site currently contains 3 separate driveways. The three existing driveways will be removed.

The Burton Road access will service the total 154 car spaces within the facility.

The car parking areas will operate as a Class 1A parking facility for residents.

The AS2890.1 – 2004 requirement for a Class 1 or 1A car parking facility on a local road servicing between 101 parking spaces and 300 spaces is for a Category 2 driveway.

That is, a combined driveway 6.0 to 9.0 metres wide would comply with AS2890.1 - 2004.

Table 8 of Council's DCP No. 1 recommends a driveway width of 4 to 8 metres for a combined driveway to a SEPP Seniors Living development.

A new separated entry access approximately 6 metres wide will be provided towards the northern end of the site and a new separated exit access approximately 6 metres wide will be provided towards the northern end of the site in place of the existing 3 driveways to the site.

The proposed driveways represent a superior driveway arrangement than the requirements of AS 2890.1 – 2004 and also Council's DCP No. 1.

The northbound lane on Burton Road adjacent to the proposed driveway is approximately 6.0 metres wide which would enable a northbound vehicle to pass a car stopped to turn right into the site. The volume of vehicles turning right into the site will be very low. If a bus was stopped at the northbound bus stop, a northbound vehicle would have to wait for a vehicle to turn right into the site. However, buses only pass at approximately 1-hour intervals and the probability of such a coincidence would be very low.

The southbound lane on Burton Road at the existing driveway just south of the indented bus bay is approximately 5.2 metres wide. Vehicles turning left into the site would essentially be able to utilize the indented bus bay to turn into the site unless there was a bus standing there temporarily. The probability of such a coincidence would also be very low.

There is "No Stopping" signposted along the eastern side of Burton Road from the location of the proposed driveway to the next intersection with Glad Gunston Drive. There is "No Stopping" signposted along the western side of Burton Road south of the existing bus stop which prevents vehicles parking along the western side of Burton Road.

In my opinion, the existing traffic environment on Burton Road at the proposed access point is such that additional widening on Burton Road is unnecessary. The relocation of the existing indented southbound bus zone to a point between the new entry and exit driveways would enable use of the existing indented southbound bus zone as a small taper into the entry driveway for southbound vehicles.

#### **14.0 SIGHT DISTANCES AT THE PROPOSED ACCESS**

Sight distances at the proposed exit access on Burton Road are as follows:

Towards the right (generally north) along Burton Road > 250 metres

Towards the left (generally south) along Burton Road ≈ 185 metres

The sight distances at the proposed access on Burton Road exceed the AS2890.1 - 2004 recommendation, that is, desirable sight distance of 69 metres for a frontage road speed 50km/h.

Council's DCP No. 1 recommends a sight distance of 90 metres for a 50km/h speed environment and 110 metres for a 60km/h speed environment

#### **15.0 SIDRA SIMULATIONS**

SIDRA simulations have been undertaken on Burton Road at the proposed development access to assess the potential impacts of the proposed development on the operation of Burton Road

The SIDRA program was developed in conjunction with ARRB Transport Research Ltd to analyse the operation of intersections controlled by traffic signals, Give Way signs, Stop signs, conventional roundabouts and signal controlled roundabouts. It is widely used by consulting traffic engineers and is recognised and used by the Roads and Traffic Authority of NSW. SIDRA is now owned and developed by Akcelik & Associates Pty Ltd.

The parameters used in the SIDRA program are measured against the following performance standards developed by the Roads and Traffic Authority of NSW and the American Transportation Research Board.

**Table 15.1 - Level of Service for Unsignalised Intersections Controlled by Stop or Give Way Signs.**

Average Delay per vehicle (secs)	Level of Service	Operational Conditions
0 to 14	A	Good
15 to 28	B	Acceptable delays and spare capacity
29 to 42	C	Satisfactory but accident study required
43 to 56	D	Near capacity and accident study required
57 to 70	E	At capacity and requires other control mode
> 70	F	Unsatisfactory and requires other control mode

**Table 15.2 – Average Delays for Movements at Access to proposed Retirement Village on Burton Road**

Movement	Average Delay for Movement – 2013 Traffic + Development – AM Peak (secs / veh)	Level of Service	Average Delay for Movement – 2013 Traffic + Development – PM Peak (secs / veh)	Level of Service
Northbound through on Burton Road	0.5	A	1.5	A
Northbound on Burton Road right into Development	6.2	A	7.2	A
Development access left into Burton Road	10.3	B	10.1	B
Development access right into Burton Road	10.5	B	10.2	B
Southbound on Burton Road left into Development	6.4	A	6.4	A
Southbound through on Burton Road	0	A	0	A
Overall Average Delays	0.8		0.8	

The SIDRA simulations indicate that average delays for all movements at the proposed Retirement Village access on Burton Road would be very low, with Level of Service A for all movements along Burton Road and level of service B for exit movements from the Retirement Village in both the morning and afternoon peak periods.

The 95% back of queue lengths will be negligible for all movements in both peak periods.

## **16.0 POTENTIAL TRAFFIC IMPACTS**

The proposed Retirement Village will not generate a significant volume of additional traffic onto Burton Road.

There may be some pedestrian activity associated with the development but the level of pedestrian activity is expected to be very low as there are no close attractions for pedestrians.

## **17.0 SUMMARY**

- The proposal development is for a Retirement Village that will incorporate a recreation centre and an indoor lap pool.
- The proposed Retirement Village is estimated to generate approximately 22 trips in the morning and evening weekday peak periods based on the RTA Guide to Traffic Generating Developments.
- The proposed Retirement Village will provide a total of 154 car spaces which is considerably greater than the requirement of the SEPP Seniors Living requirements.
- There will be 6 car spaces located close to the proposed recreation centre. There is no specific SEPP Seniors Living requirement for community centres as a component of a Retirement Village.
- Sight distances along Burton Road from proposed access location are satisfactory for the 50km/h speed zone on Burton Road.
- Public buses provide good service along Burton Road past the proposed the Retirement Village to provide convenient transportation for residents to local and regional facilities such as shopping centres, transport hubs, recreational facilities and health facilities.

## 18.0 RECOMMENDATION

I recommend approval to the proposed Retirement Village as it will not generate a significant volume of additional traffic and the development will not adversely affect the level of service, level of safety or capacity of Burton Road or Glad Gunston Drive, Mount Hutton.



B J Bradley BE Grad Dip Man MIEAust CPEng

## **APPENDIX A**

### **SITE PHOTOGRAPHS**



Photo No.1: Looking generally east across Burton Road showing the approximate location of the proposed southern exit access.



Photo No. 2: Looking left (generally south) along Burton Road from the approximate location of the proposed southern exit access showing the existing traffic environment and available sight distance.





Photo No. 3: Looking right (generally north) along Burton Road from the approximate location of the proposed southern exit access showing the existing traffic environment and available sight distance.



Photo No.4: Looking generally east across Burton Road showing the approximate location of the proposed northern entry access





Photo No. 5: Looking left (generally south) along Burton Road from the approximate location of the proposed northern entry access showing the existing traffic environment and available sight distance.



Photo No. 6: Looking right (generally north) along Burton Road from the approximate location of the proposed northern entry access showing the existing traffic environment and available sight distance.

## **APPENDIX B**

### **SIDRA DATA**

## MOVEMENT SUMMARY

▽ Site: 2013 Traffic - AM Peak + Retirement Village

Burton Road Retirement Village, Mount Hutton  
Giveaway / Yield (Two-Way)

### Movement Performance - Vehicles

Mov ID	ODMo	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Distance	Prop. Queued	Effective Stop Rate	Average Speed
	v	Total	HV								
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Burton Road S Leg											
2	T1	349	0.3	0.166	0.5	LOS A	1.3	9.1	0.24	0.00	47.1
3	R2	1	0.0	0.166	6.2	LOS A	1.3	9.1	0.24	0.00	47.1
Approach		350	0.3	0.166	0.5	NA	1.3	9.1	0.24	0.00	47.1
East: Retirement Village Access											
4	L2	1	0.0	0.028	10.3	LOS B	0.1	0.7	0.48	0.68	33.9
6	R2	12	0.0	0.028	10.5	LOS B	0.1	0.7	0.48	0.68	33.9
Approach		13	0.0	0.028	10.4	LOS B	0.1	0.7	0.48	0.68	33.9
North: Burton Road n Leg											
7	L2	8	0.0	0.044	6.4	LOS A	0.0	0.0	0.00	0.08	49.3
8	T1	83	3.6	0.044	0.0	LOS A	0.0	0.0	0.00	0.08	49.3
Approach		91	3.3	0.044	0.6	NA	0.0	0.0	0.00	0.08	49.3
All Vehicles		454	0.9	0.166	0.8	NA	1.3	9.1	0.20	0.04	47.0

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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



## MOVEMENT SUMMARY

Site: 2013 Traffic - PM Peak + Retirement Village

Burton Road Retirement Village, Mount Hutton  
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles											
Mov ID	ODMo	Demand Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue		Prop. Queued	Effective Stop Rate	Average Speed
	v	Total	HV				Vehicles	Distance			
		veh/h	%	v/c	sec		veh	m		per veh	km/h
South: Burton Road S Leg											
2	T1	116	0.9	0.056	1.5	LOS A	0.5	3.2	0.41	0.01	45.2
3	R2	1	0.0	0.056	7.2	LOS A	0.5	3.2	0.41	0.01	45.2
Approach		117	0.9	0.056	1.5	NA	0.5	3.2	0.41	0.01	45.2
East: Retirement Village Access											
4	L2	1	0.0	0.019	10.1	LOS B	0.1	0.5	0.52	0.68	34.0
6	R2	8	0.0	0.019	10.2	LOS B	0.1	0.5	0.52	0.68	34.0
Approach		9	0.0	0.019	10.2	LOS B	0.1	0.5	0.52	0.68	34.0
North: Burton Road n Leg											
7	L2	12	0.0	0.151	6.4	LOS A	0.0	0.0	0.00	0.03	49.7
8	T1	308	0.3	0.151	0.0	LOS A	0.0	0.0	0.00	0.03	49.7
Approach		320	0.3	0.151	0.3	NA	0.0	0.0	0.00	0.03	49.7
All Vehicles		446	0.4	0.151	0.8	NA	0.5	3.2	0.12	0.04	48.0

Level of Service (LOS) Method: Delay (HCM 2000).

Vehicle movement LOS values are based on average delay per movement

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

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

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