CARDINAL FREEMAN VILLAGE

Supporting Documentation

Appendix O

Traffic Impact Assessment

Prepared by **McLaren Traffic Engineers**

aevum LIMITED

AEVUM LIMITED

MARCH 2010

VEHICULAR ACCESS, PARKING, PEDESTRIAN, SERVICING & EXTERNAL TRAFFIC IMPACT PRINCIPLES IN SUPPORT OF PROPOSED MASTERPLAN FOR CARDINAL FREEMAN VILLAGE 137 VICTORIA AVENUE, ASHFIELD

M^{C}LAREN TRAFFIC ENGINEERING
LEVEL 1, 29 KIORA ROAD
MIRANDA NSW 2228
Email: mclarenc@ozemail.com.au
Web: mclarentraffic.com.au

2006/12 MASTERPLAN STATEMENT

CONTENTS PAGE

1.0 INTRODUCTION

M^CLaren Traffic Engineering has been commissioned since November 2006 to provide technical advice in regard to vehicular access planning, internal road design to integrate both pedestrian and traffic movement, assess car parking provision, assess the impacts of service vehicles, minibus and emergency vehicle access within the village and to assess external traffic impacts of the redevelopment of Cardinal Freeman Village in support of improved and additional aged care residential accommodation on the Cardinal Freeman Village site at 137 Victoria Avenue, Ashfield.

It is understood that the Department of Planning requires a summary statement of the effects of the ultimate site development program with respect to the following two matters:

1. The additional traffic generated.
2. The additional required parking.

1.1 Executive Summary

The master plan for the Cardinal Freeman Village seeks to upgrade and redevelop key precincts within the village to accord with current accommodation standards whilst retaining key heritage and landscape elements within the site. Where possible pedestrian integration and accessible paths will be maximised and road segments created that give priority to pedestrian movement in secondary internal roads. A simple primary traffic movement spine will be created to maximise accessibility, whilst permitting restricted service vehicle access within the village. Appropriate on-site parking will be provided commensurate with relevant Seniors Living Policy parking provision tempered by the degree of public transport accessibility and existing on-site heritage / landscaping constraints.

The master plan elements of the proposed development on the site principally involve:

- *Conversion of the existing ONE WAY vehicular internal through site link from Victoria Street to Queen Street to a modified access arrangement that permits TWO WAY vehicular access from Queen Street, whilst retaining the ENTRY only condition from Victoria Street.*

- *Introduce a NEW secondary vehicular ENTRY and EXIT roadway from Clissold Street to assist is providing a reasonable level of site accessibility and to disperse traffic generation effects. This access will be restricted to left turn entry and exit vehicular movements only via the introduction of a localised narrow central median within Clissold Street. A separate service vehicle access may also be provided from Clissold Street, west of William Street, serving the Nursing Home site.*

- *Maintain internal access for emergency vehicles, whilst maximising pedestrian integration incorporating a low traffic speed environment*

with 10km/h "Shared Zone" areas and raised pedestrian crossings at footpath level, adequately offset from the public road frontages.

- *Minimum internal carriageway width of 4m for ONE WAY elements, increasing to 6.5m for TWO WAY traffic movement on straight road alignments increasing at bends based upon AutoTurn swept path findings. Clear headroom of 4.5m to be provided along main internal road corridor and to within 60m of hydrants.*

- *Provide on-site parking for the Residential Aged Care Facilities (RACF) and Independent Living Unit (ILU) components at the rates specified in the Seniors Living 2004 Policy. Specifically a development cannot be refused on parking grounds if the following parking rates are met:*

  RACF

  ***Parking for residents and visitors:** if at least the following is provided:*

  (i) 1 parking space for each 10 beds in the residential care facility (or 1 parking space for each 15 beds if the facility provides care only for persons with dementia), and

  (ii) 1 parking space for each 2 persons to be employed in connection with the development and on duty at any one time, and

  (iii) 1 parking space suitable for an ambulance.

  ILU

  ***Parking:** if at least the following is provided:*

  (i) 0.5 car spaces for each bedroom where the development application is made by a person other than a social housing provider, or

  (ii) 1 car space for each 5 dwellings where the development application is made by, or is made by a person jointly with, a social housing provider.

  ***Note.** The provisions of this clause do not impose any limitations on the grounds on which a consent authority may grant development consent.*

- *Access to service dock areas by the designed regular service vehicle with the aid of AutoTurn to satisfy the SRV (6.4m) swept path requirements. The majority of waste will be stored at perimeter locations to assist kerbside or limited on-site collection by SRV waste collection vehicles. Limited waste collection points may be provided within the core area of the site, however access to these areas will be restricted to SRV vehicles as the 'design vehicle' by internal road design and contractual arrangements. A separate swept path test of a 10m long fire appliance vehicle will be undertaken for the primary internal road segments and at hydrant locations.*

- *Maintain pedestrian access integration throughout the site in order to strengthen and create a pedestrian dominant environment within the site. Maintain pedestrian linkages to bus stops within and on the frontages of the site in accordance with appropriate standards*

2.0 COMPLIANCE WITH DIRECTOR GENERAL'S REQUIREMENTS

Under the Director-General's Requirements (DGR's) the Traffic Impact Assessment is required to satisfactorily address the following transport, traffic and accessibility issues during the construction and operational phases:

1. *Provide a Transport and Accessibility Impact Assessment prepared in accordance with the RTA's Guide to Traffic Generating Developments, considering traffic generation (daily & peak traffic movements) , any required road / intersection upgrades, access, loading dock(s), car parking arrangements (including compliance with the relevant Australian Standards), measures to promote public transport usage and pedestrian and bicycle linkages.*

2. *Provide an assessment of the implications of the proposed development for non-car travel modes (including public transport, walking and cycling);*

3. *Identify measures to mitigate potential impacts for pedestrians and cyclists during the construction stage of the project;*

4. *Demonstrate that a minimalist approach to car parking provision is taken based on the accessibility of the site to public transport;*

5. *Measures to promote sustainable means of transport including public transport usage and pedestrian and bicycle linkages / bicycle parking in addition to addressing the potential for implementing a location specific sustainable travel plan;*

6. *Service vehicle movements;*

7. *Provide a Construction Management Plan.*

The above listed points are addressed in the following sections of this report:

DGR Point	Section(s) of this report
1	3.3, 3.4, 6, 7 & 9
2	6.4
3	8
4	6.3 & 7
5	6.4
6	7.1
7	8

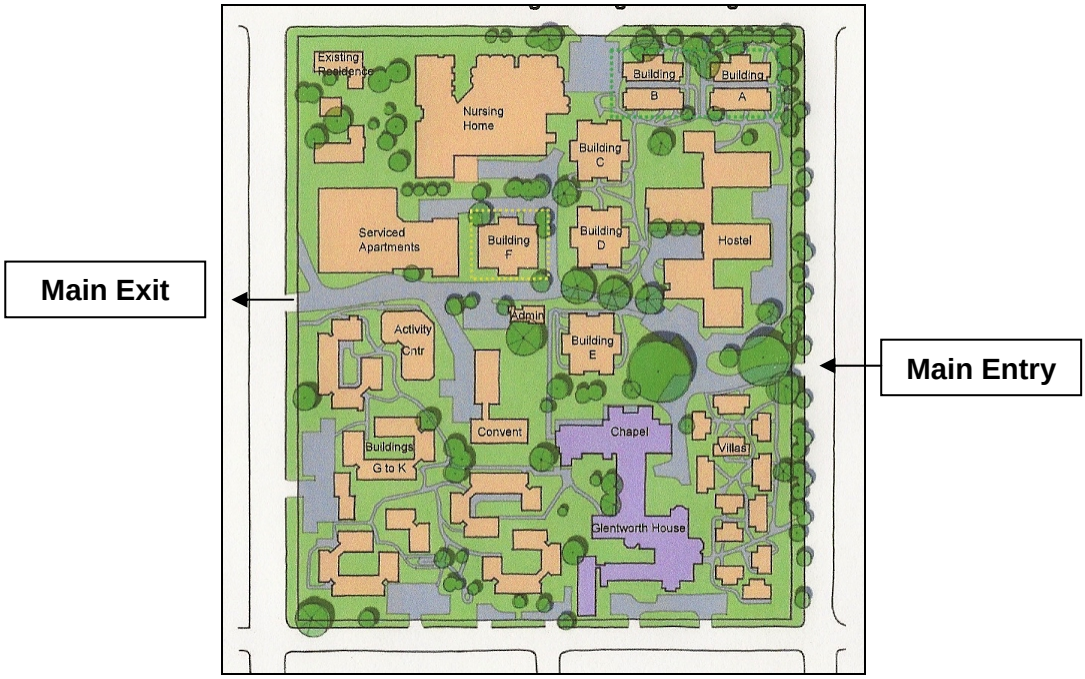
3.0 BACKGROUND

3.1 Site Location

The site is bounded by Victoria Avenue to the east, Clissold Street to the north, Queen Street to the west and Seaview Street to the south. The location of the site is shown in **Figure 1**.

3.2 Existing Village Precincts

The existing on-site precincts are shown in the diagram below.



3.3 Existing Road Network, Traffic Conditions & Parking

3.3.1 General

Liverpool Road is classified as a State Road, under the care and control of the Roads & Traffic Authority. Queen Street operates as a collector/distributor type road under the care and control of Ashfield Municipal Council, whilst Clissold Street is a local street under Council's control.

Liverpool Road is an important main road providing regional access between Parramatta Road to the east and to regional areas to the west via the Hume Highway. Liverpool Road is constructed as a 4 lane undivided carriageway within the vicinity of the site, with all four lanes operating as traffic flow lanes in peak periods.

Queen Street is also constructed as a 4 lane undivided carriageway within the vicinity of the site, with two lanes for traffic movement and two kerbside

parking lanes. Queen Street is 10 metres wide (kerb to kerb) adjacent to the site and 12.8 metres wide (kerb to kerb) north of Clissold Street.

Victoria Street is also constructed as a 4 lane undivided carriageway within the vicinity of the site, with two lanes for traffic movement and two kerbside parking lanes. Street trees also exist within the parking lanes along this street at regular intervals, whilst still permitting the parking of vehicles between them.

Clissold Street is constructed with a 6.5 to 7 metre wide carriageway (kerb to kerb) adjacent to the site with 1.5 to 2.0 metre wide concrete footpaths on both sides.

Seaview Street is constructed with a 6 metre wide carriageway (kerb to kerb) adjacent to the site with 1.5 to 2.0 metre wide concrete footpaths on both sides.

3.3.2 Access

Vehicular and pedestrian access to the existing Cardinal Freeman Village is provided from all four streets fronting the site.

The main vehicle ENTRY to the Village is provided from Victoria Street with main vehicle EXIT to Queen Street approximately midway through the site. An internal 3m to 4m wide road is provided linking the main entry and exit driveways for the site.

Secondary minor access driveways are provided in other locations around the site serving individual car parking spaces or small car parking areas.

3.3.3 Traffic Flows

M^CLaren Traffic Engineering commissioned evening peak hour traffic counts at all the site driveways and at the intersections of Clissold Street with Queen Street, William Street and Victoria Road on Tuesday 2 February 2010 between 4:00pm to 6:00pm. The results of the peak hour counts are shown in **Figures 2a, 2b and 2c**.

Liverpool Road (east of Elizabeth Street) accommodated in the order of 25,750 vehicles per day in 1999 based upon the most recent Average Annual Daily Traffic flow data from the Roads & Traffic Authority. More recent data from the RTA's data indicates that the same segment of Elizabeth Street accommodated in the order of 23,150 vehicles per day in 2002, representing a 3.6% reduction in daily traffic volumes over the 3 year period.

The prevailing traffic management within the immediate vicinity of the site is as follows:

- Traffic Signals at the Liverpool Road junctions of Queen Street and Victoria Street as well as other nearby Liverpool Road intersections with Carlton Crescent and Holden Street.

- Roundabout controls at the Queen Street intersections with Arthur and Norton Streets.

- Pedestrian refuge across Queen Street approximately 200 metres south of Clissold Street and a zebra crossing in Clissold Street west of the Victoria Street intersection. Recently constructed traffic calming devices in Queen Street on the site frontage and other works.

- Bus stops on the immediate approaches to the intersection of Queen Street and Clissold Street as well as on the eastbound approach of Clissold Street to Victoria Street, the southbound approach of Victoria Street to Clissold Street and on Clissold Street on the departure sides of the Seaview Street intersection.

- Victoria Street is closed at its junction with Old Canterbury Road.

The key intersections of Clissold Street with both Queen Street and Victoria Street was analysed with the aid of the **SIDRA** computer program, which is used to evaluate the performances of intersections controlled by stop/give way signs, roundabouts or traffic signals. It provides a number of measures of performance including vehicle delay, degree of saturation and level of service. The result of this analysis is shown in **Table 1**.

TABLE 1: EXISTING PM PEAK INTERSECTION PERFORMANCES ("SIDRA V4.0")

Intersection	Degree of Saturation(1)	Average Delay(2) (sec/vehicle)	Level of Service(3)	Control Type
Queen St / Clissold St	0.18	5.7 (11.0)	**A**	Priority
Victoria St / Clissold St	0.16	6.1 (10.9)	**A**	Priority

NOTES :

(1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.
(2) Average delay is the average for all movements. The value in brackets is the highest delay to the most disadvantaged movement.
(3) Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with "A" representing the best operational condition and level of service "F" the worst.

The criteria used to evaluate performance are shown in **Annexure A**. It is evident from **Table 1** that the key intersection currently operates at a good level of service.

The intersection of Victoria Street with Seaview Street was assessed by *Woolacotts* in a previous (March 2006) traffic report for a master plan for Trinity Grammar, situated further to the south of the Cardinal Freeman Village.

That master plan identified no increase in student number for the school and only a minor increase in staff levels. The master plan included new works to improve current ancilliary facilities for the school and increased on-site car parking for staff during the day and for parents during function events and weekend sporting events.

The *Woolacotts* report identified the following traffic flow and performance characteristics for the intersection of Victoria Street with Seaview Street:

- 360 vehicles per hour during the weekday AM peak hour period along Victoria Street, north of Seaview Street.
- 275 vehicles per hour during the weekday AM peak hour period along Seaview Street, west of Victoria Street.
- 315 vehicles per hour during the weekday PM peak hour period along Victoria Street, north of Seaview Street.
- 140 vehicles per hour during the weekday PM peak hour period along Seaview Street, west of Victoria Street.
- Level of Service "A", representing a good level of service during the weekday AM & PM peak hour periods for 2006 conditions increasing to level of service "B" condition following completion of the works outlined for the Trinity campus. This level of service still represents good to acceptable performance for the priority controlled intersection.

The peak hour flow levels shown above indicate that Seaview Street functions as a local road, whilst Victoria Street functions as a minor collector road.

3.3.4 Pedestrian Facilities

The surrounding road network includes adequate footpaths for pedestrian movement.

3.3.5 Existing On-Site Parking Supply & Allocation

The existing supply of on-site parking equates to 135 formalised spaces (comprising 134 car spaces and 1 community bus space), plus a further 22 informal parking spaces along the internal roads within the site, bringing the total parking supply to **157** spaces, as depicted in Figure 2.4.5 of the *"Urban Design Study & Concept Plan"* (Volume 2). The allocation of these spaces is as follows:

- 80 resident spaces.
- 32 visitor spaces.
- 22 staff / visitor spaces (Nursing Home basement).
- 22 informal spaces within on-street internal roads.
- 1 community bus.

There are also 2 loading docks on-site currently.

3.3.6 Visitor Parking Surveys

To address concerns raised by local residents, surveys of visitor parking demand associated with the Cardinal Freeman Village that occur in William and Clissold streets were previously undertaken in June 2006 over a total of 7 days in June 2006, including two Saturdays and 2 Sundays. The surveys were conducted every 15 minutes on the following dates and time periods:

- Saturday 10th June 2006 from 10am to 4pm.
- Sunday 11th June 2006 from 10am to 4pm.
- Saturday 24th June 2006 from 10am to 4pm.
- Sunday 25th June 2006 from 10am to 4pm.
- Monday 26th June 2006 from 6am to 4pm.
- Tuesday 27th June 2006 from 6am to 4pm.
- Wednesday 28th June 2006 from 6am to 4pm.

The first weekend day surveys (i.e. 10th & 11th June) were affected by a partial road closure of Clissold Street due to the construction of nearby traffic management devices. The survey results revealed the table on the following page:

DAY	NUMBER OF CARS PARKED VISITING CFV*	TIME PERIOD OF VISITATION TO CFV
Saturday 10th	2	11am to 3:30pm
Sunday 11th	3	2pm to 4pm
Saturday 24th	5	12:30pm to 4pm
Sunday 25th	3	10:30am to 3pm
Monday 26th	6	7:30am to 2:30pm
Tuesday 27th	5 1	8am to noon At 3:15pm
Wednesday 28th	3	9am to 11:30am

* Survey included cars parked in William St and in Clissold Street frontage to Cardinal Freeman Village

The surveys revealed a low level of visitation with a visitor peak parking of 1 to 2 cars observed generally and a single incidence of 3 cars parked in William Street for a brief 90 minute period on the observed Tuesday. The surveys also revealed that no visitor parking occurs in Clissold Street associated with Cardinal Freeman Village. At those times the on-site visitor spaces were not highly utilised.

Any parking that may occur at times along the Clissold Street frontage of Cardinal Freeman Village should be discouraged by “No Stopping” signs as the street is too narrow for that purpose. Council should, in due course, install the suggested “No Stopping” signs.

It is not unreasonable, in transport planning practice, for the quantum of kerbside parking that fronts a development site to be used for parking, particularly for visitors. However, this would not apply to the Clissold Street

and Seaview Street frontages of the site, as these streets are narrow and currently safely facilitate local two way traffic flow.

Further, given the close proximity to public transport services (i.e. bus services along Queen Street and Clissold Street frontages of the site and rail services at Ashfield Rail Station within 1km) it is reasonable to encourage public transport usage by limiting on-site car parking supply particularly for visitors and staff.

3.4 Existing Public Transport & Pedestrian Access

The site is located within an easy walking distance to nearby bus stops in Queen Street, Victoria Street and Clissold Streets. Regular bus services operate along these streets near the site. State government agencies advise that there are no plans to restrict these existing bus services.

Route services 409, 411 and 413 travel past the site. Bus stops are located well within the 400 metre distance required under the Seniors Living Policy. And therefore comply with that policy.

The frequency of bus services is addressed in the "Access Assessment Report" prepared by *Accessibility Solutions*, dated 21 April 2006, which indicates that the service frequency complies with Clause 25(2)(b)(iii) of the Seniors Living Policy.

4.0 PLANNED ROADWORK & TRANSPORT IMPROVEMENTS

Council's traffic engineer has advised that no road works or transport improvements are planned within the immediate vicinity of the site.

5.0 OVERVIEW OF DEVELOPMENT PROPOSAL

5.1 Site Development Program

The site development program for the site envisages the ultimate development scale as shown in the table below:

	Scale of Redevelopment			
Type of Dwelling	**Existing** (incl. A&B)	**Retained**	**New**	**Additional (Approx.)**
ILUs	180	115	225	160
Serviced Apartments	49	49	0	0
High & Low Aged Care (beds)	119	0	132	13
Total (units)	**229**	**164**	**225**	**160 units**
Total (Aged Care Beds)	**119**	**0**	**132**	**13 beds**

6.0 ASSESSMENT OF DEVELOPMENT PROPOSAL

6.1 Internal Traffic Impact of Development

In response to the impact of additional traffic generated, it is relevant to note that there is a high proportion of residents within the village (both existing and associated with the proposed master plan) that will not be able to drive and therefore the additional auto owners will be primarily related to staff, visitor and service vehicle trips with very low or no resident traffic trips.

Based upon the RTA's traffic generation rates for "Housing for aged and disabled persons", the daily rate of 2 vehicle trips per dwelling and the peak hourly rate of 0.2 vehicle trips per dwelling would give rise to the following additional traffic levels as applied to the additional 160 ILU's:

- 320 additional daily vehicle trips (160 in; 160 out).
- 32 additional peak hourly vehicle trips (16 in; 16 out).

In relation to the *Care Beds* (Nursing Home) the number of beds will increase from 119 existing to 132 beds, an increase of 13 beds. The number of staff will increase to a total of 56 staff, requiring 28 staff parking spaces. Thus a minor increase of traffic generation of some 6 staff cars (3 in; 3 out). Typically, the peak staff changeover period occurs between 2pm to 3pm on weekdays and does not coincide with peak period traffic generation times for the ILU's or on the surrounding road network generally.

The existing estimated peak hour traffic generation for the site is estimated as 46 vehicle trips (23 in; 23 out) for the existing 229 dwelling units, although this would be higher than the actual generation given the current low car ownership of aged residents (with an average age of 84 years). [Recent counts indicate a total of 37 peak hourly trips (22 in; 15 out) at the three main driveways (Queen, Victoria & Clissold) during the weekday PM peak hour].

Thus the forecast peak hourly vehicle trips therefore equates to some 78 vehicle trips (39 in; 39 out) or 1.3 vehicle trips entering or leaving the site every minute only applying during peak hour generation periods (this is a conservatively high peak hour estimate). This level of additional traffic is moderately low and will be readily absorbed by the planned internal road system with minimal impact in terms of both traffic flow efficiency and residential amenity considerations. Equally, the additional daily traffic flow levels when added to the estimated existing daily traffic generation of some 600 vehicle trips (300 in; 300 out) will be moderately low.

It should be noted that the RTA traffic generation rates applied to the existing and additional scale of development is likely to overestimate actual traffic generation levels given the site's close proximity and accessibility to nearby bus & train public transport services.

The capacity of the ONE WAY single lane vehicle corridor through the site is about 600 vehicles per hour based upon AUSTROADS guidelines for low speed vehicle corridors with parking effects. For low speed *"Accessways"* serving a limited number of dwellings and with a recommended signposted general speed limit of 25km/h, the "environmental capacity" of acceptable traffic flow is identified as 100 vehicles per hour. The *environmental capacity* limit is used in areas where protection of residential amenity governs, such as within the subject site.

Current peak hour flows along the internal primary vehicular accessway, linking Victoria Street to Queen Street, is less than 30 peak hour vehicle trips for the existing scale of development, particularly as there are other secondary driveways serving the site from Clissold Street and Sea View Street. Thus the extra 32 vehicle trips either leaving or entering the site will not alter the *"accessway"* condition of the primary internal road system or raise internal traffic volumes above the *environmental capacity* threshold. The proposed partial conversion of the primary internal road system to a modified arrangement allowing TWO WAY access from Queen Street and secondary improved access to Clissold Street will further improve internal access conditions and reduce traffic volumes on Victoria Street.

The supplementary secondary at-grade link road from Clissold Street plus the proposed driveway ramp to the basement car park of the RACF from Clissold Street, will accommodate low traffic levels and would result in a lower proportion of vehicle travel distance on the adjacent road network by increasing the number of vehicle entries from two (2) to four (4), thereby dispersing entry traffic loads to these additional two points and improving the operating performance of the adjacent road network.

6.2 External Traffic Impact of Proposed Development

The forecast peak hourly level of traffic generation is moderately low and will be readily absorbed by the surrounding road network with minimal impact in terms of both traffic flow efficiency and residential amenity considerations. Equally, the additional daily traffic flow levels are moderately low.

The increase in traffic volumes on Queen Street will be moderate with some 67% of the additional traffic likely to use Queen Street. Thus the additional load on Queen Street is expected to be in the order of 22 vehicle trips. Some existing 8 peak hour trips may also divert from the Victoria Street access driveway to the Queen Street access driveway due to the proposed access changes. Thus an increase of 30 peak hourly trips is expected at the Queen Street driveway. Some of the additional vehicles on Queen Street will be diverted traffic from other routes including Victoria Street via Clissold Street.

There will be additional vehicle movement on Clissold Street associated with the new entry to the basement car park serving the RACF and ILUs in the Care Precinct. This car park has a capacity for approximately 74 spaces compared to the existing nursing home and associated parking of 33 spaces.

The existing development on the site generates some 13 peak hourly vehicle trips (6 in; 7 out) during the weekday PM peak at the driveway off Clissold Street. A small amount of this traffic relates to ILU dwellings, with the majority, say 10 trips associated with the RACF.

The new RACF facility is expected to add an additional 6 staff vehicle trips and 10 vehicle trips associated with the new 46 ILU's within the Care Precinct. Thus the existing 10 RACF vehicle trips at the existing Clissold Street driveway would transfer to the new driveway serving the basement car park.

Thus an increase of 16 vehicle trips is expected at the new Clissold Street driveway serving the basement car park. A reduction of some 5 trips along Clissold Street is also anticipated due to the new entry from Queen Street.

Furthermore there will be some adjusted traffic movement into and from the new Clissold Lane being a new north south spine road within the site. This is to be limited to left in and left out movement by a localised concrete median. The number of additional trips is expected to be low, less than 5 vehicle trips.

The resulting traffic volumes on Clissold Street will be a balance between a reduction in traffic and additional traffic. Additional traffic will be within the environmental capacity of this local street and traffic will flow efficiently and safely.

Externally, the public roads that border the site have much higher "environmental capacity" limits of 300 to 500 vehicles per hour for local and collector type roads respectively. Although these threshold "limits" would not strictly apply to the precinct given that the precinct is not a purely residential subdivision, which is the basis upon which these thresholds were developed. In mixed use areas higher threshold levels can be acceptable. It is relevant to note that the subject precinct accommodates a mixture of residential (low, medium & high density) uses, a school use and hospital development.

It can be seen that the 24, 32 and 39 peak hour trip scenarios are moderate to low in the context of the 100 vehicle per hour internal environmental capacity limit and the 300 to 500 vehicle per hour limit for frontage public roads. Accordingly no adverse impact will result from the ultimate scale of development envisaged within the site development program, in terms of traffic flow efficiency and residential amenity considerations, both within and external to the site.

6.3 Car Parking Provision for Proposed Concept Development

The changes to the on-site accommodation are summarised in the following tables.

Location	Existing	Proposed	Comment
South West Quadrant	56	56	Retained
Glentworth House	23	23	Retained
Villas (South East)	17	0	Demolished
Buildings A and B	36	36	Retained
Blocks C to F	48	0	Demolished
Care Precinct	0	46	New
Victoria 1	0	61	New
Village Green	0	58	New
Victoria 2	0	42	New
Heritage	0	18	New
Total ILUs	180	340	
Serviced Apartments	49	49	Retained
TOTAL	**229**	**389**	

Proposed Apartments	
Serviced Apartments	49
South West Quadrant	56
Glentworth House	23
Buildings A and B	36
New Units	164
Care Precinct	46
Victoria 1	61
Village Green	58
Victoria 2	42
Heritage	18
Total	225
TOTAL	**389**

The required on-site car parking for the new development components within the Cardinal Freeman Village (CFV) site will comply with Seniors Living Policy (2004). The calculated minimum required on-site car parking for the new components of the concept plan are as follows:

ILU Component

1. That 60% of the future 225 ILU's will be 1 bedroom units. This equates to 136 units each with a requirement of 0.5 spaces per bedroom, thus **68** spaces.

2. That 40% of the future 225 ILU's will be 2 bedroom units. This equates to 89 units each with a requirement of 0.5 spaces per bedroom, thus **89** spaces.

RACF Component

In addition to the above, an increase in total Aged Care beds from 119 (existing) to 132 (proposed) will increase the net demand for parking associated with Aged Care professionals / staff to about 3 extra parking spaces above the existing requirement. A new sub-level parking structure is proposed to house all Aged Care staff parking. For the 132 beds & 56 staff, the required parking under SL (2004) is:

1. 132 beds @ 1 space per 10 beds = 13 spaces.

2. 56 staff @ 1 space per 2 staff = 28 spaces.

3. One ambulance space.

Based on the above, the recommended minimum parking allocation to be provided for the new development components within the CFV site is **199** parking spaces, comprising:

- 157 spaces for the new independent living units.
- 28 staff spaces for the aged care beds / units.
- 13 visitor spaces to the RACF.
- 1 ambulance space.

For the entire site the following additions are included for the retained components and staff parking that currently exists:

- 6 other staff spaces provided at the rate of 1 space per 2 staff (for central administration (2), grounds keepers (1), serviced apartment staff (2) & Café (1)).
- 47 resident spaces for the retained 115 dwelling units (i.e. Buildings A & B, G to K and Glentworth House). Thus equating to 0.4 spaces per dwelling.

- 9 visitor spaces for retained Buildings G to K and Glentworth House. Thus equating to an increased rate of 0.49 spaces per dwelling for the retained total of 115 dwellings.
- Nil parking for the retained & previously approved 49 serviced apartments with no parking.

Based on the above listed additions, the recommended desirable minimum parking allocation to be provided for the overall concept development scale is **261** parking spaces, comprising:

- 157 spaces for the new independent living units.
- 28 staff spaces for the 56 staff associated with the RACF component.
- 13 visitor spaces to the RACF.
- 1 ambulance space.
- 56 spaces for the retained ILU's.
- 6 other staff spaces (for central administration (2), grounds keepers (1), serviced apartment staff (2), & Café (1)).

It is noted that the Concept Plan results in the loss of some parking used by existing ILUs to be retained on the site. In view of the overall intention of the Concept Plan to improve standards at the site, it is considered reasonable that the parking requirements are determined on the basis of the whole village and consequently it is reasonable to compare the parking provided on the site as a consequence of the Concept Plan with that required to meet the minimum requirements of the SEPP applied to the whole village.

Application of the SL(2004) parking rates to all the independent living units on the site (i.e. new plus retained existing) including the serviced apartments results in a requirement for **303** car parking spaces, calculated as follows:

- 134 spaces for the 268 by 1 bedroom independent living units.
- 121 spaces for the 121 by 2 bedroom independent living units.
- 28 staff spaces for the 56 staff associated with the RACF component.
- 6 other staff spaces.
- 13 visitor spaces to the RACF.
- 1 ambulance space.

Whilst additional parking for visitors has been the subject of discussion previously, it is relevant to note that SL(2004) Policy does not require additional parking for visitors to the independent living units. It is also relevant to note that visitors can currently utilise the kerbside parking supply along both the Queen Street and Victoria Street frontages to Cardinal Freeman Village which is adequate for the needs of visitors and is appropriate for inclusion in transport planning terms.

The total parking supply under the concept plan is **311** spaces which exceeds the calculated maximum provision of 303 spaces if SL(2004) were to apply to the entire site inclusive of the retained ILU's. However 311 spaces includes

loading zone areas, time limited spaces for deliveries and the like and informal spaces near the Chapel for services.

The allocation of the car parking for the individual uses is as shown in the following table.

Car Parking Allocation for New Dwellings, Retained Dwellings & Staff

Type of Dwelling	Parking Type	No. of Car Parking Spaces (Approx.)
New 225 ILU's (includes RACF & serviced apartments)	Resident Visitor Staff	181 45 22
Retained ILU's	Resident Visitor	47 9
Loading Docks	Service	2
Time Limited & Informal Spaces	Staff & Visitor	5
Allocation	**Resident** **Visitor** **Staff** **Loading Docks** **Time Limited (staff / visitor)** **Informal spaces (staff / visitor)**	**228** **54** **22** **2** **3** **2***
Total Car Parking	**TOTAL**	**311**

Note: Ambulance accommodation available in the at-grade porte cochere in the Care Precinct.

The parking space allocation and dimensions will be as follows:

a) All staff spaces to have the following minimum dimensions:
   - 2.4m wide, 5.4m long and 2.2m headroom clearance.

b) 90% of visitor spaces to have the following minimum dimensions:
   - 2.5m wide, 5.4m long and 2.2m headroom clearance.

c) 10% of visitor spaces to have the following minimum dimensions:
   - 3.2m wide, 5.4m long and 2.5m headroom clearance (note any individual spaces planned to be fully enclosed on both sides by side walls to have a minimum clear width of 3.8m).

d) 95% of resident spaces to have the following minimum dimensions:
   - 3.2m wide, 5.4m long and 2.5m headroom clearance.

e) 5% of resident spaces to have the following minimum dimensions:
   - 3.8m wide, 5.4m long and 2.5m headroom clearance (note any individual spaces planned to be fully enclosed on both sides by side walls to have a minimum clear width of 3.8m).

In relation to the Director General's Requirements specific to parking supply, the following points are relevant:

- Resident parking provision will be provided in accordance with the minimum amount required by Seniors Living Policy (2004).

- Design of on-site car parking facilities targeted to the outline of buildings to limit encroachment into deep soil areas.

- On-site visitor parking for the new ILU's not strictly applied beyond the current supply of 9 spaces as it is not required under the SEPP and due to the fact that the site is well served by existing public transport services that are likely to be utilised by visitors and due to the nearby kerbside parking supply.

- Some bus operators / routes offer disabled access services.

6.3.1 Village Green Parking Compliance

The proposed Village Green ILU's comprise **57** units (32 x 1 bedroom units; 25 x 2 bedroom units) plus community facilities. A total on-site parking supply of **45** spaces are provided in the basement of the proposed Village Green building of which 40 are allocated to residents and 5 allocated to staff.

The required car parking provision under SL (2004) Policy equates to **41** spaces, calculated as follows:

- 16 spaces for the 1 bedroom units (i.e. at the rate of 0.5 per bedroom).
- 25 spaces for the 2 bedroom units (i.e. at the rate of 0.5 per bedroom).

Whilst a 1 space shortfall in allocation for residents occurs at the expense of a staff space, the 1 space shortfall is considered acceptable given the good level of public transport accessibility of the site within the LGA of Ashfield.

6.3.2 Care Precinct Parking Compliance

The proposed Care Precinct comprises a Residential Aged Care Facility (RACF) with 132 beds and ILU's (including serviced self care units) with a total of **46** units (35 x 1 bedroom units; 11 x 2 bedroom units). A total on-site parking supply of **74** spaces are provided in the basement of the proposed buildings of which 29 are allocated to residents and 28 allocated to staff with the residual for visitors. Ambulance accommodation and a service dock are also provided in accordance with requirements for the design vehicle sizes.

RACF Component

A new sub-level parking structure is proposed to house all Aged Care staff parking. For the 132 beds & 56 staff, the required parking under SL (2004) is:

- 132 beds @ 1 space per 10 beds = 13 spaces.

- 56 staff @ 1 space per 2 staff = 28 spaces.

- One ambulance space.

ILU Component

The required car parking provision under SL (2004) Policy equates to **29** spaces, calculated as follows:

- 18 spaces for the 1 bedroom units (i.e. at the rate of 0.5 per bedroom).
- 11 spaces for the 2 bedroom units (i.e. at the rate of 0.5 per bedroom).

Adequate provision is therefore provided with a resulting 4 space surplus.

6.4 Proposed Public Transport Improvements

In relation to the Director General's Requirements specific to alternate transport arrangements, including improvements to existing public transport services and pedestrian / cyclist integration, the following points are relevant:

- On-site visitor parking for the new ILU's not strictly applied beyond the current supply of 9 spaces as it is not required under the SEPP and due to the fact that the site is well served by existing public transport services that are likely to be utilised by visitors and due to the nearby kerbside parking supply.

- Some bus operators / routes offer disabled access services.

- Pedestrian paths will be fully integrated within and external to the site as far as practicable.

- Alternate transport will be encouraged by providing ample bicycle parking and some motor cycle spaces.

- Village minibus services will be extended and the number of services increased in line with desired peak times of resident trip times.

The above listed measures will encourage reduced reliance on car based trips and are likely to increase walk / cycle / public transport travel modes for staff, residents and visitors.

7.0 INTERNAL DESIGN RECOMMENDATIONS

7.1 Traffic, Pedestrian & Servicing Principles

The following principles are considered to be fundamental elements of the site development plan vision:

1. Alter the existing primary ONE WAY internal traffic flow within the CFV site from Victoria to Queen Streets to achieve a TWO WAY traffic condition from Queen Street to the central core of the site, whilst retaining the ONE WAY ENTRY from Victoria Street.

2. Expand the current TWO WAY vehicular access driveway and internal access road from Clissold Street to link to the internal link road between Queen to Victoria streets in order to provide secondary entry and exit to the site, restricted to left turn entry and exit traffic movements at Clissold Street with the introduction of a short length concrete median (to Council's specifications) given its proximity to William Street.

3. A new driveway from Clissold Street located to the west of the William Street junction, in accordance with AS2890.1-2004 requirements. This new driveway will serve the basement car parking and servicing area associated with the Care Precinct that includes the RACF and limited ILU's.

4. The combination of the primary and secondary internal road elements outlined in points 1 & 2 above is referred to as the central spine roads. A general speed limit of 25km/h should apply to these internal road carriageway elements, except at raised pedestrian crossings where a 10km/h "shared zone" speed limit shall apply.

5. A number of other driveways that provide access to a small number of parking spaces from Seaview Street and Queen Street will be retained in their current form. There is an opportunity to provide a ONE WAY internal road link from Seaview Street along the east side of the Chapel to the central spine road from Victoria Street.

6. The primary central spine road element should have the following characteristics:

    a) A minimum carriageway width of 6.5m for the TWO WAY component from Queen Street, except where widening is needed for other purposes such as at intersections and where parking is permitted.

    b) A minimum carriageway width of 4.0m for the ONE WAY component from Victoria Street, except where widening is needed for other purposes such as at intersections, where parking is permitted and at hydrant locations.

    c) A minimum 2.5m width for kerbside parallel parking.

7. The secondary central spine road element should have the following characteristics:

    a) A minimum carriageway width of 5.5m for the TWO WAY component from Clissold Street, except where widening is needed for other purposes such as at intersections and where parking is permitted.

    b) A minimum carriageway width of 6.0m at hydrant locations for a desirable distance of 15m or a minimum distance of 12m.

    c) A minimum 2.5m width for kerbside parallel parking.

8. All localised short length access roads leading off the central spine roads and from Seaview Street shall be sign posted as 10km/h "shared zones".

9. Provide separate pedestrian paths along 25km/h access corridors and maximise pedestrian path integration within the site to various precincts and to frontage streets.

10. Maintain pedestrian access integration throughout the site in order to strengthen and create a pedestrian dominant environment within the site. Maintain pedestrian linkages to bus stops within and on the frontages of the site in accordance with appropriate standards.

11. Provide adequate facilities for service vehicles and ambulances. Kitchen and laundry areas will be served by dedicated on-site loading bays. The main office area will make allowance for a courier bay in a convenient location. There is no strict rate for the provision of loading bays for RACF and ILU's.

12. A minimum road carriageway width of 4.0m is required for these vehicles with a minimum headroom of 4.5m for fire appliance vehicles and 3.6m for ambulance vehicles. An area of at least 6m wide by 15m in length is desirable at or near hydrant locations for fire appliance vehicles.

13. Waste collection points to be concentrated at perimeter locations to eliminate the needs for waste collection vehicles to enter the pedestrian 'core' of the site. Any waste collection by vehicles from the central pedestrian 'core' area of the site shall be restricted to smaller waste collection vehicle lengths. Large removalist vans greater than 9m in length are unlikely to occur as aged residents are not expected to require a large number of bulky household items to be moved to this site. Indeed, the large 11m long removalist vans tend to be employed to relocate families including children.

14. Bicycle parking provision to comply with Ashfield Council's DCP 2007 that specifies the following:

Land use	Employees/Occupants	Visitors/Customers
Nursing Homes	1 per 20 employees	1 per 30 beds
Offices	1 per 20 employees	1 per 250 m^2 GFA

For the scale of development envisaged it is expected that the total number of staff within the site would be in the order of 40 persons, thus resulting in a need for 2 secure bicycle storage spaces.

15. Motorcycle parking provision to comply with Ashfield Council's DCP 2007 that specifies that for sites containing 25 or more car parking spaces at the rate of 1 space per 25 car parking spaces in a communal area accessible to residents/staff/visitors or other users of the parking facility. Motorcycle parking spaces to be provided with the dimensions of 2.5m by 1.3m Calculations are to be rounded up or down to the nearest whole number. In this particular case residents are unlikely to need motorcycle parking provision, however, some provision for staff and visitors should be provided. Visitors tend to arrive in the evenings for the ILU's and on weekends for the RACF components. The number of staff and visitor car parking spaces will be less than 80 spaces, so the required number of motorcycle spaces equates to 4 spaces.

16. Provide on-site parking in accordance with the Director General's Requirements that minimises its reliance and maximises the use of other transport forms, including access to nearby bus & train services, walking, bicycle, scooter, wheel chair and motorcycle transport alternatives. It is noted from Ashfield Council's DCP 2007 that the provisions of "Seniors Living" do not strictly apply. The following matters are relevant with respect to the *'required'* quantum of on-site parking:

    a) Given the average age of the residents & previous observation that low car ownership levels prevailed, it was questionable whether the SL Policy parking rate was strictly applicable in practical terms. It is noted that the current overall average age of on-site residents is 84, whilst the SL Policy applies to developments for over 55's.

    b) The CFV site is 'constrained' given the extent of its existing use and well established landscaping / tree coverage and heritage buildings.

    c) The site has significant road frontages to both Queen Street and Victoria Street that provides an abundant supply of kerbside parking, which is not heavily utilised on weekends when peak visitor levels to aged care establishments occur.

    d) Visitor parking provision to the independent living units can suitably utilise the nearby kerbside parking (apart from the supply of on-site spaces) and it should be acknowledged that the site is located within a metropolitan sub-regional centre that has a moderate level of public transport accessibility, the use of which should be encouraged by limiting on-site parking for visitors.

17. Given the details discussed in point 16 above, it is expected that as a minimum the parking rates of Seniors Living (2004) Policy ought to apply in the circumstances and recent trends based upon current research.

7.2 Car Park Layout

The parking layout should be designed to generally incorporate the following dimensions, in accordance with AS2890.1-2004 (or better):

(a) **Aisle Width**: Minimum 5.8 metres.

(b) **Unenclosed Parking Bays:** Minimum 2.4 metre width for tenants or 3.2m for aged / disabled resident users and 2.5 metre width for visitors with extra 0.3 metre width for each side wall obstruction. End bay width of 3.4 metres or extend aisle by 1 metre unless other geometric area provided. Parking bay length of 5.4 metres, unless a small bay which can have the dimensions of 5.3 metres long by 2.3 metres wide. Where landscaping is sought to be maximized, the length of these unenclosed resident spaces can be reduced to 4.8m with a 0.6m overhang into lawn spaces protected by a low kerb or wheel stop.

(c) **Enclosed Parking Bays:** A fully enclosed space to achieve minimum single secured garage dimensions of 3 metres width by 6 metres in length with a minimum headroom of 2.2m for standard resident parking. For aged / disabled resident users AS4299 requires 3.8m in width by 6m in length with a minimum headroom of 2.5m for a single parking space. A double secured garage to be at least 5.5 metres wide by 6 metres in length for standard resident spaces or at least 6.5 metres wide by 6 metres in length for aged / disabled resident spaces. The 6m length can be reduced to 5.4m when there is a level area at the same grade of the parking space of at least 600mm (e.g. basement car park condition).

(d) **Disabled Parking Bays:** Disabled parking spaces to be 3.2 metres wide with a clear headroom of 2.5 metres for external unenclosed locations or within a bank of more than one space in an enclosed garage.

(e) **Driveway Width and Location**: Minimum width at property boundary of 6 metres and offset by at least 10 metres from a public road intersection.

(f) **Straight Ramp Width**: 5.8m plus 0.3m both sides for kerb, totalling 6.1 metres unless clear visibility is provided coupled with low generated traffic (less than 30 peak hour trips), whereby a narrower width can be considered. This may require introduction of traffic management devices.

(g) **Curved Ramps**: To satisfy swept path requirements for low volume (i.e. < 30 vehicles / hr) car parks and AS2890.1-1993 for high volume car parks.

(h) **Headroom**: Minimum of 2.2m EXCEPT for the area directly above disabled parking spaces where a minimum headroom of 2.5m is required.

(i) **Driveway Gradient**: To satisfy sight lines to pedestrians on footpath and comply with under carriage clearance and overhang checks.

(j) **Internal ramp gradients**: A maximum gradient of 1:4 with 2m transition lengths @ 1:8 or 1:10.

(k) **Transitions**: Transitions placed at top and bottom of all ramps where change in gradient exceeds 1:8. Transition lengths of at least 2 metres are generally used. Change of grade for a sag transition can be 15%.

(l) **Parking module gradients**: Mostly flat or level (5% maximum grade), particularly for resident spaces. Steeper gradients can be considered on merit for visitor parking spaces. Due care required when providing accessible paths from disabled spaces, with cross fall of 2.5% of particular relevance.

(m) **Column setback**: Column set back of 0.75 metres needed for 5.8 metre aisles. No column setback from the aisle is required if aisle width is at least 6.6 metres.

(n) **Pedestrian Paths:** A separate path of at least 1.2 metres in width may be needed at critical locations. Handrails, stairs and/or ramps may also be needed.

It is noted that the car park design and internal pedestrian access planning generally comply with the above listed items.

8.0 CONSTRUCTION TRAFFIC MANAGEMENT & IMPACT

It is expected that a detailed Construction Traffic Management Plan (CTMP) will be prepared for each precinct on a staged basis as these areas are approved to proceed. The CTMP will identify the management of construction vehicle access, locations for workers car parking needs (or alternative transport arrangements), the management of pedestrians / cyclists within the site and along public frontage streets, management of other vehicles entering and leaving the site unrelated to the construction task as well as the storage areas for plant, equipment and materials during the construction phase.

Any construction compound used to store plant, equipment and materials shall be locked each day / evening after construction hours.

A more detailed construction traffic management plan will be prepared for the proposed development by the contractor as part of their Service Delivery Methodology report, identifying:

- Construction period, including stages of construction.
- The daily volume of construction traffic generated (trucks, plant & equipment vehicles, materials delivery and construction staff vehicles) for demolition and construction phases.
- Truck routes.
- Site Access for trucks & construction staff. Control of soil / mud from being dropped from the wheels of construction vehicles onto adjacent public streets when those vehicles leave the construction site.
- Construction staff parking zones / compound.

9.0 CONCLUSION

In view of the foregoing, it is concluded that:

(a) The level of traffic generated will have a marginal and acceptable impact on the planned internal and surrounding road system with due consideration to traffic flow efficiency, road safety and residential amenity considerations. Accordingly, the traffic impact of the development will be satisfactory, without the need for external traffic improvement works to the traffic and pedestrian network within the immediate vicinity of the site other than the following measures:

- Narrow concrete median in Clissold Street, east of William Street to restrict traffic entering and leaving the relocated secondary driveway serving the site.

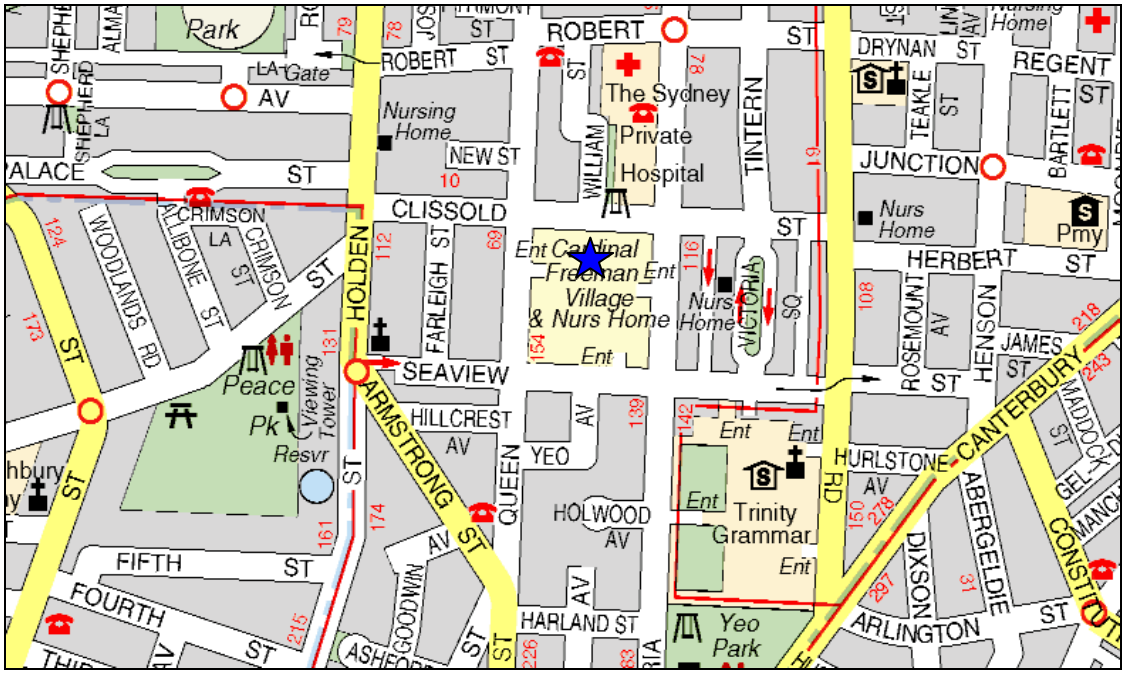
- Improved internal and external signage of the altered vehicular driveway operation for the retained main Queen Street driveway.

(b) The proposed parking supply is considered to be adequate for the needs of the proposed development.

(c) All parking spaces and access thereto will be made to comply with AS2890.1 (2004) requirements for the intended User Class.

(d) All service areas will be made to comply with AS2890.2 (2002) requirements.

Accordingly, the subject proposal is supportable on traffic and parking grounds.



Source : City Link - Universal Press

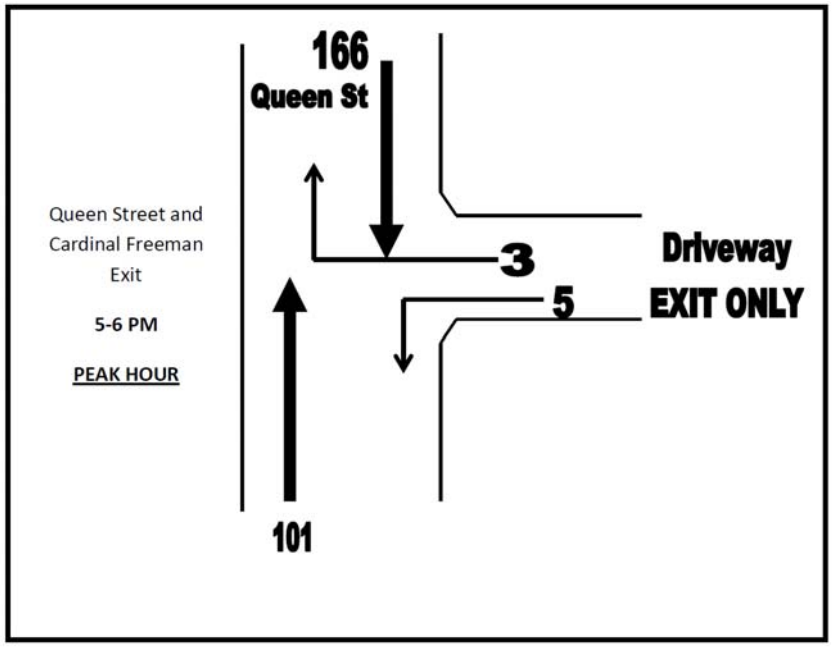
★ **SITE**

MASTERPLAN TRAFFIC STUDY FOR CARDINAL FREEMAN VILLAGE, ASHFIELD

FIGURE 1 : SITE LOCATION

PREPARED FOR : AEVUM LIMITED

BY : M^CLAREN TRAFFIC ENGINEERING

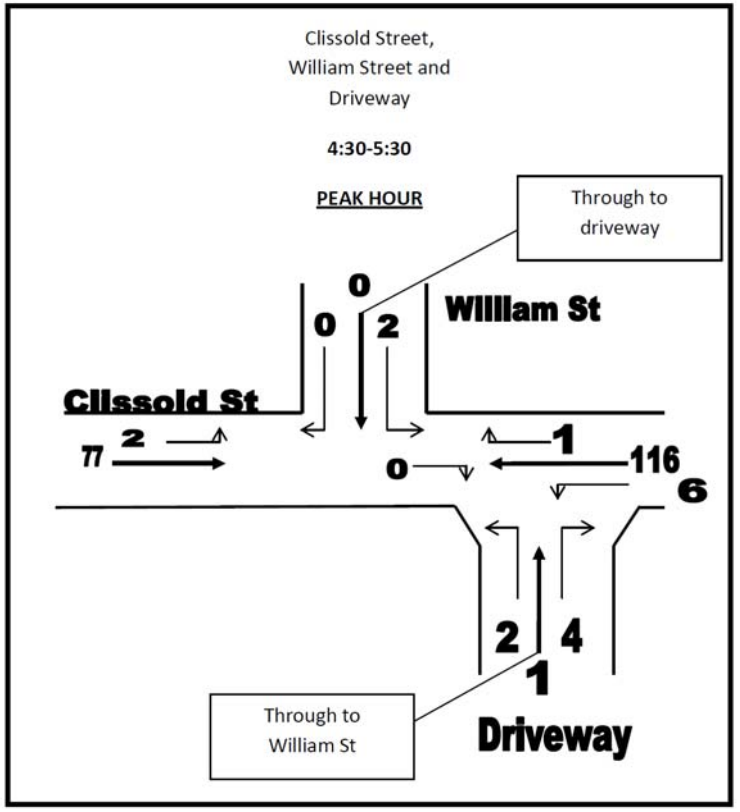


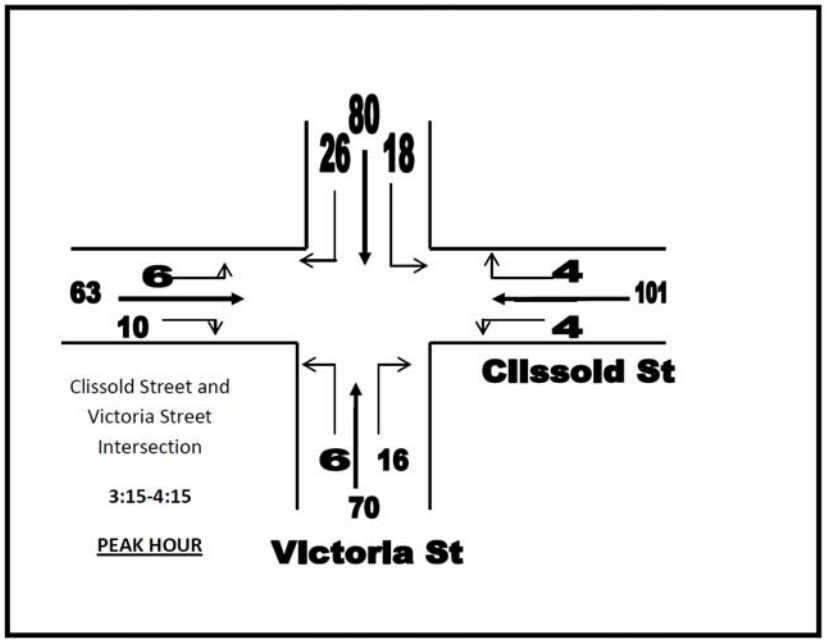
CARDINAL FREEMAN VILLAGE
REDEVELOPMENT

FIGURE 2a : Existing PM Peak Traffic Flows

PREPARED FOR: AEVUM LIMITED

BY: MCLAREN TRAFFIC ENGINEERING



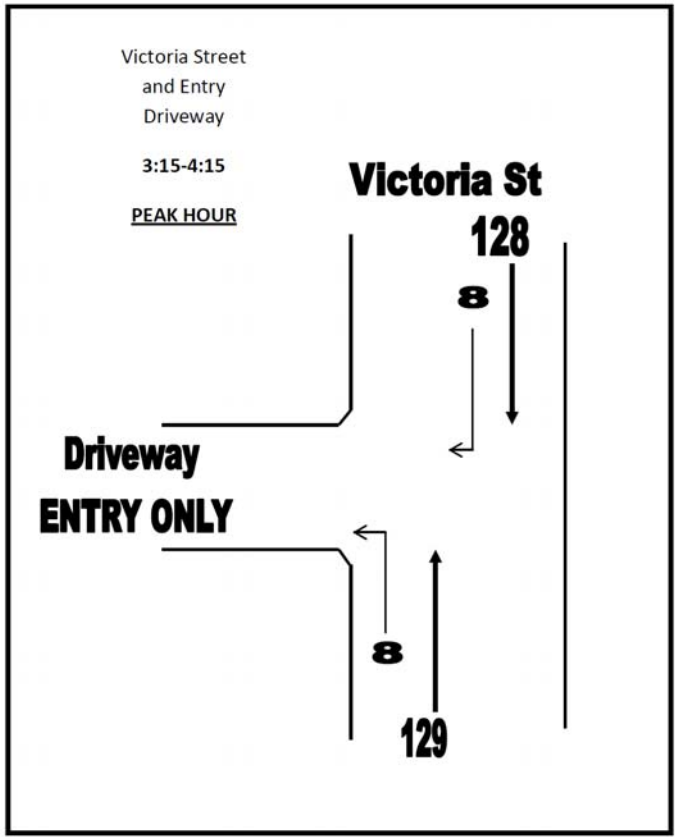


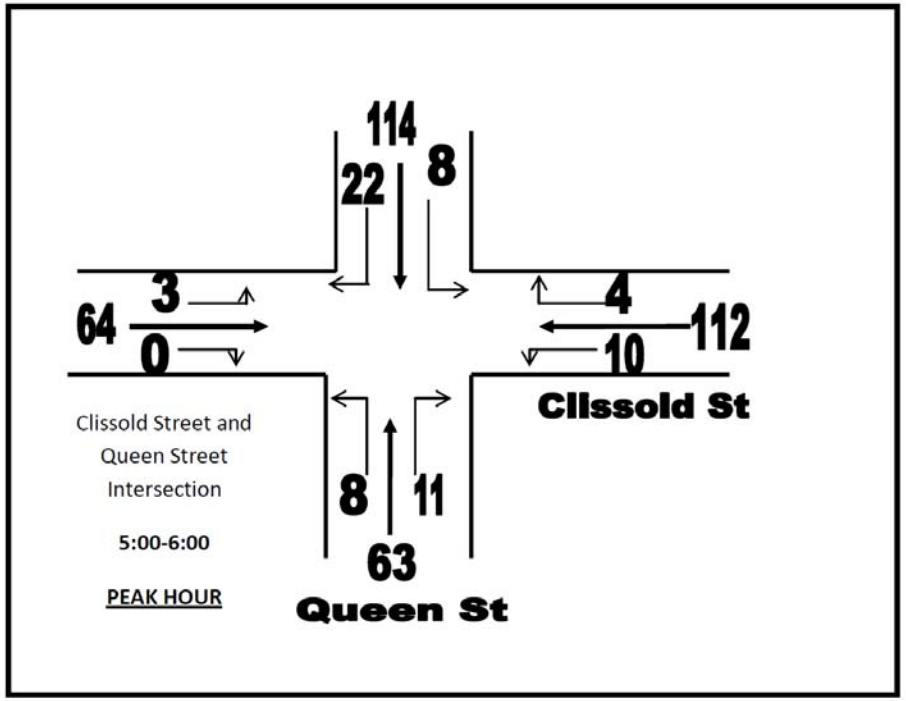
CARDINAL FREEMAN VILLAGE
REDEVELOPMENT

FIGURE 2b : Existing PM Peak Traffic Flows

PREPARED FOR: AEVUM LIMITED

BY: MCLAREN TRAFFIC ENGINEERING





CARDINAL FREEMAN VILLAGE
REDEVELOPMENT

FIGURE 2c : Existing PM Peak Traffic Flows

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