URaP – T T W

Consulting Engineers

Traffic

Traffic and Parking Report for Development at 299 Forbes Street Darlinghurst, NSW

for St Vincent's Hospital

19 September 2006

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1. Introduction

This report has been prepared for the St Vincent's Hospital to assess the traffic and parking requirements for a mixed development application at 299 Forbes Street, Darlinghurst (known as St Vincent's Caritas Centre) comprising of up to 131 residential units and 1085m^2 commercial area.

2. Purpose

The purpose of this report is to provide an assessment of the design documentation with consideration to Sydney Council Development Control Plan (DCP), Australian Standards and Roads and Traffic Authority's Guidelines.

3. Scope

The scope of work undertaken is as follows:

- Site inspection to ascertain current access and traffic conditions;
- Assessment of proposed access and traffic generation and their ramifications to parking, pedestrian and traffic conditions;

4. Existing Parking, Access and Traffic Conditions

The site is bounded by Forbes, Burton and Bourke Streets in Darlinghurst. The existing use of the site is for mental health and health care purposes. The site currently employs 120 staff to provide services for acute care services to mental health clients with 27 beds and about 120 clients per day (about 28,000 to 30,000 per year).

Vehicular access to the site is via Forbes and Bourke Streets. Burton and Bourke Streets provide major vehicular approach routes to the site.

Pedestrian access to the site is from Forbes Street.

Burton Street has four lanes for vehicular use i.e. one for travelling and one for parking in each direction. Burton Street is a major traffic route for the area with traffic volumes of 7,500 vehicles per day.

Forbes Street south of Burton Street has a low level of traffic volume due to its "No Through Road" restriction and provides some angle and parallel on-street parking along its length. The peak hourly traffic volumes along this section of Forbes Street are less than 100 vehicles per hour.

Similar to Forbes Street, the southern section of Bourke Street, due to its restricted access to Oxford Street also experiences a low level of vehicular activity. The peak hourly traffic volumes along this section of Bourke Street are recorded below some 70 vehicles per hour.

The intersection of Burton and Forbes Streets is controlled with a "Give Way" sign while the Bourke and Burton Streets intersection is controlled with "Stop" signs.

The vehicular counts at the above intersections have been carried out and the results are shown in Appendix A.

The assessment of intersection analyses (using INTANAL traffic modelling software) showed that the above intersections operate at a good level of service and will continue to operate at the similar level of service considering the impact of the development (results are shown in Section 7.0).

Pedestrian footpaths and amenities are provided along both sides of Forbes, Burton and Bourke Streets.

Bus routes provide services (particularly along Oxford Street) to the area in the vicinity of the site, while Kings Cross Train Station is located within 15 minutes walking distance to the site.

The locality of the site is shown in **Figure 1**.

5. Proposed Parking Provision

The proposed development for the site consists of three options:

Option 1: 101 residential units and 1085 m^2 of commercial area with 131 parking spaces
Option 2: 131 residential units and 1085 m^2 of commercial area with 166 parking spaces
Option 3: 122 residential units and 1085 m^2 of commercial area with 154 parking spaces

Commercial tenancies are located at Ground Floor occupying a floor area of 1085 m^2. It is assumed that the tenancies will be utilised for commercial usage.

Car parking numbers are considered in line with the *City of Sydney Car Parking Development Control Plan,* these are:

DCP 11

- 0.8 or 1.2 spaces for 2 or more bedroom unit (DCP 11); or
- 1.0 space per each 6 units for visitors
- 1.0 space for 125 m^2 of commercial

LEP 2005

- 1.2 spaces for 2 bedroom unit
- 2.0 spaces for 3 bedroom unit
- Other uses: base on FSA

Therefore, the parking provision would be:

Options (units)	**Commercial Parking**	**Residential Parking**	**Parking Rates Commercial - residential**
1 – (101)	10	121	1/110 m^2 - 1.2 space/unit
2 – (131)	10	155	1/110 m^2 - 1.2 space/unit
3 – (122)	10	144	1/110 m^2 - 1.2 space/unit

Note: all options have similar commercial floor area

The above rates whilst in line with Council's policies and present a realistic provision, they would not have any adverse impact on public transport usage. This can be supported by the following points:

- Most parking activities will occur during after office hours or weekends when recreation driving will take place while the journey to work trips generally are taken by public or active transport during weekdays. The data from Community Profile document (City of Sydney, 2001) indicates that the share of motor vehicles per household in Darlinghurst was similar to the overall rate in the City of Sydney in 2001. While use of a car as a driver has been at about only 20.7% in the Darlinghurst area in comparison to 26% for the City of Sydney.

- The appropriate level of on-site parking will reduce on-street parking.

- Ensuring an appropriate level of parking will provide amenities for those who in particularly are frail, old or who cannot walk long distances or take public transport.

It should also be noted that since the site has good access to public transport, most of its residents and visitors would be using public transport as their main mode of travel. Consequently, car use would be limited (such as in emergency situations, disabled or occasional use).

Therefore, the proposed parking provision options are aimed to meet an appropriate level of parking demand without an adverse impact on public transport usage even though there could be a surplus of parking based on Council's Code. This would present a realistic parking provision for the site. This is because it will maintain the current on-street parking supply by not creating more demand on the existing residential on-street parking demand.

The development proposal will also provide 3 parking spaces for disabled use and 8 – 10 spaces for bicycle racks.

This is because any surplus will take up the already existing residential on street parking demand.

6. Proposed Traffic Generation

The methodology used for the estimation of traffic generation is based on the generic rates for medium-density residential rates sourced from the RTA's *Guide to Traffic Generating Developments.* The development would be classed as high density residential for which the guidelines recommend a rate of 0.24 trips per peak hour per unit.

At a rate of 0.24 trips per unit per peak hour, the 131 units would generate some 32 trips per peak hour and the commercial area would generate some 22 trips (based on 2 per 100 m^2). This would result in a total of **54** trips during a peak period.

By comparison, the current use of the site has an estimated minimum traffic generation of some **70 - 90** trips per peak hour on the basis of:

- 120 to 150 clients per day at 25%* car use = 30 vehicle trips
- 120 staff at 25%* car use using = 30 vehicle trips
- Additional car use such as patient transfers and company car use ~ 25 vehicle trips

* using journey to work data

Therefore, the proposed development would generate a lower level of vehicular trips than its current use.

7. Impacts of the Development

Transport-related impacts, both positive and negative, can be addressed in terms of traffic operation, vehicular access, pedestrian safety and on-street parking:

Traffic Impacts

The amount of traffic generated is small (less than 1 car per minute during a peak hour). It would have no adverse traffic impact whether taken in isolation or considered cumulatively. The impact of traffic generation also is lower in comparison to the existing use of the site (health related activities).

Table 1 Intersection Performances

Intersections	**Ave Delay AM (PM)**	**LoS AM (PM)**
Sign Controlled Intersection	Sec/veh	
Burton St with Forbes St - highest delay 13.0 (9.4)	1.3 (1.7)	A (A)
Burton St with Bourke St - highest delay 14.1 (11.2)	5.3 (4.0)	B (A)

The assessment of intersection operation (using INTANAL) indicates that the above intersections operate at a good level of service and will continue to operate at the same level of service (see Appendix for definition).

Vehicular Access

The vehicle access to the site will be from Bourke Street via a double vehicle width driveway. The driveway which in practice, is adequate for two vehicles to pass each other should be in accordance with the Australian Standards.

Discussion with RTA and Council representatives were undertaken on the Proposal on 14 and 15 September 2006. Neither organisation expressed any concerns with traffic matters and they agreed with the access arrangements proposed.

Visibility and Pedestrian Safety

The proposal allows vehicles to enter and exit the basement in a forward direction. The driveway area would allow adequate visibility for entering and emerging drivers.

As noted earlier, pedestrian amenities are available along streets adjacent to the site providing a safe pedestrian environment. Pedestrian crossing facilities also are provided at the intersections of Burton Street with Bourke and Forbes Streets.

8. Car Park Design

The carpark layout will be reviewed during the development project application and amendments will be made to improve its functionality within the constraints of the site dimensions and structural elements. Consequently, the dimensions of spaces should be substantially compatible with those given by *Australian Standards 2890.1 Parking Facilities – Off-street Parking* that would offer a high level of service to users.

All spaces will be made as wide as physically possible. Entry/exit driveway ramp dimensions and grades should be acceptable for two-way operation while ramps connecting parking decks should be well within the acceptable level for one-way operation.

The carpark layout and design should be in accordance to Australian Standards and Council's guidelines.

9. Conclusion

The concept carpark design and access arrangements are acceptable and supportable. The development should have no unacceptable traffic implications due to its lower level of traffic generation in comparison to its existing use. Pedestrian network is well established in the vicinity of the site and bicycle storage will be provided as part of the proposed development.

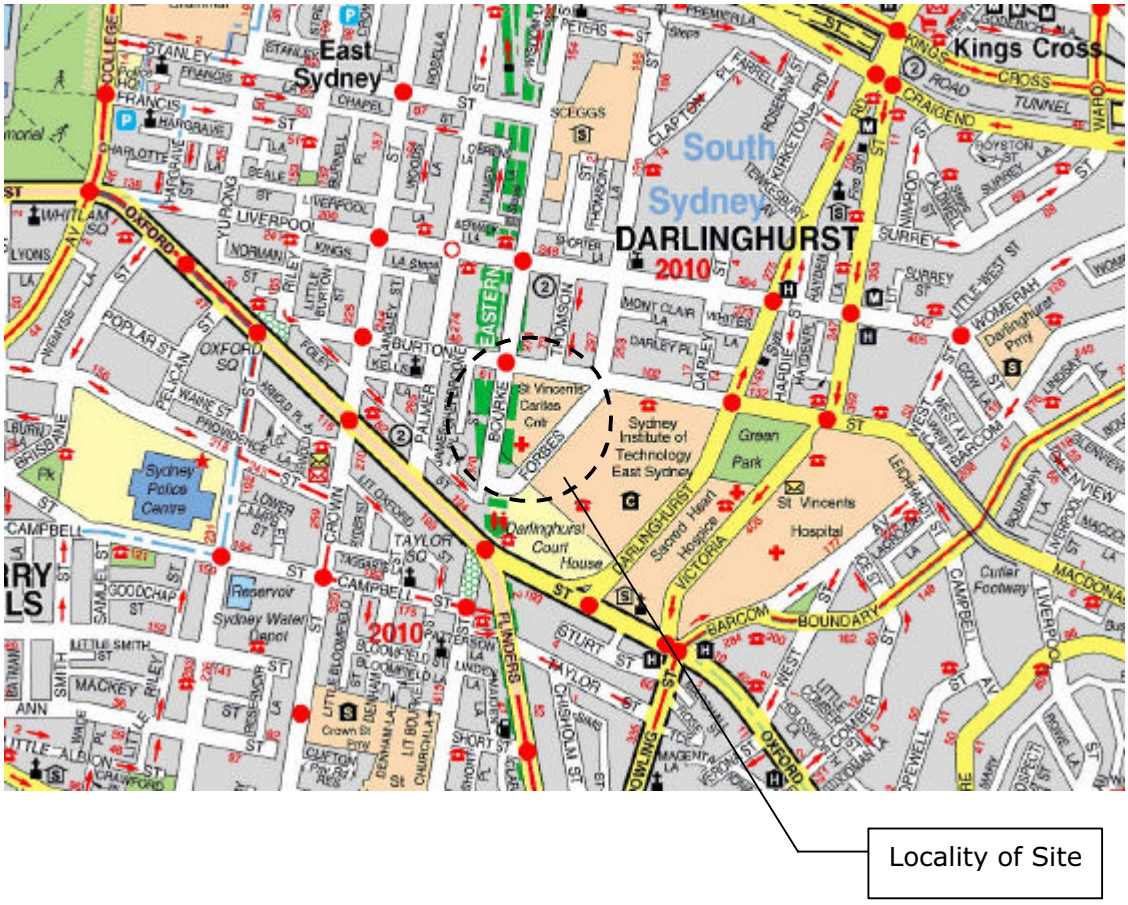
Prepared by:
URaP-TTW PTY LTD

KAM TARA
Director

APPENDIX A

Figure 1 Locality of Site

Bounded by *Forbes, Bourke & Burton Streets*, Darlinghurst, NSW



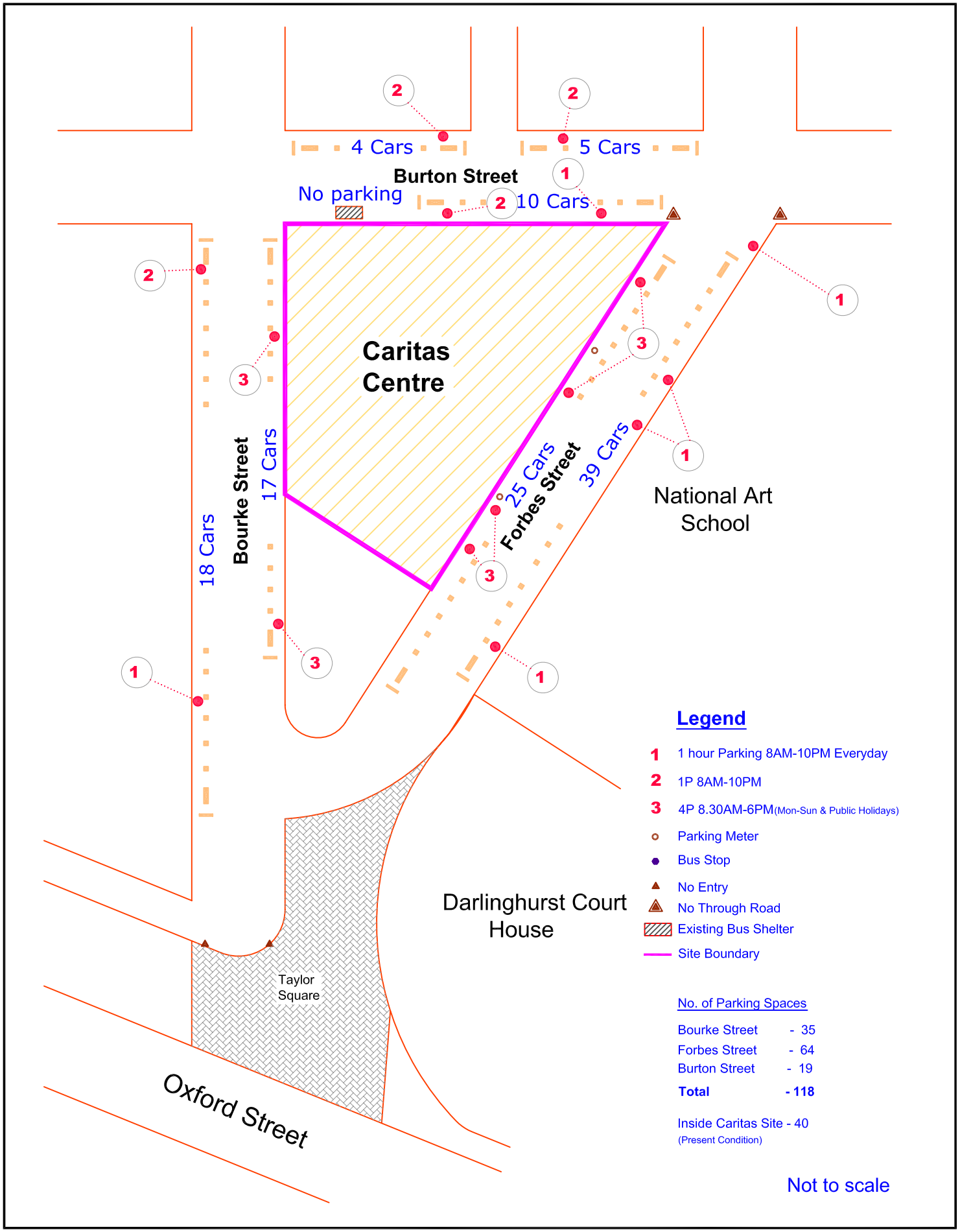


Fig. 2 Existing parking Condition around Caritas Site

APPENDIX A

Intersection Level of Service

The adequacy of the capacity of an intersection is judged by whether it can physically and operationally cater for the traffic using it.

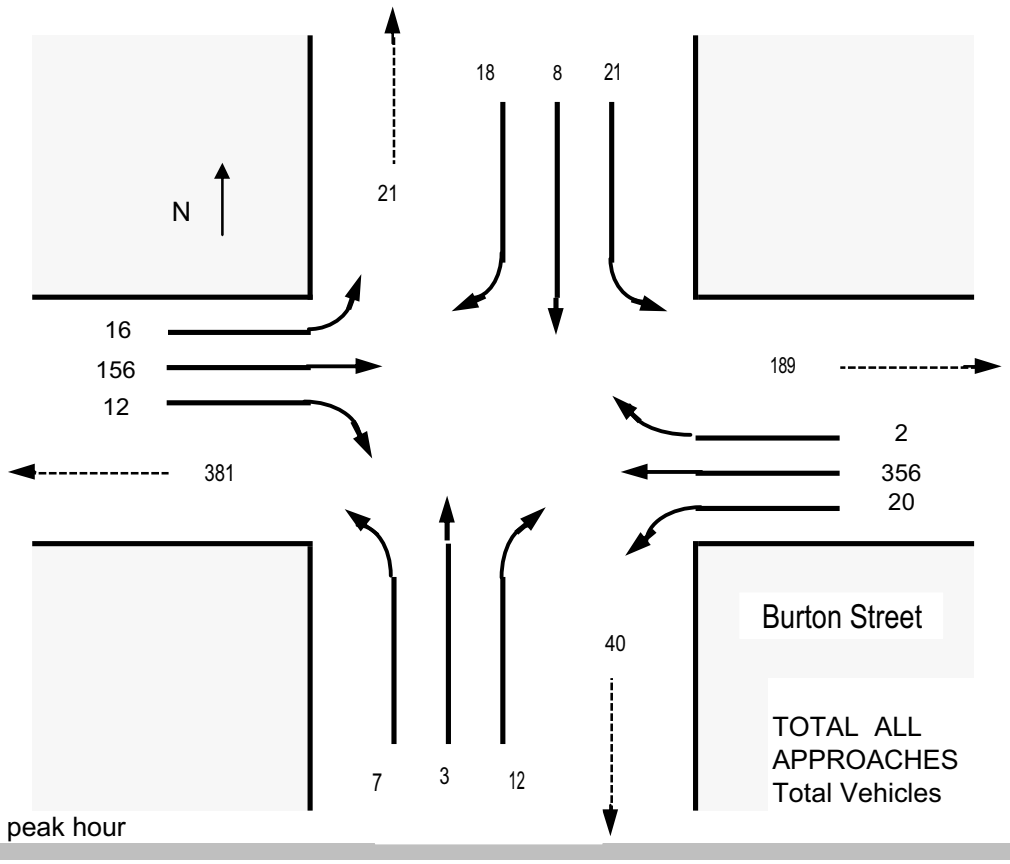
The performance of the intersections have been assessed using the intersection modelling software INTANAL. This model provides parameters of the performance of an intersection including the degree of saturation (DoS) and the average delay per vehicle. INTANAL does provide an accurate and consistent guide to the performance of an intersection under the given different traffic flow scenarios.

Satisfactory operation of an intersection with signals would normally continue up to a DoS of 0.80 to 0.85 which is a LoS C. At this LoS, operating speeds are still reasonable and acceptable delays are experienced.

The recommended criteria for evaluating capacity of intersections are shown in **Table A1**

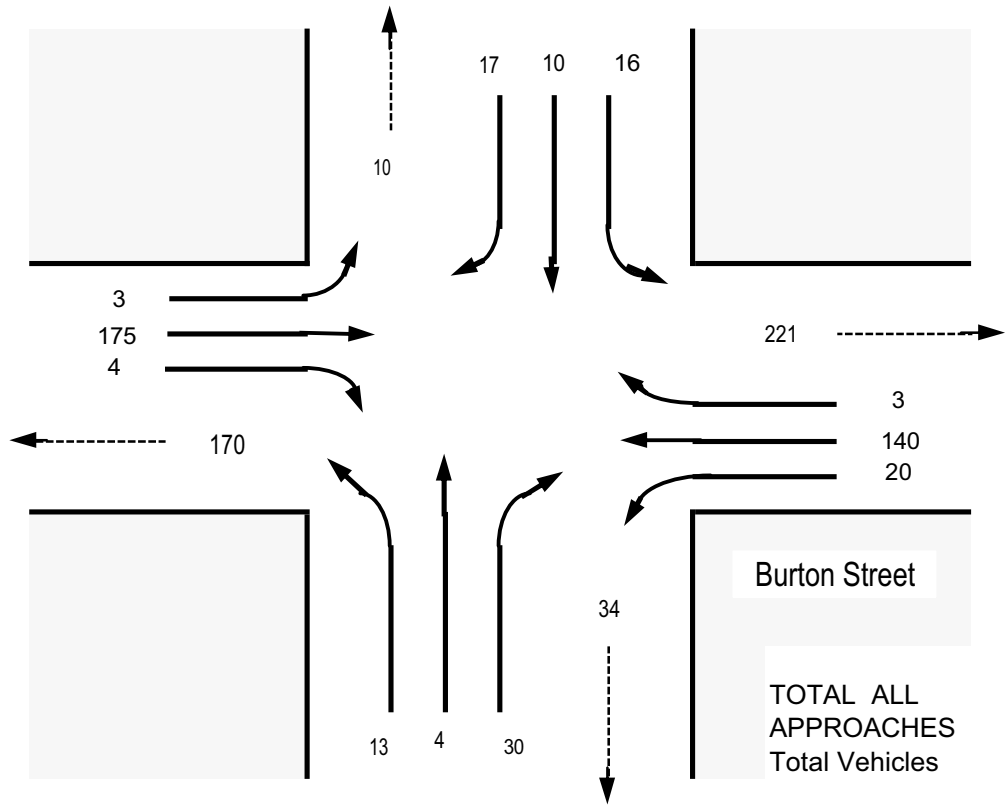
Table A1 Criteria for Evaluating Capacity of Intersection

Level of Service	Degree of Saturation (DoS)	Ave. Delay/ Veh. (Secs)
A/B good operation	less than 0.80	Less than 28
C satisfactory	0.80 to 0.85	29-42
D poor but manageable	0.85 to 0.90	43-56
E at capacity		57-70
F unsatisfactory, extra capacity required	over 0.90	Over 70



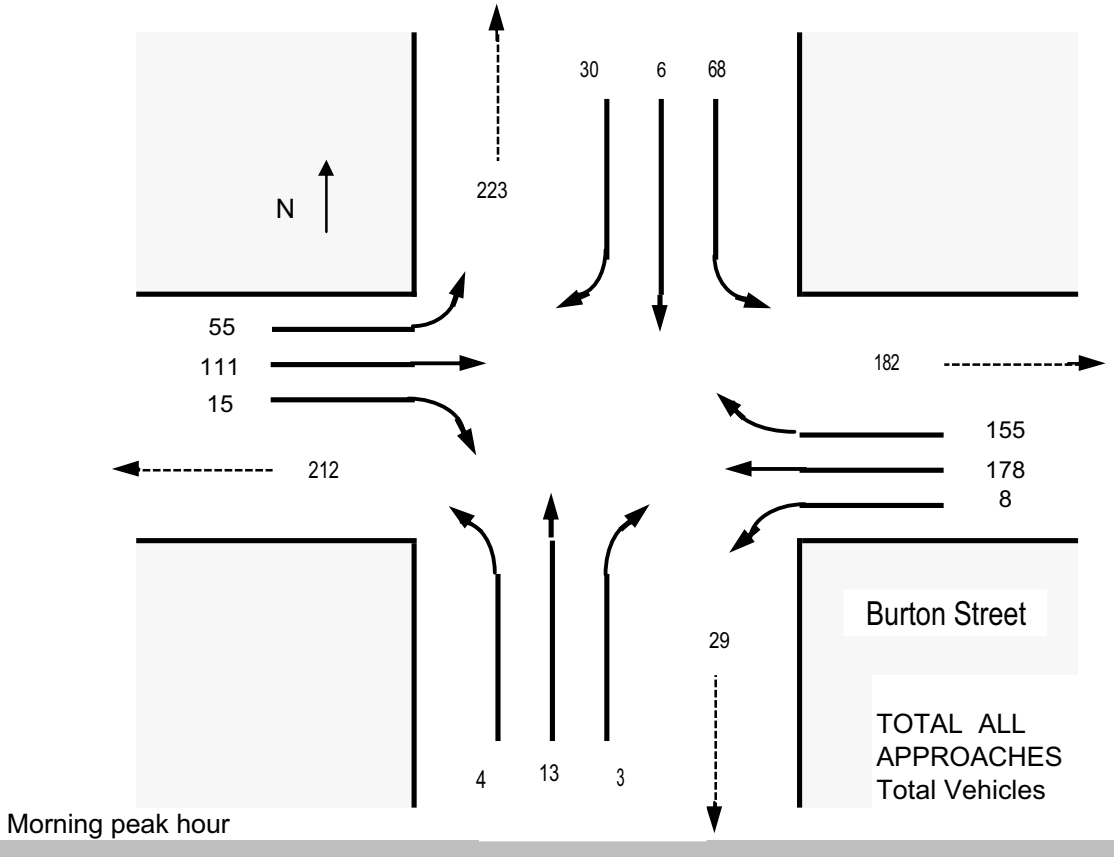
Morning peak hour

Forbes Street



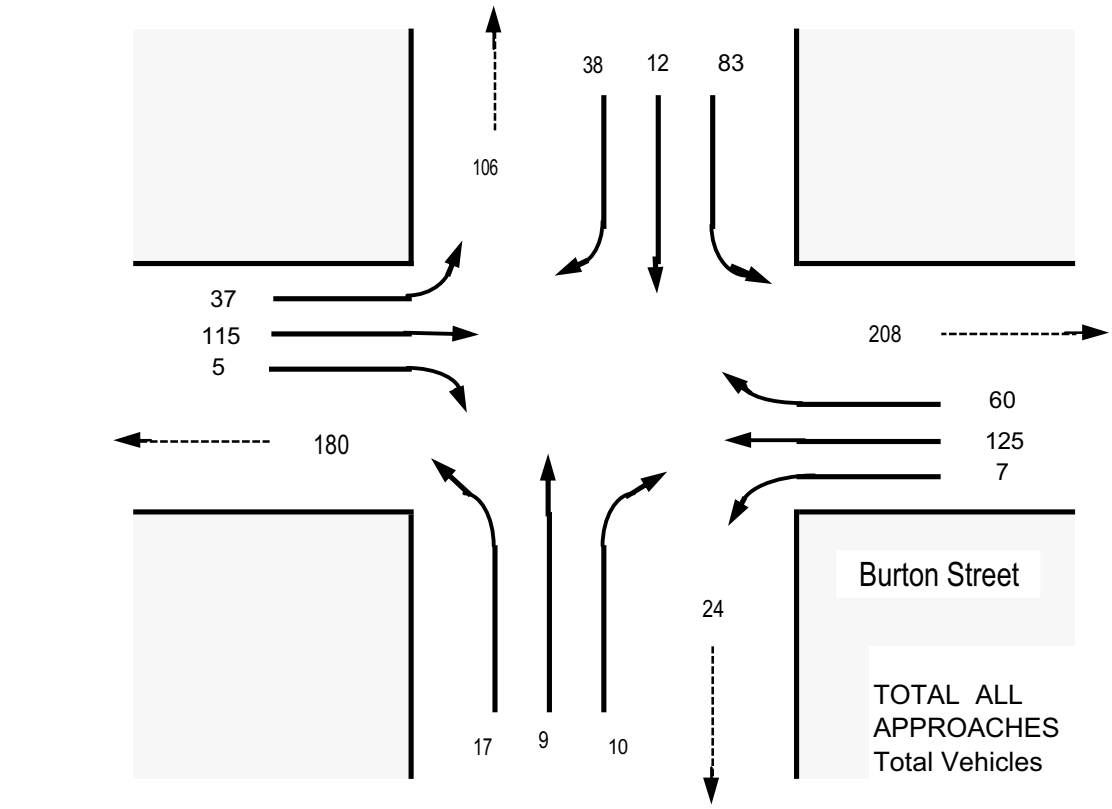
Afternoon peak hour:

AM AND PM PEAK HOUR TRAFFIC MOVEMENTS ON A WEEKDAY
INTERSECTION OF BURTON and FORBES STREETS



Morning peak hour

Burke Street



Afternoon peak hour:

AM AND PM PEAK HOUR TRAFFIC MOVEMENTS ON A WEEKDAY
INTERSECTION OF BURTON and BURKE STREETS