STOCKLAND

TRAFFIC REPORT FOR SECTION 75W MODIFICATIONS TO THE APPROVED YENNORA DISTRIBUTION PARK MASTERPLAN

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1. INTRODUCTION

1.1 Colston Budd Hunt & Kafes Pty Ltd has been commissioned by Stockland to assess the traffic implications of the Section 75W proposed modifications to the approved Yennora Distribution Park Masterplan.

1.2 The distribution park is located on a 68 hectare site as shown in Figure 1. The site has access to a number of streets, including Loftus Road, Byron Road and Dennistoun Avenue. The site also has rail access via a siding off the main rail line.

1.3 The Yennora Distribution Park Masterplan was approved in April 2002 to allow for the storage, handling and distribution of general merchandise. The masterplan consent sets out long term development plans for the site and detailed plans for works in each precinct.

1.4 This company previously prepared reports[1][2][3] which assessed the traffic implications of the development of the Yennora Distribution Park and modifications to the approved masterplan within the eastern and western precincts of the site.

1.5 The Section 75W proposed modifications to the approved masterplan are within the western precinct and will result in a net increase of some 4,600m^2 of warehouse area.

1.6 The traffic implications of the proposed modifications are assessed in the following chapter.

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(1) "Report on the Traffic Implications of Potential Future Development for Yennora Distribution Park, Dennistoun Avenue, Yennora", August 2001, Colston Budd Hunt & Kafes Pty Ltd.

(2) "Modifications to Yennora Distribution Park Masterplan - Western Precinct", May 2004, Colston Budd Hunt & Kafes Pty Ltd.

(3) "Modifications to Yennora Distribution Park Masterplan - Eastern Precinct", February 2005, Colston Budd Hunt & Kafes Pty Ltd.

2. IMPLICATIONS OF PROPOSED MODIFICATIONS

2.1. Our assessment of the implications of the Section 75W proposed modifications is set down through the following sections:

- site location and existing road network;
- Section 75W proposed modifications;
- parking provision;
- access arrangements;
- internal circulation and servicing;
- traffic effects; and
- summary.

Site Location and Existing Road Network

2.2. The Yennora Distribution Park occupies approximately 68 hectares of land in Yennora. The site occupies the bulk of the block bounded by Loftus Road, Boola Avenue, Byron Road, Dennistoun Avenue, Fairfield Road, Dursley Road and Pine Road. The site location is shown in Figure 1.

2.3. The site is divided into two major parts by the railway siding passing through the site. There are 10 buildings on the site, three located on the southern side of the railway siding and seven on the northern side. The rail siding enters the site via a level crossing on Boola Avenue in the south-eastern corner of the site and runs parallel to the southern boundary. The rail line ends at the western end of the site. Within the site there is one bridge over the railway line and there are two level crossings.

Section 75W Proposed Modifications

2.4. Proposed modifications to the approved masterplan in relation to the western precinct are shown in Table 2.1.

Table 2.1: Proposed Modifications to Approved Masterplan

Building	Existing	Consent 2002	Proposed 2015	Comment
Building 3	9,241m^2	9,241m^2	13,500m^2	To be redeveloped
Building 8A	-	8,060m^2	8,060m^2	To be renamed to 8C
Building 8B	8,038m^2	8,000m^2	8,038m^2	Existing building to remain
Building 9	-	8,800m^2	9,100m^2	To be renamed 8A
Total	**17,279m^2**	**34,101m^2**	**38,698m^2**	

2.5. The proposed modifications will result in a net increase of 4,597m^2 of warehouse area compared to the approved masterplan.

2.6. Proposed modifications also include modifications to hardstand areas, creation of new loading docks, modifications to the internal circulation and provision of additional parking areas.

Parking Provision

2.7. Holroyd DCP 2013, Part D, Section 9 relates to the Yennora Distribution Park. Section 9.5 states that parking should be provided in accordance with the provision of Part A of the DCP, however Table 3.1 in Part A of the DCP states that the parking rates do not apply to the Yennora Distribution Park. Notwithstanding this, car parking for the proposed development has been assessed based on the parking rates set out in Table 3.1 of Part A of the DCP, which specifies that parking should be provided at a rate of one space per 300m^2

for warehouses and one space per 40m^2 for office. Based on a provision of some 10% office, the increase of 4,597m^2 of warehouse requires an additional 25 parking spaces. The Section 75W modifications increase parking provision by 90 spaces, satisfies this requirement.

Access Arrangements

2.8. There are three main access points to the site off Loftus Road, Dennistoun Avenue and Byron Road. These include:

- Gate 1:
  - located to the south with access via Loftus Road;
  - this gate is accessed by both light and heavy vehicles;
- Gate 2:
  - located to the north with access via Dennistoun Avenue;
  - access by light traffic only;
- Gate 3:
  - located to the east with access via Byron Road;
  - this gate is accessed by both light and heavy vehicles.

2.9. The following conditions of consent relate to the use of the access arrangements:

- Condition 16 of the consent restricts the use of the Dennistoun Avenue entrance (Gate 2) to light vehicles only. Signage and a height bar are currently in place to prevent access at this point by heavy vehicles;
- Condition 17 of the consent restricts heavy vehicle movements at the Byron Road entrance (Gate 3) to left in/right out;

- Condition 18 of the consent restricts the use of the northern driveway on Byron Road, accessing the Building 9 car park, to light vehicles only.

2.10. The proposed modifications will not result in any change to the approved access arrangements.

Internal Circulation and Servicing

2.11. As part of the proposed modifications, internal circulation roads within the western part of the site will be reconfigured to provide appropriate access to loading and car parking areas associated with the proposed and existing buildings located within the western precinct. Hardstand and loading facilities for Building 3 will be located on the southern side of the building, adjacent to the rail siding. Loading facilities for Building 8A (formerly Building 9) will be located on the western side of the building.

2.12. The proposed hardstand and loading facilities for the two buildings will be designed to accommodate large rigid trucks and articulated vehicles. The loading docks will be designed to allow service vehicles to enter and leave the site in a forward direction. The proposed loading dock arrangements are considered appropriate and will be provided in accordance with the Australian Standard for Off-street commercial vehicle facilities (AS2890.2-2002).

2.13. Car parking for Building 3 will be provided for some 100 vehicles within two separate parking areas located on the northern and western sides of the building. These parking areas will be accessed via the main north-south circulation road located on the eastern side of Building 3, adjacent to Building 2.

2.14. Car parking for Building 8A (formerly Building 9) will be provided for some 80 vehicles within a parking area located on the northern side of the building. The

car park will be accessed via the main east-west circulation road located adjacent to the northern boundary of the site, parallel to Dennistoun Avenue.

2.15. Car parking spaces will be provided at 2.4 metres wide by 5.4 metres long, with a corresponding aisle width of 6 metres. Parking space dimensions and layouts are considered appropriate and will be provided in accordance with the Australian Standard for Off-street car parking facilities (AS2890.1-2004).

2.16. The proposed traffic circulation arrangements within the western part of the site, via the main north-south and east-west circulation roads will effectively be retained in accordance with the approved masterplan. These arrangements, incorporating the proposed access arrangements for Buildings 3 and 8A, are considered appropriate.

Traffic Effects

2.17. In order to assess the operation of the surrounding road network, traffic counts were undertaken during weekday morning and afternoon peak periods at the access driveways onto Loftus Road, Byron Road and Dennistoun Avenue, and at the intersections of Loftus Road/Pine Road and Boola Avenue/Military Road/Byron Road.

2.18. The results of the counts are set out on Figures 3 and 4, and summarised in Table 2.2.

2.19. Examination of Table 2.2 reveals that:

- Loftus Road and Pine Road carried some 450 to 850 vehicles per hour two-way during the weekday morning and afternoon peak periods;

- Boola Avenue carried some 400 to 500 vehicles per hour two-way during the weekday morning and afternoon peak periods; and

- traffic flow on Byron Road, Military Road and Dennistoun Avenue were some 200 to 300 vehicles per hour two-way during peak periods.

Table 2.2: Existing Weekday Two-Way (Sum of Both Directions) Peak Hour Traffic Flows

Location	Morning Peak Period (Vehicles/Hour)	Afternoon Peak Period (Vehicles/Hour)
Lotus Road		
- east of Pine Road	715	530
- east of Gate 1	665	460
Pine Road		
- north of Loftus Road	840	605
- south of Loftus Road	625	615
Dennistoun Avenue		
- east of Gate 2	230	305
- west of Gate 2	220	305
Byron Road		
- north of Military Road	250	235
- north of Gate 3	190	200
Military Road		
- east of Byron Road	275	230
Boola Avenue		
- west of Byron Road	475	435
Access Driveways		
- Gate 1	120	100
- Gate 2	70	90
- Gate 3	95	110

2.20. The Yennora Distribution Park generated some 285 and 300 vehicles per hour two-way during the morning and afternoon peak periods respectively. During these periods the site generated some 120 trucks per hour two-way during the morning and some 90 trucks per hour two-way during the afternoon peak period.

2.21. The access driveways onto Loftus Road, Byron Road and Dennistoun Avenue, and the intersections of Loftus Road/Pine Road and Boola Avenue/Military Road/Byron Road have been analysed using the SIDRA program. The program simulates the operation of the intersections to provide a number of performance measures. The most useful measure provided is average delay per vehicle expressed in seconds per vehicle. Based on average delay per vehicle, SIDRA estimates the following levels of service (LOS):

- For traffic signals, the average delay per vehicle in seconds is calculated as delay/(all vehicles), for roundabouts the average delay per vehicle in seconds is selected for the movement with the highest average delay per vehicle, equivalent to the following LOS:

0 to 14	=	"A"	Good
15 to 28	=	"B"	Good with minimal delays and spare capacity
29 to 42	=	"C"	Satisfactory with spare capacity
43 to 56	=	"D"	Satisfactory but operating near capacity
57 to 70	=	"E"	At capacity and incidents will cause excessive delays. Roundabouts require other control mode
>70	=	"F"	Unsatisfactory and requires additional capacity.

- For give way and stop signs, the average delay per vehicle in seconds is selected from the movement with the highest average delay per vehicle, equivalent to the following LOS:

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.

2.22. It should be noted that for roundabouts, give way and stop signs, in some circumstances, simply examining the highest individual average delay can be misleading. The size of the movement with the highest average delay per vehicle should also be taken into account. Thus, for example, an intersection where all movements are operating at a level of service A, except one which is at level of service E, may not necessarily define the intersection level of service as E if that movement is very small. That is, longer delays to a small number of vehicles may not justify upgrading an intersection unless a safety issue was also involved.

2.23. The SIDRA analysis found that the roundabout controlled intersection of Loftus Road and Pine Road is operating with average delays, for the movement with the highest average delay, of less than 20 seconds per vehicle during the morning and afternoon peak periods. This represents a level of service B, which is a good level of intersection operation.

2.24. The priority controlled intersection of Boola Avenue/Military Road/Byron Road is operating with average delays, for the movement with the highest average delay, of less than 15 seconds per vehicle during the morning and afternoon peak periods. This represents a level of service A/B, which is a good level of intersection operation.

2.25. The access driveways onto Loftus Road, Byron Road and Dennistoun Avenue are operating at a good level of service with average delays of less than 15 seconds per vehicle during peak periods. This represents a level of service A/B, which is a good level of operation.

2.26. The proposed modifications to the Yennora Distribution Park will result in a net increase of some 4,597m^2 of warehouse area. Based on the RMS guideline rate of

0.5 vehicles per hour per 100m^2, this increase in warehouse development would result in an additional some 25 vehicles per hour at peak times.

2.27. This additional traffic will be distributed across the various access driveways onto the surrounding road network, including Loftus Road, Byron Road and Dennistoun Avenue, and result in increases of some 5 to 10 vehicles per hour two-way on these roads. Such minor increases would not have noticeable effects on the surrounding road network.

Summary

2.28. In summary, the main points relating to the implications of the Section 75W proposed modifications to the Yennora Distribution Park Masterplan are:-

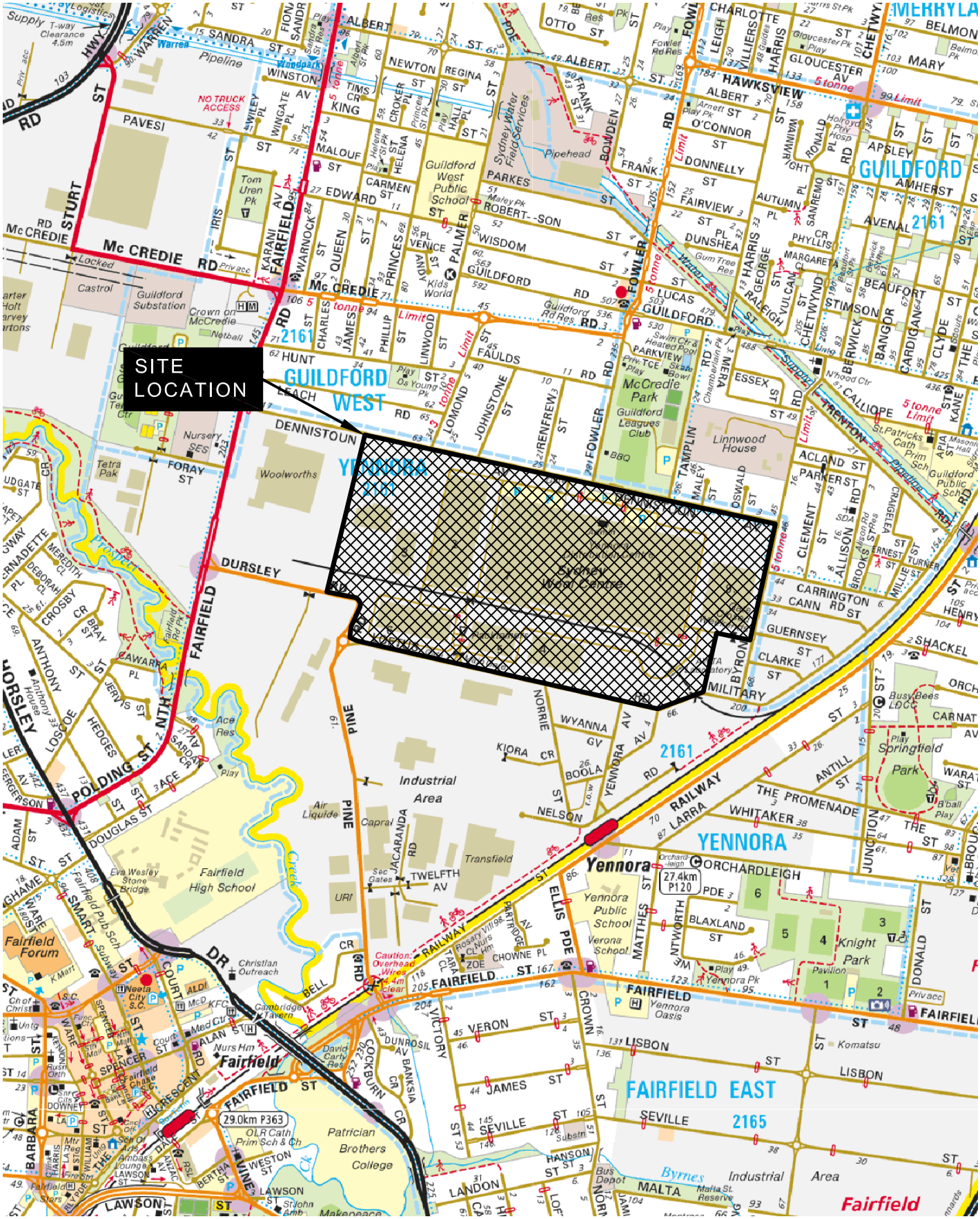
i) the proposed modifications will result in a net increase of some 4,600m^2 of warehouse area;

ii) car parking provision is appropriate;

iii) access and internal circulation are appropriate and will be designed in accordance with the Australian Standards AS2890.1-2004 and AS2890.2-2002;

iv) the proposed modifications would increase flows on surrounding roads by some 5 to 10 vehicles per hour at peak times;

v) such minor increases would not have noticeable effects on the surrounding road network.



Location Plan

Colston Budd Hunt & Kafes Pty Ltd

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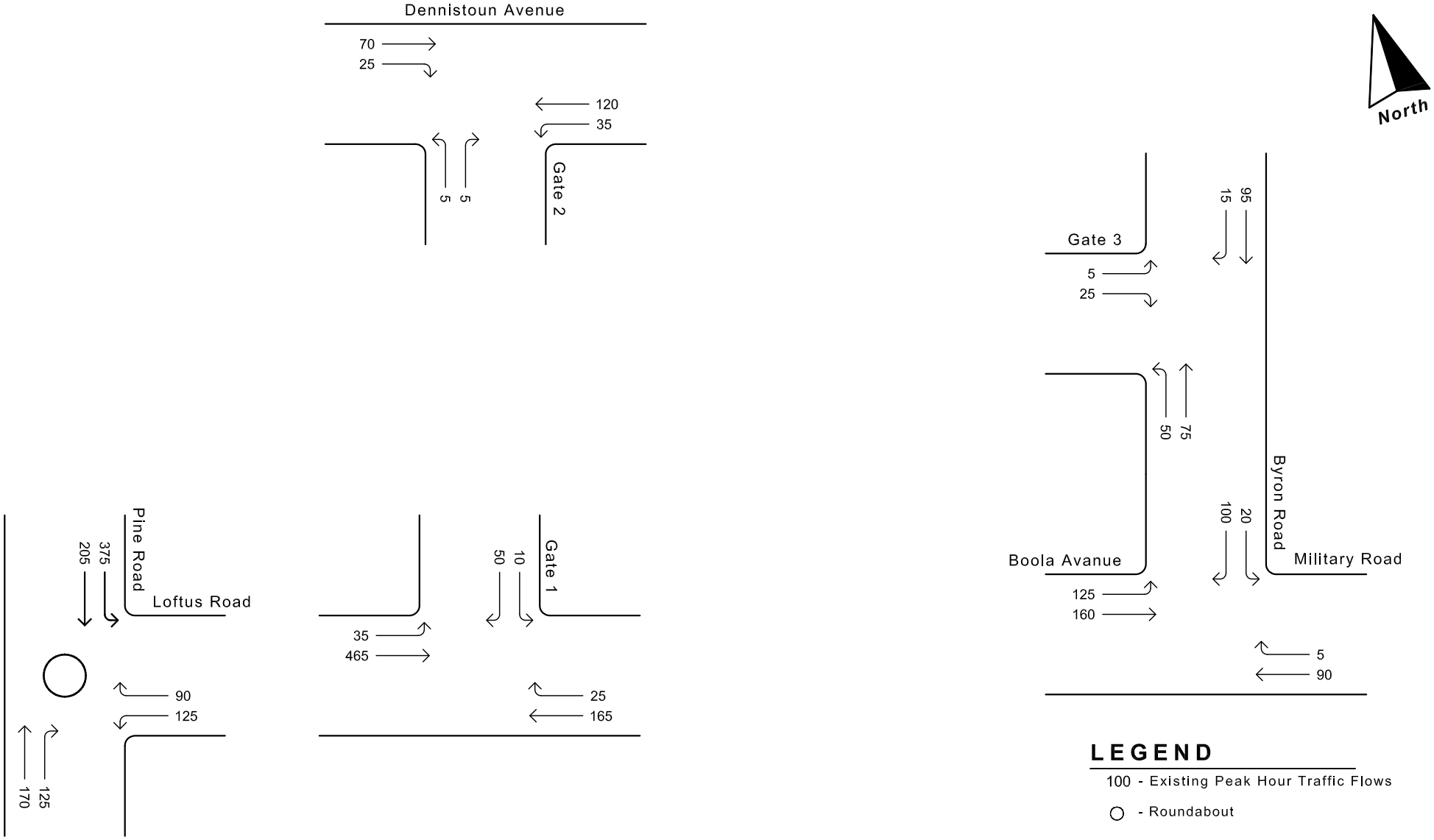
Figure 1



Existing weekday morning peak hour traffic flows

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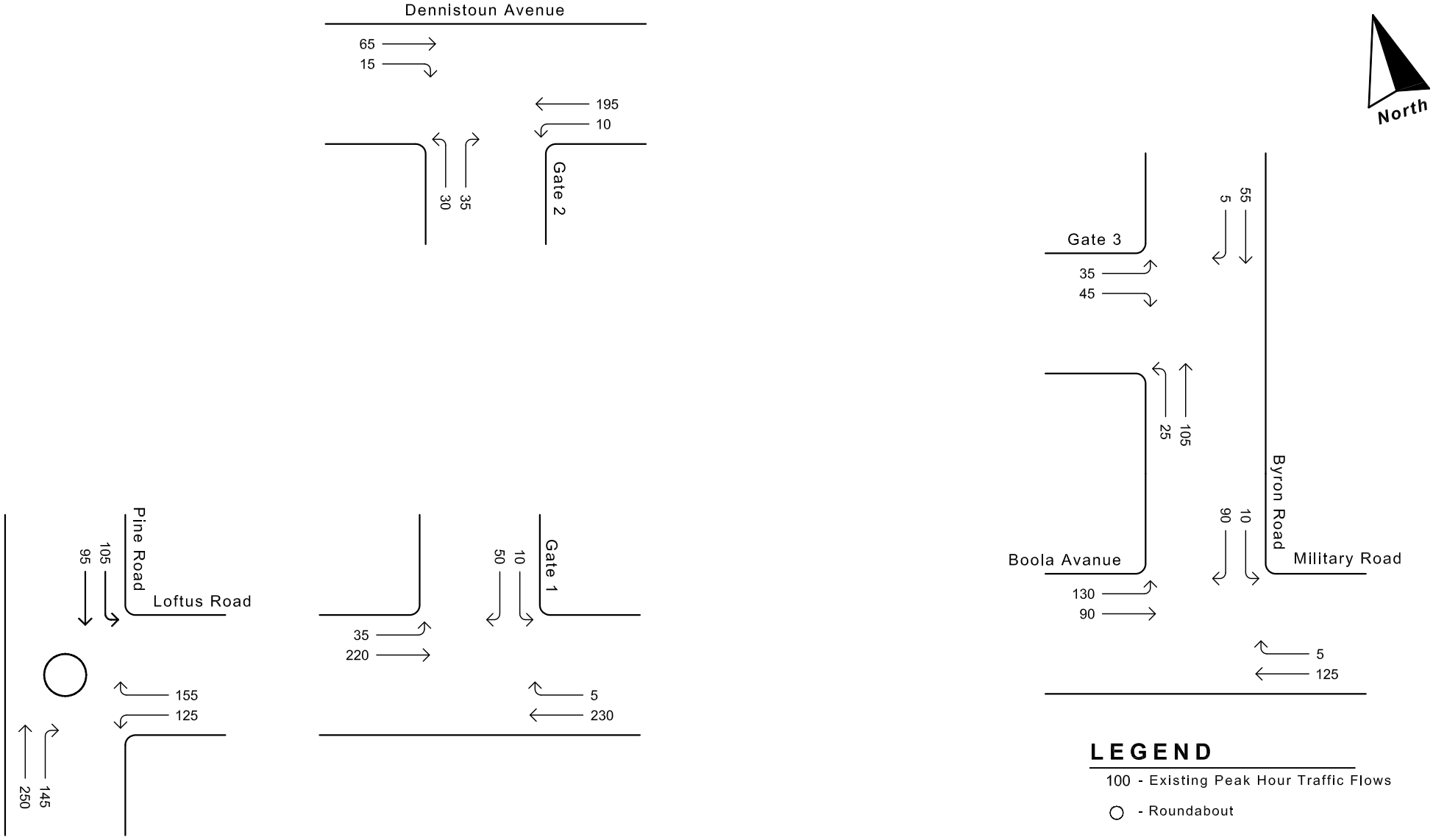
Figure 2



Existing weekday afternoon peak hour traffic flows

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Figure 3