Parkside Yeronga Master Plan

Transport Impact Assessment

Prepared by: GTA, now Stantec (QLD) for Economic Development Queensland – Urban Development

on 16/09/2021

Reference: Q168723

Issue #: B

GTAconsultants now Stantec

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Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
B	16/09/2021	Final	A.Tierney	T.Williams	T.Williams (RPEQ #20703)	

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1. INTRODUCTION

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1.1. Application Overview

An application is to be lodged with Economic Development Queensland – Development Assessment (EDQ DA) for the development of a site located at 70 Park Road, Yeronga. This land is described as Lot 3 on SP300888 (herein referred to as the 'subject site') and is located within the Yeronga Priority Development Area (PDA).

The proposal seeks a PDA Preliminary Approval for a material change of use and a PDA Development Permit for a Reconfiguring a Lot (1 into 14 lots, easements and road). The PDA Preliminary Approval for a material change of use is in accordance with a Master Plan for the development of 4 precincts as follows:

1. Residential Precinct
2. Community Precinct
3. Commercial Precinct
4. Open Space Precinct.

The land uses sought in each precinct are outlined within Table 1.1.

Table 1.1: Precinct Land Uses

Residential Precinct	Community Precinct	Commercial Precinct	Open Space Precinct
Care co-located uses	Childcare centre	Childcare centre	Park
Dwelling house	Community care centre	Community care centre	
Dual occupancy	Community use	Food and drink outlet	
Multiple dwelling	Food and drink outlet	Health care service	
Park	Shop	Office	
Residential care facility		Shop	
Retirement facility			

GTA, now Stantec (herein referred to as 'Stantec') was commissioned by EDQ - Urban Development (EDQ UD) in November 2020 to undertake a Transport Impact Assessment for the Preliminary Approval and ROL application. Separate Development Applications will be subsequently lodged for the future development of each of the Lots.

1.2. Parkside Yeronga Master Plan

The Parkside Yeronga Master Plan (herein referred to as the 'proposed Master Plan') has been prepared as a design response to the Yeronga PDA Development Scheme to identify the potential form, function and layout of future development of the Yeronga PDA. While the Preliminary Approval and ROL application seek to establish the 4 precincts, individual Lots and the internal street network, the Master Plan provides a possible outcome for the future development of the individual Lots and has formed the basis for this Transport Impact Assessment.

The illustrative proposed Master Plan is provided in Figure 1.1 and the indicative land uses and yields are presented in Table 1.2 (as provided by EDQ UD). The land uses and yields are to be confirmed as part of the separate Development Applications for each Lot.

Figure 1.1: Illustrative Parkside Yeronga Master Plan

Reproduced with permission from the Parkside Yeronga Master Plan Report.

Table 1.2: Indicative Land Uses and Yield

Lots [1]	Description	Land Use	Indicative Yield
1	Commercial	Office	6,000 sqm
2 & 3	Social Housing (High Density Residential)	Multiple Dwelling	78 dwellings
6 & 10	Townhouses (Medium Density Residential)	Multiple Dwelling	38 dwellings
7, 8 & 9	Retirement Living	Retirement Facility Residential Care Facility	178 dwellings
11	Yeronga Community Centre	Community Use (Community Centre)	730m

The ROL plan prepared by Wolter Consulting and the Access & Movement Plan prepared by Archipelago are provided at Appendix A.

1.3. Road Safety Audit

The Yeronga PDA Development Scheme nominated an indicative primary road network with connections to Park Road and Villa Street. A Road Safety Audit (RSA) was completed by AECOM on behalf of EDQ DA in April 2021 on the Yeronga PDA Development Scheme and a preliminary (superseded) Master Plan. The RSA raised a number of Intolerable safety risks related to the Villa Street connection with no feasible mitigation treatments.

The proposed transport solution for the proposed Master Plan has therefore been developed in response to the findings of the RSA while taking guidance from Brisbane City Council's Planning Scheme, the relevant Austroads Guidelines and applying a suitable level of transport engineering rigor. Details of how the proposed transport solution has responded to the RSA are provided throughout this report with a holistic response provided in Appendix B.

1.4. Purpose of this Report

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

1. The existing form, function and operation of the transport network in the vicinity of the subject site
2. Active travel requirements and recommended provisions
3. Public transport connections
4. Service vehicle requirements
5. The person trip generating characteristics of the proposed Master Plan
6. Suitability of the proposed vehicle connections to the external road network
7. The estimated transport impact of the proposed Master Plan on the surrounding road network.

These items have each been considered at a level of detail commensurate with the current level of design development. Further detail is to be provided (as required) in support of the subsequent Development Application submissions for each Lot.

1.5. References

In preparing this report, reference has been made to the following:

- Multiple inspections of the site and its surrounds, with the most recent undertaken by Stantec on Wednesday 8 September 2021
- EDQ's 'Yeronga Priority Development Area – Development Scheme' (August 2019)
- Brisbane City Plan 2014 (version 21, dated May 2021)
- Intersection movement (pedestrians, cyclists & vehicles) and car parking demand surveys undertaken by Austraffic as referenced in the context of this report
- Plans for the ROL prepared by Wolter Consulting and Access & Movement plans prepared by Archipelago, provided at Appendix A
- other documents and data as referenced in this report.

2. EXISTING CONDITIONS

02

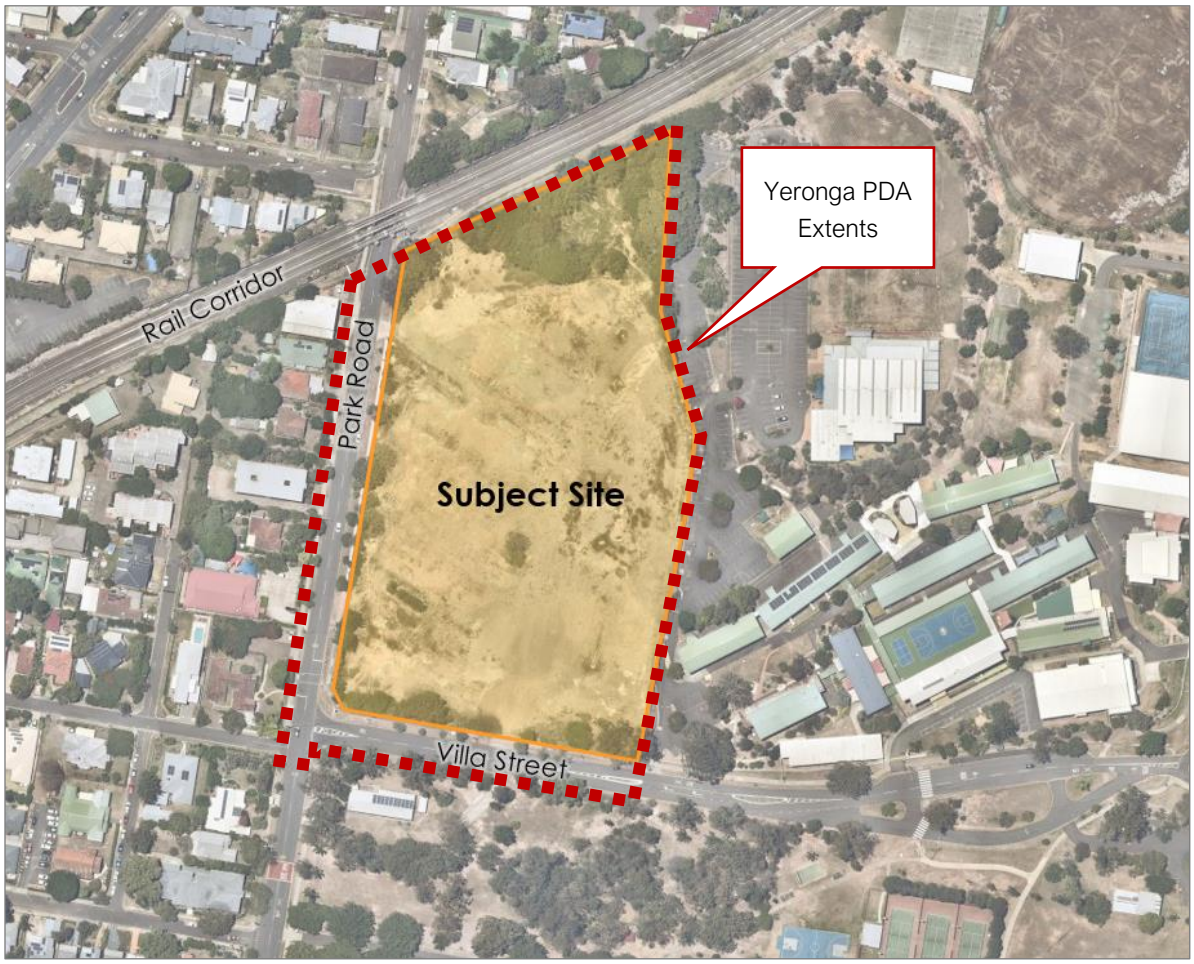
2.1. Subject Site

The subject site is located at 70 Park Road, Yeronga and is described as Lot 3 on SP300888. The site of approximately 31,000sqm has frontages in the order of 200m to Park Road and 140m to Villa Street, with the subject site and road frontages located within the Yeronga PDA. The site is bordered by the Yeronga State High School to the east and a rail corridor to the north.

The site currently has a land use classification of Community Facilities (Education Purposes) and is unoccupied. The surrounding properties predominantly include Sport and Recreation, Low and Medium Density Residential and Education uses.

The location of the subject site and its surrounding environs is shown in Figure 2.1.

Figure 2.1: Subject Site and Its Environs



2.2. Active Transport Network

2.2.1. Pedestrian Infrastructure

Stantec has undertaken a review of the existing pedestrian infrastructure within the vicinity of the subject site. This review indicates that pedestrian paths are located as follows:

- Villa Street – 1.8m wide (approx.) footpath located along the north verge and a 1.0m wide (approx.) footpath located along the southern verge between Park Road and the Kurilpa Scout Group hall
- Park Road – 2.0m wide (approx.) shared path located along the west verge (including a ramp beneath the rail overpass) and a 1.2m wide (approx.) footpath located along east verge (with stairs beneath the rail overpass).

A signalised pedestrian crossing of Park Road is provided immediately to the north of the Park Road / Villa Street intersection.

The existing pedestrian infrastructure is shown in Figure 2.2. It is understood that there are no future pedestrian infrastructure upgrades currently proposed by Council within the vicinity of the subject site.

2.2.2. Cycle Infrastructure

Stantec has undertaken a review of the existing cycling infrastructure within the vicinity of the subject site. As outlined in Section 2.2.1, a 2.0m wide (approx.) shared path is located along the west verge of Park Road. This includes a ramp beneath the rail overpass.

The existing cycling infrastructure is shown in Figure 2.3. It is understood that there are no future cycling infrastructure upgrades currently proposed by Council within the vicinity of the subject site.

Figure 2.2: Existing Pedestrian Network

Figure 2.3: Existing Cycle Network

2.3. Public Transport

A review of the public transport available in the vicinity of the site is summarised in Table 2.1.

Table 2.1: Public Transport Provision

Service	Route #	Route Description	Nearest Stop	Distance to Stop	Frequency On/Off Peak
Train	BNBR, BRBN, FGBN, BNFG	Beenleigh Line	Yeronga Station	350m	15 min / 30 min (each direction)

Service	Route #	Route Description	Nearest Stop	Distance to Stop	Frequency On/Off Peak
Bus	104	Indooroopilly to City	Park Rd at Yeronga TAFE, stop 22	50m	60 min / 60 min (each direction)
Bus	105	Yeronga to City	Park Rd at Yeronga TAFE, stop 22	50m	60 min / 60 min (each direction)
Bus	108	Indooroopilly to City	Park Rd at Yeronga TAFE, stop 22	50m	5 services daily [1]
Bus	109	Moorooka to Boggo Road	Fairfield Rd at Ovendean Street, stop 21	350m	8 min / 15 min (each direction)
Bus	110	Inala to City (cityxpress)	Park Rd near Christensen St	150m	15 min / 30 min (each direction)

[1] Route does not operate outside of the AM and PM peak hours, operating inbound services in the AM peak and outbound services during the PM peak.

The review of available public transport indicates that the subject site is well serviced by train and bus services inbound and outbound from the Brisbane CBD and nearby transport interchanges.

2.4. Existing Road Network

Characteristics of existing roads in the vicinity of the subject site are outlined in Table 2.2.

Table 2.2: Existing Road Network

Road Name	Villa Street (Figure 2.4)	Park Road (Figure 2.5)	Dublin Street
Jurisdiction	Council Controlled	Council Controlled	Council Controlled
Class Type	District Road	District Road	Neighbourhood Road
Posted Speed	40kph	50kph	50kph
Lane Formation	Two-lane / undivided / two-way	Two-lane / undivided / two-way	Two-lane / undivided / two-way
Carriageway Width	Approx. 12m	Approx. 10m	Approx. 6m
Reserve Width	Approx. 18m	Approx. 21m	Approx. 10m
Kerbside Parking	Unrestricted / Loading Zone / Bus Zone	Unrestricted / Loading / Bus Zone / No Parking 9am-7pm	Unrestricted / No Stopping / No Parking 9am-7pm
Daily Volume	Approx. 4,500 vehicles per day [1]	Approx. 7,000 vehicles per day [1]	Approx. 150 vehicles per day [1]

[1] Based on traffic counts obtained / undertaken by Austraffic, and assuming a peak-to-daily ratio of 10%

Villa Street and Park Road are shown on Figure 2.4 and Figure 2.5, respectively.

Figure 2.4: Villa Street at site frontage (Facing West)

Figure 2.5: Park Road at Villa Street (Facing North)

2.5. Crash Statistics Review

A review of road crash data proximate to the site was undertaken to assess current levels of road safety. Road crash data was sourced from the Department of Transport and Main Roads (TMR) for a five year period between 1 January 2016 and 31 December 2020 (obtained September 2021). This crash data provides information on the number of reported crashes which have occurred, categorised into the following:

- Crash resulting in fatality
- Crash resulting in hospitalisation
- Crash resulting in medical treatment
- Crash resulting in minor injury
- Crash resulting in property damage only.

A review of recorded crashes has been undertaken for the locations likely to experience the greatest increase in vehicle trip demand resulting from the development. Based on the review, 5 crashes occurred during the review period which were proximate to the subject site.

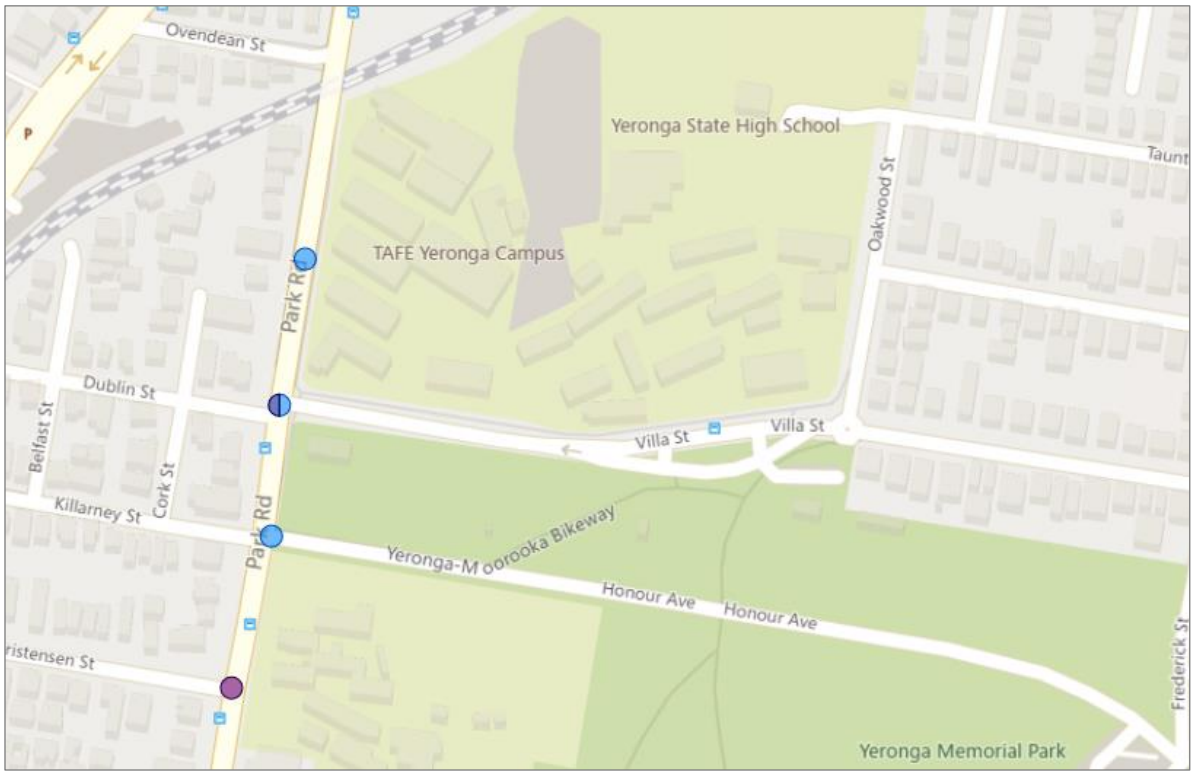
A summary of the road crash data for locations proximate to the site is presented in Table 2.3 and Figure 2.6.

Table 2.3: Road Crash Statistics (2016 – 2020) – Villa Street / Park Road & Surrounding Road Network

Location	Crash Severity	Number of Crashes	Crash Description
Park Road, north of Villa Street intersection	Hospitalisation	1 (2018)	Hit parked vehicle
Park Road / Villa Street intersection	Hospitalisation Medical Treatment	1 (2017) 1 (2016)	Adjacent approach Thru-Thru Adjacent approach Thru-Left
Park Road / Honour Avenue intersection	Hospitalisation	1 (2017)	Vehicles manoeuvring
Park Road / Christensen Street intersection	Minor Injury	1 (2018)	Rear end

Location	Crash Severity	Number of Crashes	Crash Description
Total	All	5	All

Figure 2.6: Road Crash Location (2016 – 2020) – Villa Street / Park Road network



Based on the information presented in Table 2.3 and Figure 2.6, there does not appear to be a pattern or frequency of incidents which may be worsened by an increase in network demand resulting from the proposed Master Plan.

As identified in Section 1.3, a RSA was completed by AECOM on behalf of EDQ DA in 2020. The findings of this RSA, including existing safety risks identified at the Park Road / Villa Street intersection, have been considered further in Section 3 (pedestrian treatments) and Sections 6 & 7 (intersection treatments) and a holistic response is provided in Appendix B.

2.6. Traffic Volumes

Stantec commissioned vehicle movement counts and queue length surveys to be undertaken by Austraffic on Tuesday 21 July 2020 at the key intersection of Park Road / Villa Street intersection in the vicinity of the subject site. Due to the potential impacts of COVID-19, the vehicle movement counts and queue length surveys were recollected on Tuesday 25 May 2021 as requested by EDQ DA. The updated data has been used to inform the traffic impact analysis presented within Section 7 of this report.

Analysis of the survey data indicates that the background peak hour periods are as follows:

- AM Road Network Peak Period – 8:00am to 9:00am
- PM Road Network Peak Period – 4:30pm to 5:30pm.

During analysis of the survey data, peak vehicle movement demands associated with the nearby schools was also identified between 2:30pm to 3:30pm.

2.7. Future Road Network Planning

A review of Council's Roads and Intersection projects displayed online has been undertaken and has identified no proposed plans for road or intersection upgrades for the road network surrounding the subject site. As such, no future road network upgrades have been considered within the traffic impact analysis presented within Section 7.

2.8. On-Street Car Parking Demands

Stantec commissioned car parking demand surveys, which were undertaken by Austraffic, for the surrounding road network. These surveys were intended to capture and provide insights to the temporal profile of on-street car parking demand within the existing road network.

2.8.1. Existing Car Parking Supply

A review of on-street car parking supply within 200m radius of the subject site was undertaken by Austraffic in November 2020. The inventory, provided in Appendix C, identified a total of 266 on-street parking spaces.

2.8.2. Existing Car Parking Demands

Car parking demand data was collected at hourly intervals on Thursday 19th November 2020 and Saturday 28th November 2020 from 6:00am to 10:00pm. The hourly car parking demand profile and associated car parking utilisation for the Park Road site frontage and unrestricted parking proximate to the development for the surveyed days is as follows:

- Park Road site frontage (16 spaces):
  - Peak occupancy of 100% during Thursday surveys and 31% during Saturday surveys in unrestricted parking conditions
  - From our site inspection and a closer review of the data, it appears that a high percentage of the vehicles parked in this location during the typical weekday are associated with the nearby school and childcare uses
  - It is expected that the demand of in the order of up to 4-5 vehicles could be associated with the nearby residential uses.
- Unrestricted car parking within 200m of the subject site:
  - Peak occupancy of 51% during Thursday observations and 47% during Saturday observations in unrestricted parking conditions
  - As a result, during Thursday observations at least 53 car parking spaces were available at all times and during Saturday observations at least 57 car parking spaces were available at all times in unrestricted parking proximate to the subject site.

The hourly car parking utilisation profiles obtained during on-site observations for the Park Road site frontage and overall precinct are provided in Figure 2.7 and Figure 2.8, respectively.

Figure 2.7: Park Road Site Frontage (16 spaces)

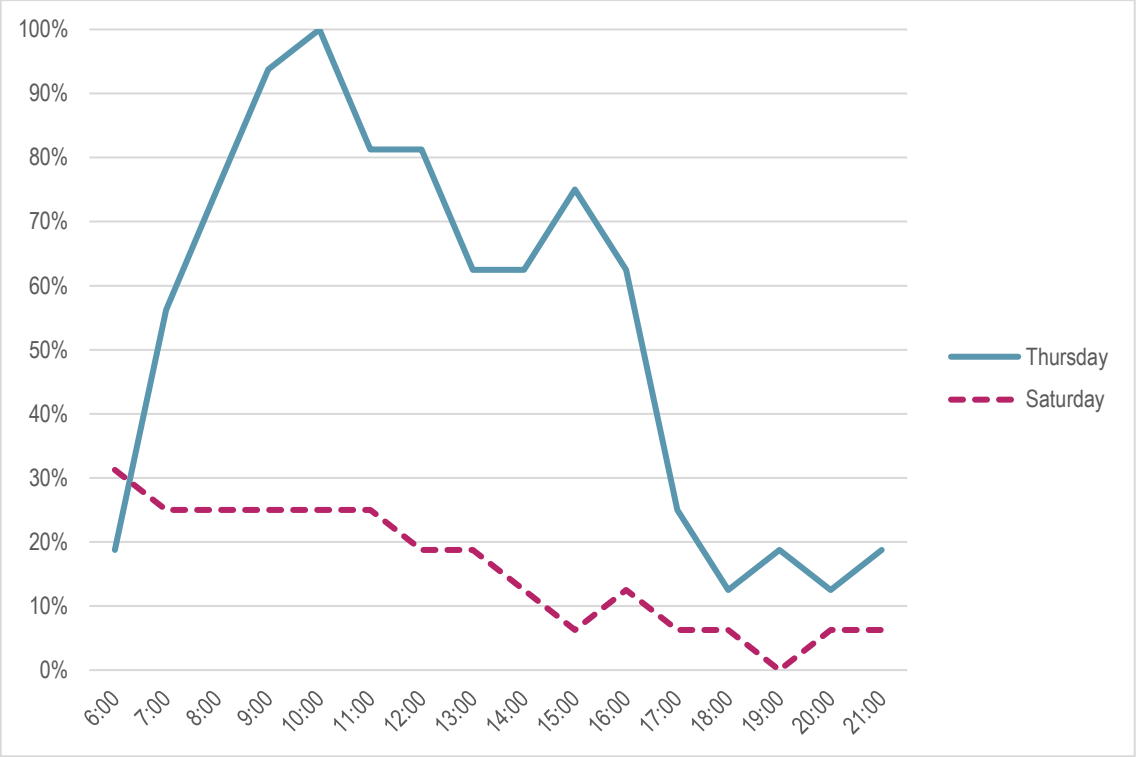
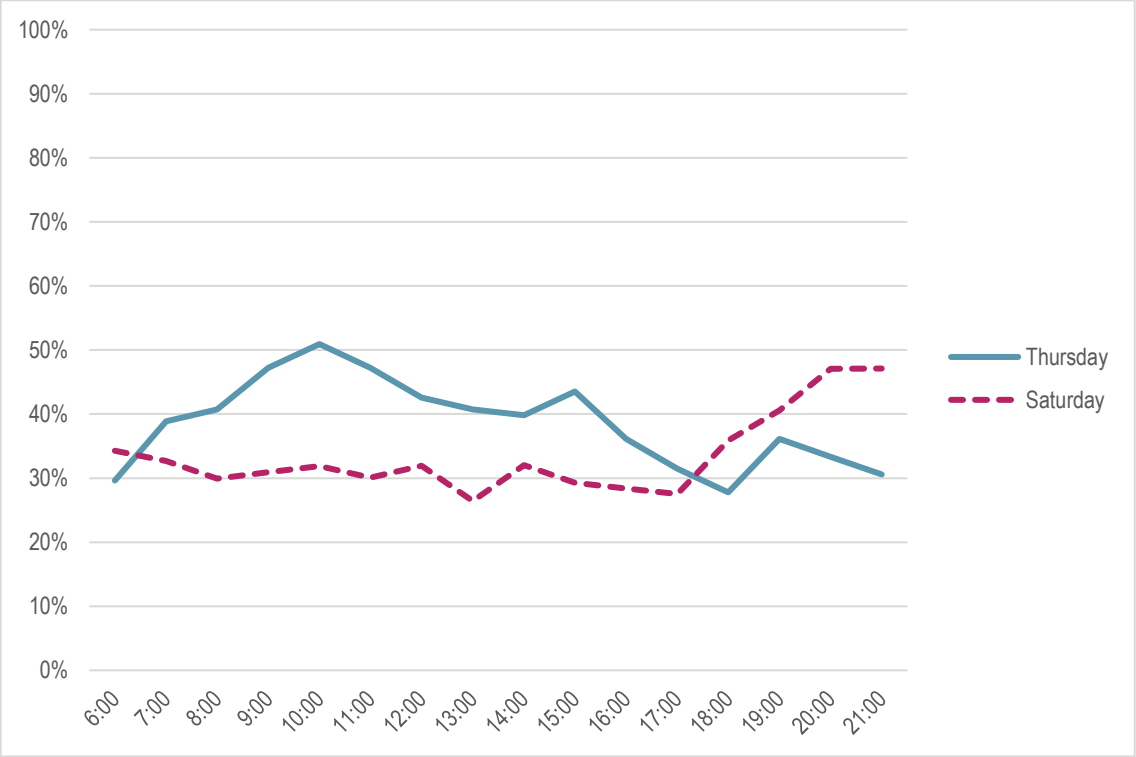


Figure 2.8: Overall Precinct (200m radius)



3. ACTIVE AND PUBLIC TRANSPORT

03

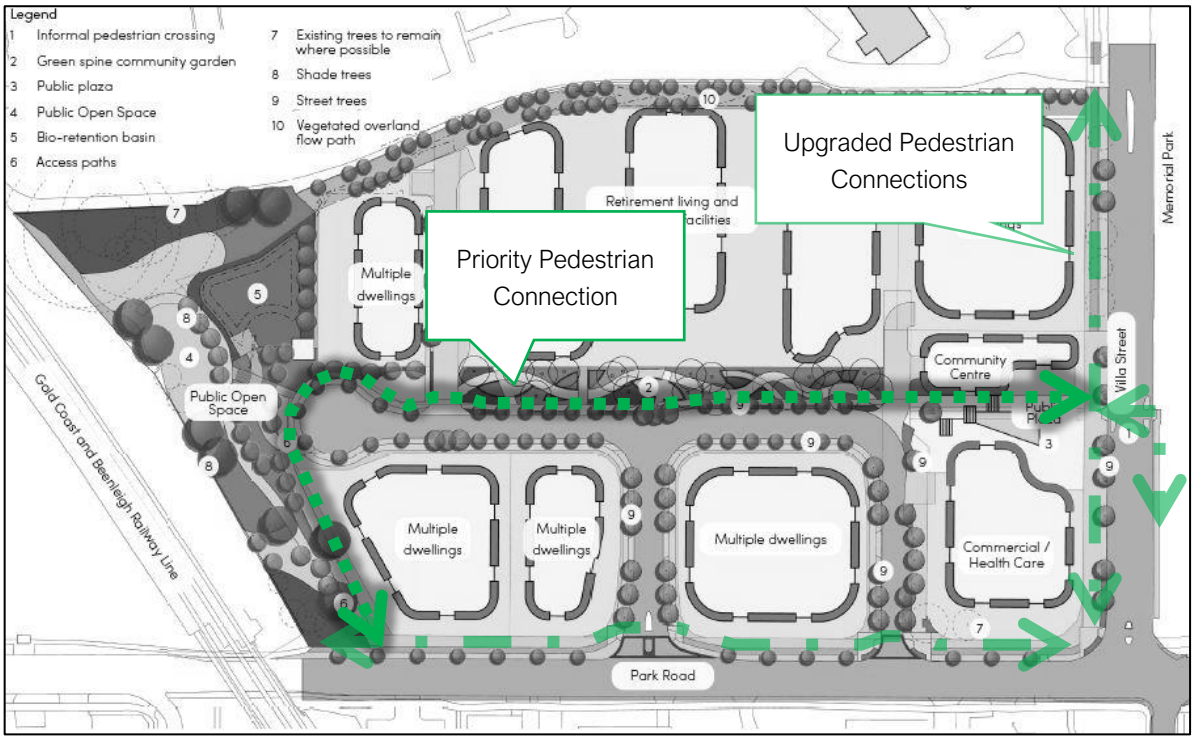
3.1. Pedestrian Access & Connectivity

The proposed Master Plan includes a high-quality pedestrian network throughout the site, connecting to the existing Park Road and Villa Street pedestrian network, which will facilitate pedestrian connections to each Precinct and the individual Lots. Key elements are summarised as follows:

- Prioritisation of pedestrians and provision of dedicated pedestrian pathways which limit the need for users to cross the internal street network
- This is accentuated through the provision of a pedestrianised Green Spine and plaza area
- Typical minimum footpath width of 1.5m throughout the site
- Upgraded footpaths along the Park Road and Villa Street frontages.

The priority pedestrian connections, which connects to the existing (and upgraded) pedestrian infrastructure and limit the need for users to cross the internal street network, are demonstrated in Figure 3.1.

Figure 3.1: Priority Pedestrian Connections



3.1.1. Road Safety Audit Response – Pedestrian Treatments

As identified in Section 1.3 of this report, a RSA was completed on a preliminary (superseded) Master Plan. The pedestrian connectivity and access solution has responded to the RSA including the following key elements:

- Provision of a pedestrian crossing point (in the form of island build outs) of Villa Street and footpath connections to the existing footpath on the south side of Villa Street
- Pedestrian refuge at pedestrian crossing of North Road and minimising the pedestrian crossing width of South Road to a maximum distance of 5.5m.

The pedestrian treatments are demonstrated in Figure 3.2 and Figure 3.3. A holistic response to the RSA is provided in Appendix B.

Figure 3.2: Villa Street Pedestrian Crossing Point

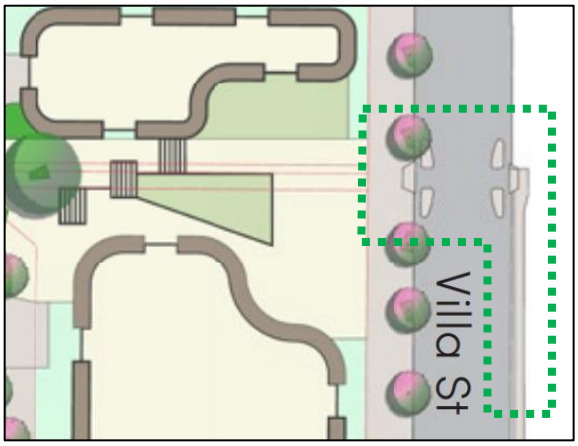
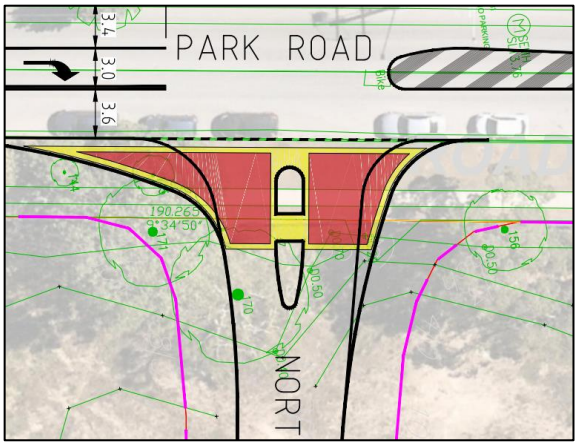


Figure 3.3: North Road Pedestrian Refuge



3.2. Cycling Provisions

The Yeronga PDA Development Scheme refers to Council's Transport, Access, Parking and Servicing Planning Scheme Policy (TAPS PSP) with respect to bicycle parking provision requirements for different land uses. A review of the relevant bicycle parking statutory rates is identified in Table 3.1 for the possible land uses (where applicable).

Table 3.1: Statutory Bicycle Parking Rates

Description	Land Use	Bicycle Parking Requirement
Commercial	Office (Centre Activities)	• 1 lockable bicycle space per 200sqm GFA for staff in an area that is secured or has a high level of casual surveillance • 2 lockers per 1 bicycle parking space (to accommodate pedestrian and cyclist demand) for staff • A minimum of 2 shower cubicles with provision for both females and males and an additional 1 shower cubicle with ancillary change rooms per 10 bicycle parking spaces for staff • 1 lockable bicycle parking space per 500sqm for visitors of which is situated close to building entrance in a location that is obvious from the street frontage and has a high level of casual surveillance
Social Housing (High Density Residential)	Multiple Dwelling	• 1 lockable, covered, bicycle parking space per unit (in either the garage or separate on-site facility) • 1 visitor bicycle parking space per 4 units or part thereof

Townhouses (Medium Density Residential)	Multiple Dwelling	• 1 lockable, covered, bicycle parking space per unit (in either the garage or separate on-site facility) • 1 visitor bicycle parking space per 4 units or part thereof
Retirement Living	Retirement Facility Residential Care Facility	Not Specified
Yeronga Community Centre	Community Use (Centre Activities)	Not Specified

The proposed Master Plan has not been developed to the level of detail in which total bicycle parking (and associated end-of-trip) provisions can be calculated. Nevertheless, it is expected that the proposed future development will provide bicycle parking provisions in-line with the statutory requirements detailed by Council's TAPS PSP.

Further detail in this regard is to be provided (as required) in support of the subsequent Development Application submissions for each Lot.

3.3. Public Transport Access

The above-mentioned pedestrian facilities are expected to provide connectivity between the proposed Master Plan and surrounding public transport options for staff, residents and visitors of each Precinct and the individual Lots.

The proposed Master Plan does not propose to impact the existing public transport network or public transport infrastructure.

4. CAR PARKING CONSIDERATIONS

04

4.1. Statutory Requirements

The car parking provision requirements for different land uses are set out in the Yeronga PDA Development Scheme (for Multiple Dwellings and Centre Activities land uses) and Council's TAPS PSP (for other land uses). A review of the relevant car parking statutory rates is identified in Table 4.1 below.

Table 4.1: Statutory Car Parking Requirements

Description	Land Use	Statutory Requirement
Commercial	Office (Centre Activities)	Maximum 5 spaces per 100sqm GFA for uses accessible at-grade from a public street or an on-site car parking area, plus maximum 2 spaces per 100sqm GFA for uses on other levels
Social Housing (High Density Residential)	Multiple Dwelling	Minimum 0.9 spaces per 1 bedroom dwelling Minimum 1.1 spaces per 2 bedroom dwelling Minimum 1.3 spaces per 3+ bedroom dwelling Minimum 0.15 spaces per dwelling for visitor parking
Townhouses (Medium Density Residential)	Multiple Dwelling	Minimum 0.9 spaces per 1 bedroom dwelling Minimum 1.1 spaces per 2 bedroom dwelling Minimum 1.3 spaces per 3+ bedroom dwelling Minimum 0.15 spaces per dwelling for visitor parking
Retirement Living	Retirement Facility Residential Care Facility	0.7 spaces per dwelling plus 0.3 spaces per dwelling for visitors and staff 1 space per 6 beds
Yeronga Community Centre	Community Use (Centre Activities)	Maximum 5 spaces per 100sqm GFA for uses accessible at-grade from a public street or an on-site car parking area, plus maximum 2 spaces per 100sqm GFA for uses on other levels

The proposed Master Plan has not been developed to the level of detail in which total car parking provisions can be calculated.

Nevertheless, it is expected that the proposed future development will provide car parking provisions generally in-line with the statutory requirements detailed by the Yeronga PDA Development Scheme and Council's TAPS PSP. Considerations of dispensations that will potentially be sought as part of subsequent Development Application submissions are outlined below.

Social Housing (High-Density Residential) Resident Car Parking

Based on the indicative yield identified in Section 1.2 of this report, the proposed Social Housing could be expected to generate a statutory resident car parking requirement of 86 spaces (at 1.1 spaces per 2-bedroom dwelling).

Stantec worked closely with Brisbane Housing Corporation (BHC) earlier this year to investigate and confirm suitable rates of resident car parking provision to support planning for future developments. The assessment was comprehensive and considered data collected from all existing BHC assets as well as independent car parking demand assessments at 9 of their sites (3 sites for each of their 3 different location types nominated).

Based on these investigations, the findings indicated a supportable resident car parking dispensation of 60% for locations outside the City core and City frame, with excellent proximity to public transport services, centre activities and other amenities (i.e. 0.44 spaces per 2-bedroom dwelling). Application of this rate to the indicative Social Housing yield results in a recommended resident car parking provision in the order of 35 spaces.

Townhouse (Medium Density Residential) Visitor Car Parking

Based on the indicative yield identified in Section 1.2 of this report, the proposed townhouses could be expected to generate a statutory visitor car parking requirement in the order of 6 spaces. Having regard for the temporal nature of residential visitor car parking demands, this could be expected to result in a demand in the order of 3 vehicles during the day (around 1:00pm) and 6 vehicles during the evening (around 8:00pm).

It is understood that a portion of this demand (i.e. in the order of 3 visitor spaces) could be sought to be accommodated within the publicly available on-street car parking supply to be provided as part of the new internal street network. Such an arrangement appears to be reasonable when considering the car parking supply on a 'whole of precinct' basis and given the proximity of the supply to the relevant Lots.

Summary

Any proposed departures from the nominated statutory car parking requirements are to be clearly nominated and justified with supporting evidence to ensure the appropriate amount of car parking is provided on-site to accommodate the anticipated car parking demands while still encouraging more sustainable mode choices.

Further detail in this regard is to be provided (as required) in support of the subsequent Development Application submissions for each Lot.

4.2. Accessible Car Parking Provisions

Accessible car parking provisions are to be provided in accordance with rates provided in the National Construction Code (NCC) for the designated building classes. It is expected that any development proposed within the Master Plan will provide accessible car parking provisions in-line with these requirements.

Further detail in this regard is to be provided (as required) in support of the subsequent Development Application submissions for each Lot.

4.3. Car Parking Areas

4.3.1. Individual Lot Car Parking Provisions

Details of the car parking areas for each Lot (including internal accessways, car parking dimensional requirements, etc) have not been prepared in detail as part of the proposed Master Plan. Notwithstanding, the internal layout for all car parking areas are to be designed in accordance with the requirements of the Council's TAPS PSP, relevant Australian Standards and good transport engineering practice.

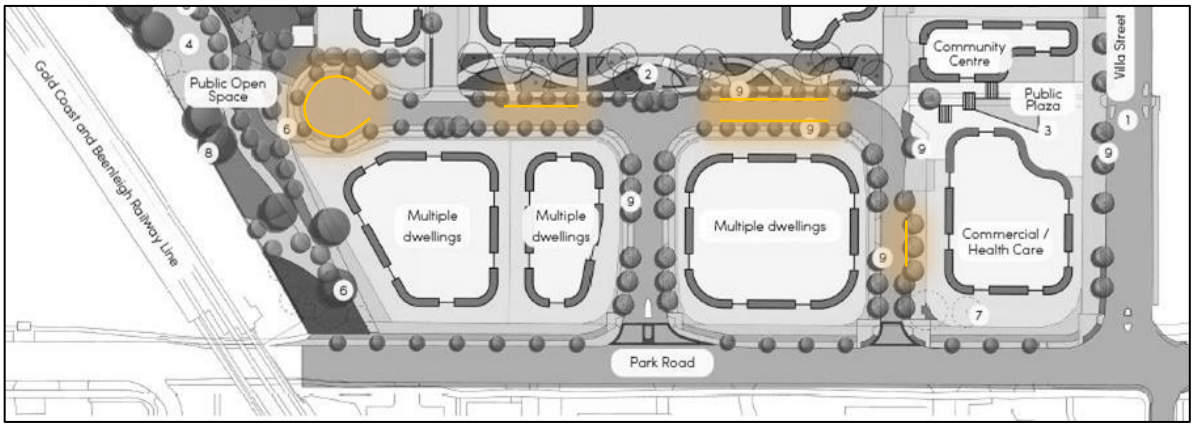
Further detail in this regard is to be provided (as required) in support of the subsequent Development Application submissions for each Lot.

4.3.2. On-Street Car Parking Provisions

The internal street network is expected to provide up to 16 on-street car parking spaces, with supportable locations identified in Figure 4.1. These locations are generally consistent with the Council's Infrastructure

Design Planning Scheme Policy (ID PSP) for Local Streets with guidance also taken from the requirements for Neighbourhood Roads (minor) due to the proposed 7.5m wide carriageway width. The locations have also been tested by way of swept path assessment, as shown in Appendix E. The proposed locations and provisions are considered to be acceptable and there are opportunities to refine as the design is further developed.

Figure 4.1: On-Street Car Parking Spaces



4.3.3. Existing On-Street Car Parking Removal

As per the findings of the RSA, the on-street car parking along the Park Road eastern kerb is to be removed to provide adequate sight distances for the proposed connections to Park Road. This kerbside car parking in this location accommodates unrestricted car parking for up to 16 vehicles.

A review of the car park demand surveys (presented in Section 2.8 of this report) shows that this section of the on-street car parking was heavily utilised during typical weekday (up to 100% occupancy) between 8:00am) and 4:00pm with much lower utilisation on a typical weekend day (up to 30% occupancy). From our site inspection and a closer review of the data, it appears that a high percentage of the vehicles parked in this location during the typical weekday are associated with the nearby school and childcare uses. It is expected that the demand of in the order of up to 4-5 vehicles could be associated with the nearby residential uses.

An additional 3-4 on-street car parking spaces are to be provided along the northern side of Villa Street as part of the reinstatement of existing crossovers to the subject site, even once space required to accommodate islands build outs for the proposed pedestrian crossing point is considered. This reduces the net removal of existing on-street car parking spaces to in the order of 12-13 spaces.

Based on the car parking demand surveys, there is more than sufficient on-street car parking supply and capacity in the immediate vicinity to accommodate the relocation of this identified car parking demand. Further, the provision of up to 16 on-street car parking spaces proposed within the internal street network actually results in a net positive of 3-4 additional on-street car parking spaces.

The removal of the on-street car parking along the Park Road eastern kerb to address the safety risks identified by the RSA is therefore considered to be acceptable in this instance.

5. COMMERCIAL VEHICLE SERVICING & REFUSE COLLECTION

05

5.1. Commercial Vehicle Servicing

The design service vehicles for different land uses are set out in Council's TAPS PSP. These specify occasional access vehicles (for vehicle access design purposes) and regular access vehicles (for internal design purposes). The required service vehicle size for each of the possible land use is shown in Table 5.1.

Table 5.1: Commercial Vehicle Servicing Requirements

	Land Use	Occasional Access	Regular Access
Commercial	Office (Centre Activities)	Refuse Collection Vehicle	Medium Rigid Vehicle
Social Housing (High Density Residential)	Multiple Dwelling	Heavy Rigid Vehicle	Refuse Collection Vehicle
Townhouses (Medium Density Residential)	Multiple Dwelling	Heavy Rigid Vehicle	Refuse Collection Vehicle
Retirement Living	Retirement Facility Residential Care Facility	Heavy Rigid Vehicle	Heavy Rigid Vehicle
Yeronga Community Centre	Community Use (Centre Activities)	Articulated Vehicle	Refuse Collection Vehicle

As outlined in Table 5.1, Council's TAPS PSP nominates an Articulated Vehicle (AV) as the largest vehicle required for 'Occasional Access' to the proposed Master Plan with a Heavy Rigid Vehicle (HRV) also nominated as the 'Regular Access' service vehicle for the Retirement Living Lot.

<u>Performance Solution – Servicing Design Vehicle</u>

The proposed Master Plan aspires to prioritise space for people and encourage community interaction. The adoption of either an AV or HRV as the largest service vehicle (and the associated spatial requirements for vehicle manoeuvring) is considered to be onerous and likely to deliver undesirable outcomes for the precinct as a whole. The delivery and collection of goods to and from the precinct is therefore to be restricted to Medium Rigid Vehicles (MRV) only.

Details of the loading docks, loading bays and servicing provisions for each building have not been prepared at this stage. Nevertheless, the internal layout for all such areas are to be designed in accordance with the requirements of the designated design vehicle as detailed in Council's TAPS PSP, relevant Australian Standards and good transport engineering practice.

Further detail in this regard is to the provisions and their design are be provided (as required) in support of the subsequent Development Application submissions for each development. However, this could also be addressed by way of a Condition of the Preliminary Approval.

5.2. Refuse Collection

Details of the refuse collection arrangements for each Lot have not been prepared at this stage. The layout for all such areas are to be designed in accordance with the requirements of the designated Refuse Collection Vehicle (RCV) as detailed in Council's TAPS PSP, relevant Australian Standards and good transport engineering practice (and any future Waste Management Plans).

Further detail in regard to these provisions and their design is to be provided (as required) in support of the subsequent Development Application submissions for each Lot. Notwithstanding, the internal street network has been design to accommodate the movements of a Council 10.3m long RCV, as shown in the swept path assessment presented in Appendix E. These arrangements are considered to be acceptable.

5.3. Emergency Vehicle Access

The internal street network has been designed to accommodate the movements of a fire truck, as shown in the swept path assessment presented in Appendix E. These arrangements are considered to be acceptable for emergency vehicle access.

6. PARK ROAD CONNECTIONS & INTERNAL ROAD NETWORK

06

6.1. Preamble

The Yeronga PDA Development Scheme nominated an indicative primary road network with connections to Park Road and Villa Street. A Road Safety Audit (RSA) was completed by AECOM in 2021 which raised a number of Intolerable safety risks related to the Villa Street connection with no feasible mitigation treatments.

The following Transport Principles (vehicle connection and internal street network focused) have been adopted to guide the development of the Master Plan in response to the RSA:

1. No vehicle connections to Villa Street (safety requirement)
2. Provision of 2 vehicle connections based on scale of development (operational and redundancy requirement) and to separate demands for the commercial land use (amenity requirement)
3. Primary vehicle connection permitting full turning movements to be located as far as practicable to the to the north of the site along Park Road having regard for existing sight distance restrictions created by the rail overpass (safety, operational and legibility requirement)
4. Right-turn movements from Park Road to be provided with channelised right-turn lane (safety and operational requirement)
5. Secondary vehicle connection to be restricted to left-in / left-out vehicle movements only (safety and operational requirement).

The proposed Park Road connections and internal street network have been developed in response to the findings of the RSA by taking guidance from the Council's Planning Scheme, Austroads Guidelines and applying a suitable level of transport engineering rigor. Details are outlined within this section of the report with a holistic response to the RSA provided in Appendix B.

6.2. External Road Network Connections

6.2.1. Proposed Park Road Connections

Based on the nominated Transport Principles, the following external road network connections have been proposed:

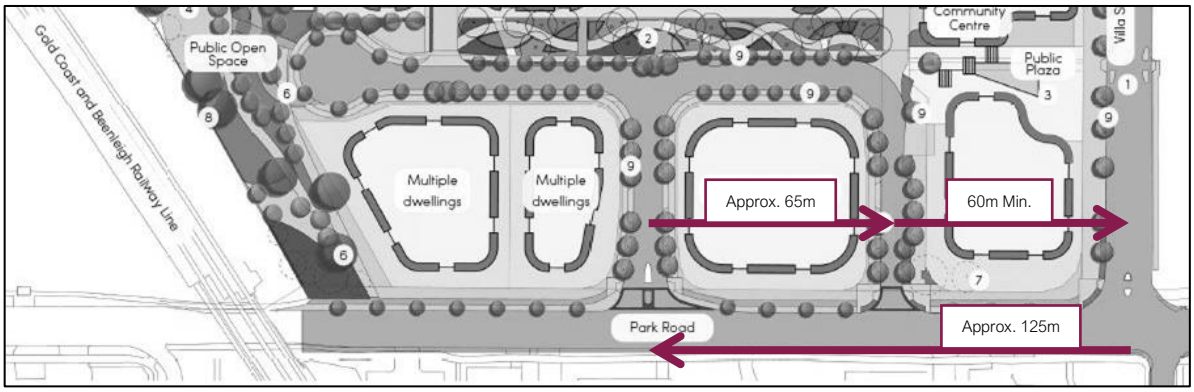
- Park Road / North Road intersection – northern connection accommodating full-turning movements, including the provision of a short channelised right-turn lane
- Park Road / South Road intersection – southern connection restricted to left-in / left-out vehicle movements only with a physical median treatment to be provided to control these movements.

These proposed road connections are shown in Figure 6.1, including the proposed intersection spacing (measured from the centre of the carriageway). A Concept Sketch of the proposed arrangements, including swept path assessments of relevant design vehicles, is provided in Appendix D.

The proposed intersection spacings are summarised as follows:

- Approximately 125m between Villa Street and North Road for vehicles travelling northbound
- Approximately 65m between North Road and South Road for vehicles travelling southbound, plus a minimum of 58m between the southern kerb of North Road and the northern kerb of South Road
- A minimum of 60m between South Road and Villa Street for vehicles travelling southbound, plus a minimum of 52m between the southern kerb of South Road and the northern kerb of Villa Street.

Figure 6.1: Park Road Connections and Intersection Spacing



The following sections of this report outline the review of the proposed internal road network connections having regard for Council's ID PSP, the relevant Austroads Guidelines and applying a suitable level of transport engineering rigor.

6.2.2. Sight Distance Review

The relevant Austroads Guidelines (AGRD4A) nominates sight distance requirements for vehicles at intersections, including:

- Approach Sight Distance (ASD)
- Safe Intersection Sight Distance (SISD)
- Minimum Gap Sight Distance (MGSD).

The following general inputs have been adopted for the sight distance review:

- Reaction time = 2.0 seconds
- Coefficient of deceleration = 0.36
- Grade correction = 7% average on North Road approach (southbound), -7% average on North Road approach (northbound) and 7% average on South Road approach (southbound).

Other specific inputs are outlined as required for ASD, SISD and MGSD reviews completed below.

Approach Sight Distance

ASD is the minimum level of sight distance to be provided on the minor road approaches. For a design speed of 40km/hr (based on Council's ID PSP), an ASD of 40m is required on the North Road and South Road approaches of the connections to Park Road. A minimum sight distance in excess of 40m is proposed (and the design speed around the internal street network horizontal curves is estimated to be less than 40km/hr) which is considered to be acceptable.

Safe Intersection Sight Distance

SISD provides sufficient distance for a driver of a vehicle on the major road to observe, decelerate and stop before the collision point created by a vehicle exiting a minor road approach.

For a design speed of 60km/hr, a SISD of 117m to the north of North Road, 133m to the south of North Road and 117m to the north of South Road is required. Stantec has prepared a sight distance diagram, as presented in Appendix F, which demonstrates that these sight distances (which are the most onerous of all sight distances) are able to be comfortably achieved. These arrangements are considered to be acceptable.

It is noted that the sight distance has also been achieved through the removal of kerbside car parking along the eastern side of Park Road as specified by the RSA. The suitability of the on-street car parking removal is outlined in Section 4.3.3 of this report.

Minimum Gap Sight Distance

MGSD is based on critical acceptance gaps required for drivers undertaking a crossing or turning manoeuvre at intersections. The resultant distances (i.e. up to approximately 85m) are less than the SISD requirements and are therefore comfortably achieved and considered to be acceptable.

6.2.3. Intersection Spacing Considerations

Council's ID PSP provides the following guidance with respect to intersection spacing:

"Spacing of intersections on major roads provides for signal coordination between intersections that are planned for signalisation (400–500m), as well as reasonable time intervals between driver decisions for other intersections with lesser roads (150m)."

The indicative 150m spacing is not able to be achieved for the subject site due to existing constraints. As shown in Figure 6.1, intersection spacing has been maximised for vehicles travelling northbound (and downhill) along Park Road. The more closely spaced intersections only relate to vehicles travelling southbound (and uphill) along Park Road.

Having regard for the brownfield nature of the site, the findings of the RSA and the nominated Transport Principles, a Performance Solution has been developed to guide the proposed spacing of connections to Park Road. This has specifically considered the various methods outlined within the relevant Austroads Guidelines (AGRD4, Appendix E) for the spacing of unsignalised minor road intersections (such as North Road and South Road) and driveways, including:

- Stopping sight distance
- Intersection sight distance
- Left-turn conflict overlap
- Influence distance.

Details of our consideration of these methods are outlined below.

Stopping Sight Distance

The relevant Austroads Guidelines (AGRD4, Appendix E) states that it is desirable for the spacing between connections to be the equivalent of the Stopping Sight Distance (SSD). The relevant Austroads Guidelines (AGRD3) outlines the method for calculating SSD. The following general inputs have been adopted for the SSD review:

- Reaction time = 1.5 seconds
- Coefficient of deceleration = 0.46
- Grade correction = 7% average on South Road approach (southbound) and 6% average on Villa Street approach (southbound).

It is noted that the nominated reaction time and coefficient of deceleration have only been adopted for the purpose of reviewing the proposed intersection spacing (not for sight distance review presented in Section 6.2.2). Nevertheless, adoption of these inputs accords with the relevant Austroads Guidelines (AGRD3) based on the following:

- Reaction time – minimum value of 1.5 seconds can be adopted where there is a high expectancy of stopping (such as due to traffic signals), restricted low speed urban areas and built-up areas
- Coefficient of deceleration – maximum value to be adopted for decelerating at an intersection.

For a design speed of 60km/hr, the SSD for vehicles travelling southbound along Park Road is 52m between North Road and South Road, and South Road and Villa Street. This is conservatively measured between the kerb lines of the minor roads as opposed to the centre lines. A minimum of 58m is provided between the southern kerb line of North Road and the northern kerb line of South Road. A minimum of 52m is provided between the southern kerb line of South Road and the northern kerb line of Villa Street Road.

These spacing distances achieve the minimum SSD requirements outlined by the relevant Austroads Guidelines (AGRD3) and are therefore considered to be supportable in this instance.

Intersection Sight Distance

As outlined in Section 6.2.2 of this report, the ASD, SISD and MGSD requirements are comfortably achieved and the proposed intersection spacings are therefore considered to be acceptable with respect to the intersection sight distance requirements.

Left-Turn Conflict Overlap

Left-turn conflict overlap is less conservative than SSD as is recognises that vehicle entering from the minor road approach will be accelerating away from the potential conflict point. The relevant Austroads Guidelines (AGRD4 and AGRD3) outlines the method for calculating the left-turn conflict overlap and nominate the following inputs:

- Reaction time = 1.5 seconds
- Deceleration rates = between 2.5 m/s^2 to 3.5 m/s^2
- Acceleration rates = between 1.0 m/s^2 to 1.4 m/s^2
- Grade correction = 7% average on South Road approach (southbound), 6% South Road departure (southbound), 6% average on Villa Street approach (southbound) and 6% average assumed on Villa Street departure (southbound).

Application of these rates results in a recommended spacing distance for the 60km/hr design speed of between approximately 50 to 60m measured between the centre of each carriageway.

The proposed minimum spacing distance of 60m meets these spacing requirements and is therefore considered to be supportable in this instance from a left-turn conflict overlap perspective.

Influence Distance

The relevant Austroads Guidelines (AGRD4, Appendix E) considers the influence of the upstream left-turn movements on vehicles travelling along the major road. The nominated values are identified as being adapted from the Transport Research Board (TRB) publications, however the speed limit type is not clear from the in the information presented. Guidance has been sought from publicly available TRB publications which suggest an acceptable spill back distance of 75m for a 50km/hr posted speed limit (adapted from m/hr and feet)[1].

Based on these findings, it is expected that there could be a level of spill-back between Villa Street and South Road requiring vehicle travelling southbound along Park Road to reduce their speed. However, this is

[1] Driveway Spacing and Traffic Operations, Jerome S. Gluck, Greg Haas & Jamal Mahmood, dated 1999

common for urban environments throughout Brisbane and is not expected to result in an unacceptable operational of safety outcome.

Operational Considerations

Traffic impact analysis of the proposed connections and existing intersections is outlined within Section 7 of this report. The results indicate that the proposed vehicle queues on the north approach of the signalised pedestrian crossing are not expected to have a material impact upon the function or operations of the proposed South Road connection. Due to the restriction of South Road to left-in / left-out movements only and the provision of the channelised-right turn lane at North Road, vehicle queues are not expected to extend between adjacent intersections.

Summary

A comprehensive review has been completed of the various methods outlined within the relevant Austroads Guidelines (AGRD4, Appendix E) for the spacing of unsignalised minor road intersections and driveways. Based on this review, the proposed minimum spacing of 60m is considered to be supportable in this instance.

6.2.4. Case Study – Closely Spaced Intersections

Further to the above, Stantec has undertaken a succinct Case Study to understand whether the proposed 60m minimum spacing distance could be expected to result in an unsafe outcome for drivers. This succinct Case Study has incorporated a review of the intersections of Herbert Street, Laurier Street and Louis Street which connect to Annerley Road. Key characteristics of these connections are outlined as follows:

- Annerley Road is an Arterial Road with a posted speed limit of 60 km/hr
- Bus stops and kerbside parking lanes are provided along either side of Annerley Road
- A horizontal curve is located between Laurier Street and Louis Street and a vertical grade is present along the section of Annerley Road
- The Herbert Street, Laurier Street and Louis Street connections permit full turning movements, with an approximate spacing of 65m provided measured between centre of each of the carriageways
- A Fast-Food Outlet is accessed via Herbert Street approximately 120m from Annerley Road.

It is noted that neither SSD or left-turn conflict overlap distances are achieved by these closely spaced intersections, particularly considering the speed limit and downgrade. Each of these distances are achieved for the spacing proposed within the Master Plan.

A review of road crash data proximate to these intersections was undertaken to assess current levels of road safety. Road crash data was sourced from TMR (obtained September 2021) for a 20-year period between 1 January 2001 and 31 December 2020.

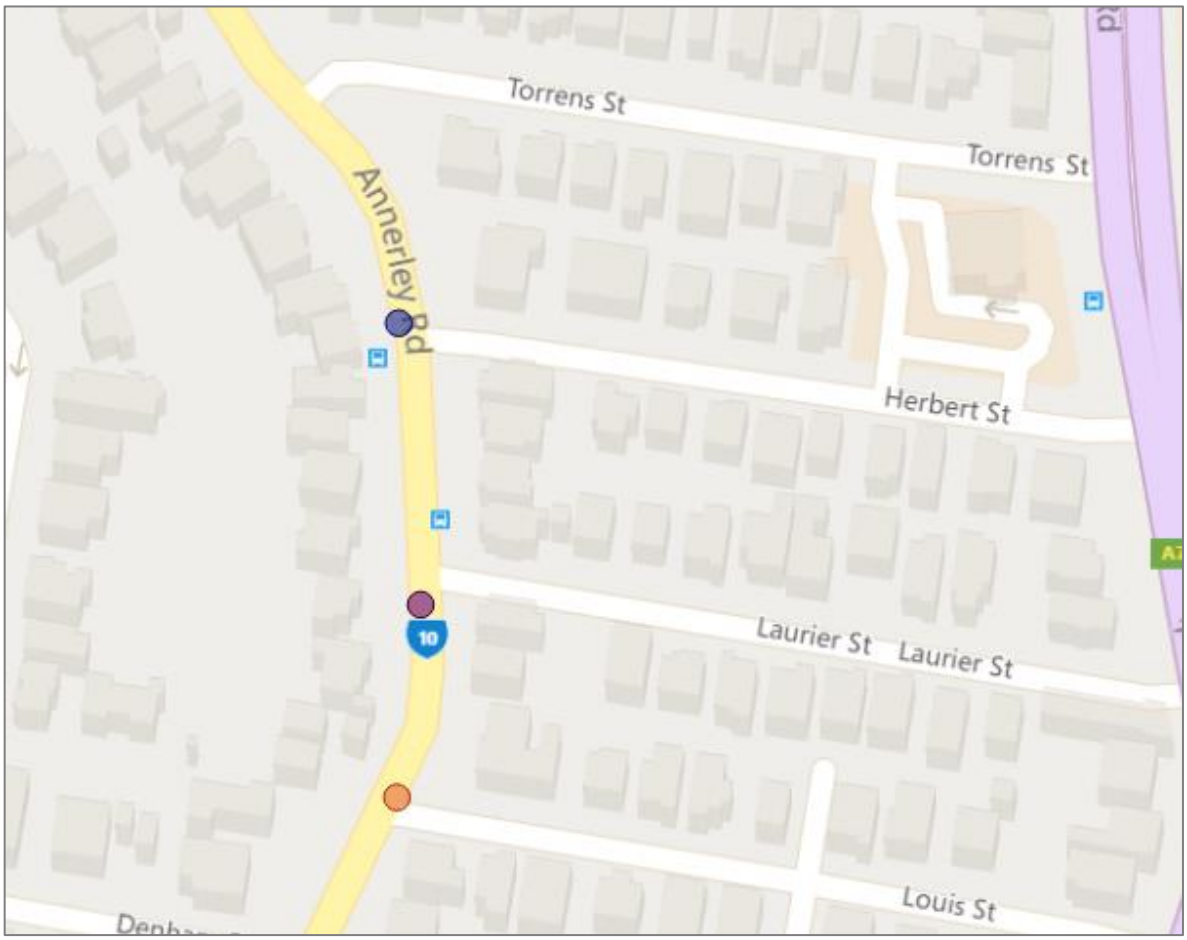
A summary of the road crash data recorded at the nominated intersections is presented in Table 6.1 and Figure 6.2.

Table 6.1: Road Crash Statistics (2001– 2020) – Annerley Road network

Location	Crash Severity	Number of Crashes	Crash Type
Herbert Street	Hospitalisation	1 (2017)	Off carriageway on curve, hit object

Location	Crash Severity	Number of Crashes	Crash Type
Laurier Street	Minor Injury	1 (2019)	Vehicle leaving driveway
Laurier Street	Medical Treatment	1 (2020)	Off carriageway on curve, hit object
Total	All	3	All

Figure 6.2: Road Crash Location (2001 – 2020) – Annerley Road network



The review indicates a number of 'Off-Path Curve' related incidents which appear to be associated with the horizontal curvature of Annerley Road. Council subsequently implemented upgraded line marking of the traffic lanes in 2013 which has appeared to address this accident pattern.

Most importantly, there does not to be any incidents recorded as a result of the closely spaced intersections (i.e. nose-to-tail of left-turn overlap related accidents). These findings provide a further level of comfort that the proposed connections to Park Road will be able to operate safely, particularly when considering the lower speed environment, turn movement restrictions and upgrade for vehicles travelling southbound along Park Road.

The proposed minimum spacing of 60m is therefore considered to be supportable in this instance.

6.2.5. Turn Warrant Assessment

A turn warrant assessment has been undertaken for the proposed North Road and South Road connections in accordance with the methodology outlined in the Department of Transport and Main Roads (TMR) Road Planning and Design Manual (RPDM). The assessment has adopted the volumes identified within the turning movement diagrams provided in Appendix G, with the results of the turn warrant assessment provided at Appendix H. The warrants are determined from the design speed and proportion of total traffic volume with respect to corresponding turn volumes.

The assessment indicates the requirement for a Channelised Right-Turn (short) for the proposed North Road connection. This turn lane provision is considered to be appropriate.

6.2.6. Intersection Configuration

The form of the proposed North Road and South Road connections have been designed generally in accordance with Council's Infrastructure Design PSP and the relevant Austroads Guidelines (AGRD4A) for a 60km/h design speed, including consideration of turn warrant (Section 6.2.3) and swept path assessments.

Key characteristics of the proposed intersection configurations are summarised as follows:

- North Road
  - Full-turning movement intersection
  - Painted threshold treatment and guidance line marking to encourage slower speed manoeuvres for vehicles entering North Road
  - Designed to accommodate vehicle of a size up to and including a RCV
  - Channelised right-turn (short) measuring 3.0m wide and 37.5m long, including taper
  - Northbound and southbound through lanes measuring 3.4m wide and 3.6m wide, respectively
  - Pedestrian refuge measuring 2.0m wide provided on the east approach
  - Appropriately designed lateral movement (merge and diverge tapers) provisions.
- South Road
  - Left-in / left-out only turning movement intersection
  - Painted threshold treatment to encourage slower speed manoeuvres for vehicles entering South Road
  - Physical island treatment to restrict right-turn vehicle movements
  - Designed to accommodate vehicle of a size up to and including a RCV.

The key design principles and parameters relevant to North Road and the proposed CHR(s) are outlined in Table 6.2.

Table 6.2: Intersection Design Requirements – North Road

Design Element	Criteria (ID PSP & Austroads Guidelines – AGRD3, AGRD4 & AGRD4A)	Proposed Design	Compliance
Lateral movement length	50m	50m	✓

Diverge / deceleration length (including taper)	25m	25m	✓
Taper length	15m	15m	✓
Storage length	10.3m (RCV)	22.5m	✓
General kerbside traffic lane [1]	3.0m-3.4m	3.4m – 3.6m	✓
Turn lane width	3.0m	3.0m	✓
Pedestrian refuge	2.0m	2.0m	✓

[1] For use on low speed roads with low truck volumes

It is noted that there are opportunities to refine the proposed lane widths, such as to increase the northbound kerbside lane to 3.5m by reducing the turn lane width to 2.9m. This is to be discussed with Council as the design is further developed.

Based on the information presented within this section, the configuration of the proposed Park Road / North Road and Park Road / South Road intersections are considered appropriate to accommodate the size and demand of vehicles expected to access the precinct in a safe and efficient manner.

6.3. Internal Street Network

Stantec has undertaken a review of the proposed internal road network layout (as shown in Figure 6.1) against Council's ID PSP and Standard Drawings. This review has focused on the following elements:

- The two proposed intersections connecting the internal street network with Park Road
- The internal street network (North Road, East Road and South Road) which are to become Council assets.

The key design principles and parameters relevant to each of these elements are outlined in Table 6.3. Where required, Performance Solutions are provided in line with good transport engineering practice.

Table 6.3: Internal Street Design Requirements – Local Street

Design Element	Criteria (ID PSP)	Proposed Design	Compliance
General Requirements			
Traffic volume (vpd)	1,000 vpd maximum	Up to approx. 910 vpd	✓
Design speed	40km/h maximum	40km/h maximum (20km/h around internal bends)	✓
Design vehicle	Domestic Refuse Collection Vehicle	Domestic Refuse Collection Vehicle	✓
Direct lot access	Permitted	Direct lot access proposed	✓
Road Reserve & Carriageway Requirements			
Reserve width	14m minimum	12.25m – 15.4m	**Performance Solution (#1)**
Kerb-to-kerb width	5.5m minimum	6.0m minimum	✓
Cyclist facilities	Cyclist facilities not required	No cyclist facilities proposed	✓
Bus facilities	Bus facilities not permitted	No bus facilities proposed	✓
Verge width	4.25m minimum	2.5m – 3.75m	**Performance Solution (#2)**

Corner truncations	6m x 3 chord truncations	6m x 3 chord truncations	✓
Kerbside car parking	On 1 side of road only	On 2 sides of road along East Road	**Performance Solution (#3)**
Horizontal Curves & Terminating Treatments			
Cul-de-sac diameter	18m minimum	18m	✓
Horizontal curve radius – centrelines	12.75m minimum	14.75m	✓

Performance Solution #1 – Road Reserve Widths

The key design elements which determine the appropriate road reserve widths are the carriageway width, verge width and the provision of any indented car parking spaces. The suitability of the proposed road reserve widths are discussed in Performance Solution #2 below.

It is noted that the proposed road reserve widths are adequate to accommodate suitably dimensioned carriageway widths, verge widths and indented car parking spaces and are therefore considered to be appropriate in this instance.

Performance Solution #2 – Verge Widths

The proposed verge widths within the Master Plan typically measure a minimum of 3.75m. The exception is the verge width adjacent to the Green Spine which is proposed to measure 2.5m wide.

As required by Council's ID PSP (Chapter 3, 3.7.1 Design principles – 3 & 4), it is understood that the proposed 3.75m wide verges are able to accommodate pedestrian routes and footpaths, access to public transport, streetscape elements such as street furniture (where required), street trees and significant vegetation, signage, drainage and utility services.

Council's *ID PSP* provides further guidance regarding the 3.75m verge width which states (as relevant):

"3.7.3.2 Minimum verge width

(1) The minimum standard width for verges when constructing a new road is 4.25m.

(2) The minimum standard verge width for existing established areas is 3.75m."

It is acknowledged that the proposed internal street network constitutes new roads. However, these are to be delivered within a brownfield site in an existing established area. The proposed 3.75m wide verge widths are therefore considered to be a suitable design solution in this instance.

The proposed Master Plan comprises the delivery of a significant Green Spine orientated north-south through the PDA. This runs adjacent to East Road and provides public open space which boasts a total width in the order of 11m to 12.5m. This is shown in Figure 6.3.

In order to maximise the benefit of the Green Spine, it is proposed that 2.5m of this space be maintained for the street verge. This dimension has been specifically selected with guidance from Council's ID PSP as the narrowest possible verge width to achieve the form, function and operational requirements of a verge.

Specifically, Council's ID PSP provides the following guidance regarding the minimum acceptable verge widths which states (as relevant):

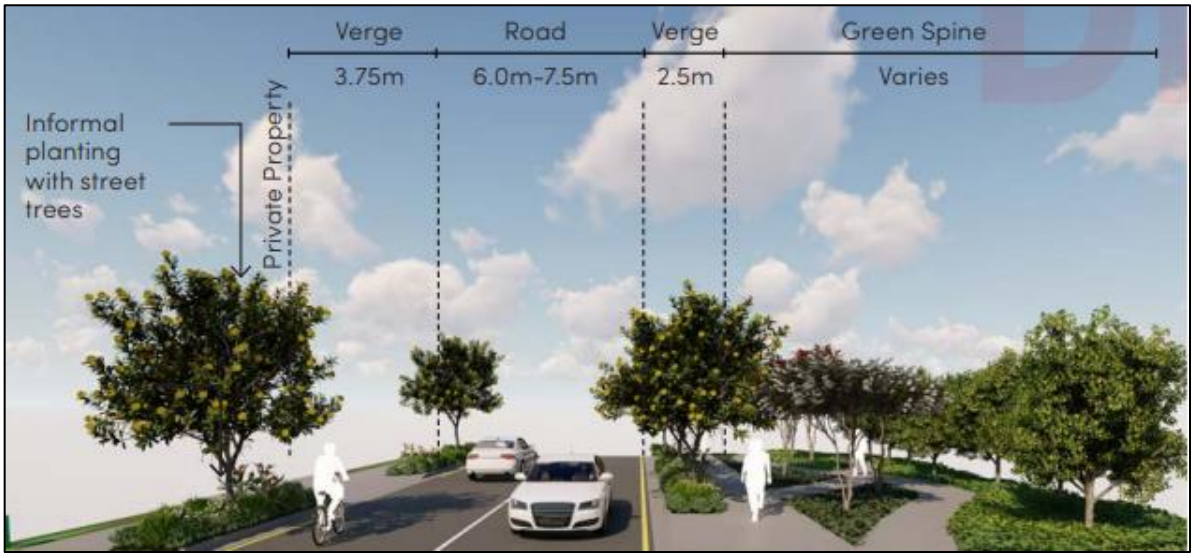
"3.7.3.2 Minimum verge width

(5) The minimum standard width of a verge may be relaxed to no less than 2.5m in the following circumstances:

> *(a) where the existing verge width is consistently narrower than the standard width for the length of the street block, or to accommodate constrained pinch points for a short distance only;*
>
> *(b) where the streetscape type is not a subtropical boulevard in a centre (SB1), city street (CS1 or CS2) or neighbourhood street major (NS1).*

(6) In such exceptional circumstances it must be demonstrated that pedestrian facilities and service utilities can be accommodated within the reduced width. Each case will be assessed on its merits."

Figure 6.3: East Road and adjacent Green Spine



The proposed 2.5m wide verge adjacent to the Green Spine is considered to meet these criteria, including:

- The proposed verge width is consistently narrower than the standard width for the length of the street
- It is proposed to accommodate a constrained pinch point (i.e. Green Spine) for a short distance only
- The streetscape type is not a subtropical boulevard in a centre, a city street or a neighbourhood street major.

The proposed 2.5m wide verge width is considered suitable to accommodate a pedestrian footpath and carriageway offset (i.e. a minimum turf strip / street trees adjacent to kerb) to East Road. It is also noted that existing verge widths on Local Streets within the vicinity of the site also reduce to as low as approximately 2m to 2.5m (without street trees) in a number of locations. However, in the case of the Master Plan, this minimum width is deliberately intended to maximise community benefit and is expected to lead to a superior community outcome.

Having regard for the above, the proposed 2.5m wide verge width to accommodate the Green Spine is considered to be an acceptable design solution in this instance.

Performance Solution #3 – Kerbside Car Parking

Local Streets are typically provided with a minimum carriageway width of 5.5m. However, in order to accommodate the pedestrian refuge at the North Road connection to Park Road and accommodate the RCV design vehicle (with simultaneous movements between an RCV and a passenger vehicle around internal

street network bends) a minimum carriageway width of 7.5m has been adopted for North Road, the central portion of East Road and the internal street network bends.

This provides the opportunity to provide kerbside car parking on either side of the central portion of East Road, as shown in Section 4.3.2 of this report. Kerbside car parking on either side of a 7.5m carriageway is consistent with Councils ID PSP and demonstrated with swept path assessment, provided in Appendix E. These arrangements are therefore considered to be acceptable.

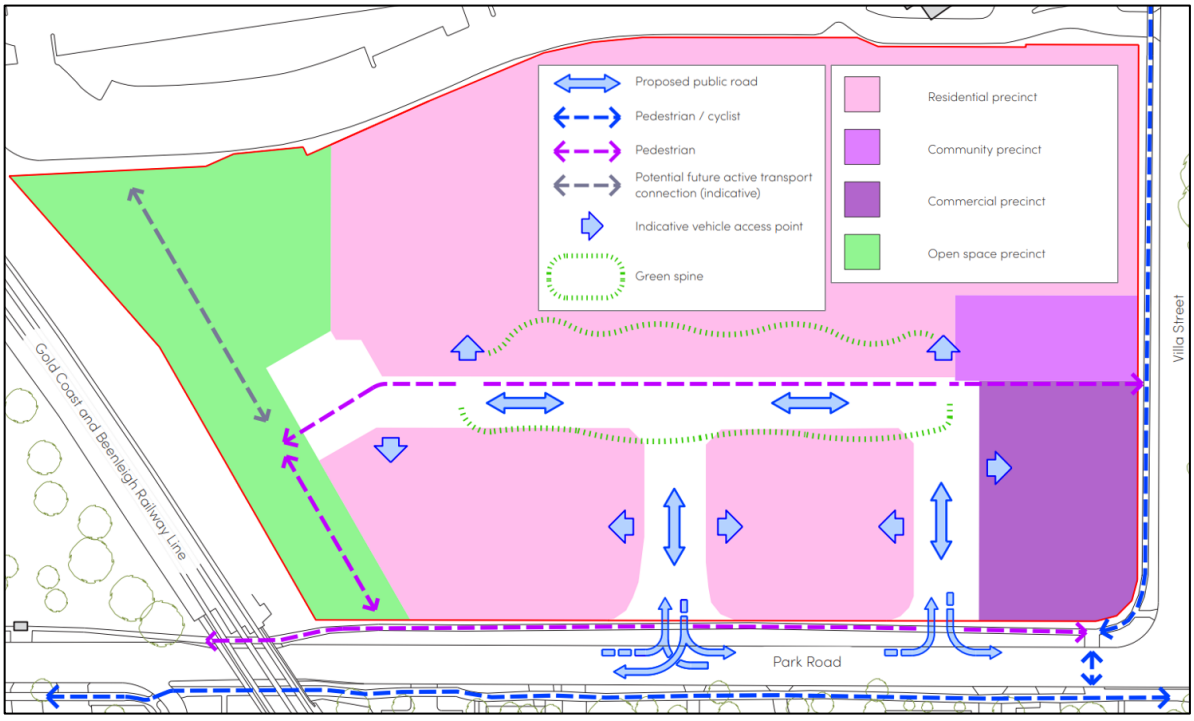
6.3.1. Proposed Vehicle Access Arrangements

Details of the vehicle access arrangements for each Lot have not been prepared in detail as part of the proposed Master Plan. Notwithstanding, indicative vehicle access arrangements are identified in Figure 6.4 and the form, function and location of vehicle access arrangements are to be designed in accordance with the requirements of the Council's TAPS PSP, relevant Australian Standards and good transport engineering practice.

A preliminary review of the indicative vehicle access locations suggests that they are generally located in line with the requirements of Council's TAPS PSP and the relevant Australian Standards (AS2890.1), including offset from adjacent features (i.e. 10m from the property boundary of a minor intersecting road and 20m from the property boundary of a major intersecting road) and sight distance requirements (i.e. ASD equates to a minimum of approx. 15m-20m based on the 20km/hr design speed around internal bends).

The indicative vehicle access locations are therefore considered to be acceptable and further detail is to be provided (as required) in support of the subsequent Development Application submissions for each Lot.

Figure 6.4: Indicative Vehicle Access Arrangements



Adapted with permission from the Parkside Yeronga Master Plan Report.

7. TRAFFIC IMPACT ANALYSIS

07

7.1. Preamble

An assessment of the anticipated traffic impacts of the proposed development on the surrounding road network has been completed for the proposed Master Plan. This includes consideration of the traffic impacts at the completion of the Master Plan delivery (i.e. each Lot developed and operational) and for a 10-year planning horizon thereafter.

Based on information provided, the development is expected to be completed by 2024 and this timeframe has been adopted as the 'year of opening' of the development, with 2034 projected as the '10-year design horizon'.

This section of the report sets out details of the traffic impact analysis and any proposed changes to the existing or future road network.

7.2. Modelling Methodology

7.2.1. Modelling Network Rationale

Intersection modelling has been completed to assess the impacts on the existing intersection of Park Road / Villa Street and to understand the operations of the future North Road and South Road connections.

7.2.2. Methodology

The operation of the nominated intersections has been assessed using SIDRA Intersection (v8.0), a computer-based modelling package which calculates intersection performance.

To assess the traffic impact of the indicative Master Plan yield, it is appropriate to have consideration to a relevant 'base case' against which to test the impact of the proposal. A 'base case' examines the performance of the road network without the proposed development at key points in time. A 'development case' is then used to examine the performance of the road network with the proposed Master Plan at the same key points in time to understand the anticipated performance and impact, and the potential need for mitigating road works to address.

7.2.3. SIDRA Network Model Calibration

The following specific information has been used to calibrate the existing condition SIDRA Network model:

- Vehicle movement data collected in May 2021
- Pedestrian signalised crossing cycle time and frequency data collected in May 2021, conservatively adopting a cycle time of 60 seconds for the AM Commuter and PM School peak hours (approximately the shortest frequency recorded for these hours)
- Average queue lengths on all approaches based on data collected in May 2021
- Peak Flow Factor for each individual approach given the proximity to nearby schools
- Intersection spacing (between Villa Street and the pedestrian signalised crossing) based on available aerial imagery.

Stantec commonly calibrate SIDRA Network models using average queue lengths when used for assessing operational impacts for simplicity and accuracy. The use of 95th percentile queues are typically reserved for assessing queue storage lengths if required to determine lane lengths.

7.3. Background Traffic

7.3.1. Anticipated Background Traffic Growth

Stantec has undertaken a review of available data sources to estimate the background traffic growth to be applied to the data collected (2021) to extrapolate to the year of assessment (2034), including Council's Greater Brisbane Key Corridors Performance reports and the Queensland Governments Statisticians Office (QGSO) population growth estimates (for Statistical Area level 3 – Holland Park / Yeronga and Statistical Area level 2 – Yeronga).

The findings of this review is summarised as follows:

- Council's nearby corridor performance reports (Fairfield Road) indicate a growth rate in the order of -1% to -2% for the 5-years prior to Covid-19 (2014 - 2019)
- Population growth estimates for Yeronga (SA2) between 2021 to 2036 suggest a linear growth rate of 1.5% per annum
- Population growth estimates for Holland Park / Yeronga (SA3) between 2021 to 2036 suggest a linear growth rate of 1.4% per annum.

Having regard for the above, a 1.5% per annum (linear) growth rate has conservatively been applied to the existing vehicle trips on the road network for the 2024 and 2034 scenarios of the traffic impact analysis.

This is even more conservative when considered in relation to the current and ongoing impacts of Covid-19 on the operations of the existing transport network. It is industry knowledge that the road network has experienced an increase in vehicle trip demands as users favour private transport options over public transport. With respect to the recorded vehicle movements at the Park Road / Villa Street intersection, this increase has been most evident during the PM School and PM Commuter peak hours with an increase in excess of 10% recorded when comparing the July 2020 to May 2021 counts.

7.3.2. Committed and Planned Developments

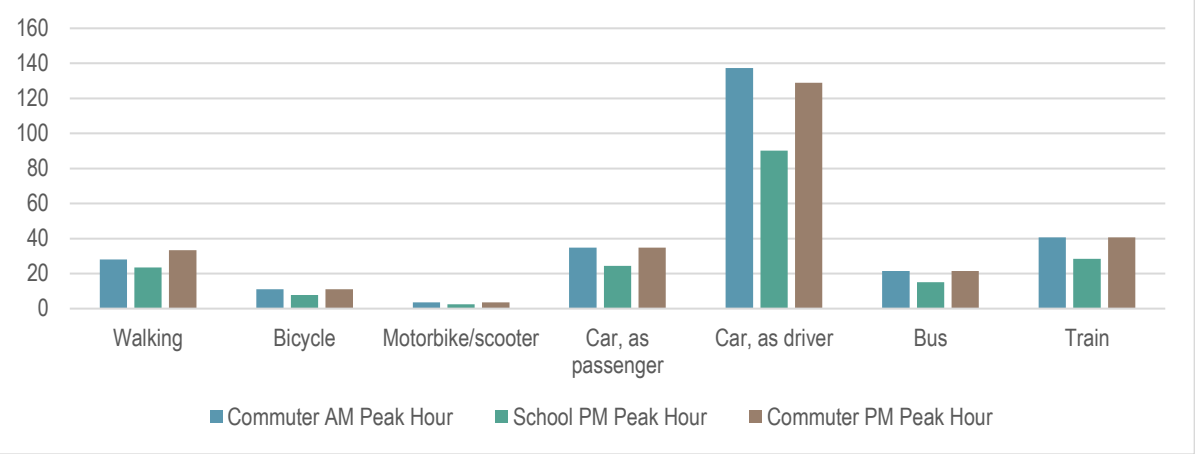
A review of Council's 'Planning and Developments' online portal and 'Roads and Intersection projects' displayed online has been undertaken and has identified no proposed developments, road or intersection upgrade plans for the adjacent road network surrounding the subject site which would be expected to be considered as part of any transport impact analysis.

7.4. Person Trip Generation

The person trip generation has been determined using the indicative land uses and yields and surveyed person trip generation from a number of available sources. These person trips are then assigned to different modes, based on information available from ABS data, RMS NSW data, QLD Household Travel Survey data and various other sources. The anticipated peak hour person trip generation by mode is outlined in Figure 7.1.

The person trip generation estimates indicate that the proposed Master Plan could be expected to generate in the order of 70 active and public transport trips during the AM and PM commuter peak hours. This is in addition to in the order of 130 to 135 vehicle trips during the same peak periods.

Figure 7.1: Estimated Peak Hour Person Trips



7.5. Vehicle Trip Generation

7.5.1. Vehicle Trip Generation Rates

Vehicle trip generation for the proposed Master Plan has been estimated with guidance from the following:

- RMS Guide to Traffic Generating Developments Updated Traffic Surveys 2013
- ITE Trip Generation Rates (9th Edition)
- GTA Traffic Generation Databases.

The adopted vehicle trip generation rates are set out in Table 7.1, noting that the PM School Peak Hour vehicle trips generation has adopted 70% of the PM Commuter Peak Hour vehicle trip generation. This is based on activity data from the QLD Household Travel Surveys which indicates that in the order of 70% (conservatively) of the peak of the proposed land uses could be expected to align with the PM School Peak Hour.

Table 7.1: Vehicle Trip Generation Rates

Land Use	AM Peak Hour	PM School Peak Hour	PM Commuter Peak Hour	Daily
Commercial [1]	0.72 mvmnts / space	0.38 mvmnts / space	0.54 mvmnts / space	5 mvmnts / space
High Density Residential	0.18 mvmnts / dwelling	0.10 mvmnts / dwelling	0.14 mvmnts / dwelling	1.4 mvmnts / dwelling
Medium Density Residential	0.65 mvmnts / dwelling	0.45 mvmnts / dwelling	0.65 mvmnts / dwelling	6.5 mvmnts / dwelling
Retirement Living	0.10 mvmnts / unit	0.14 mvmnts / unit	0.20 mvmnts / unit	2 mvmnts / unit

Yeronga Community Centre	2.2 mvmnts / 100sqm	2.0 mvmnts / 100sqm	2.9 mvmnts / 100sqm	26 mvmnts / 100sqm

[1] Per car space rate adapted from RMS NSW 'Guide to Traffic Generating Development' guide

7.5.2. Estimated Vehicle Trip Generation

The estimated vehicle trip generation for the proposed Master Plan based on the adopted vehicle trip generation rates provided in Table 7.1 is outlined in Table 7.2.

Table 7.2: Estimated Vehicle Trip Generation

Land Use	AM Peak Hour	PM School Peak Hour	PM Commuter Peak Hour	Daily
Commercial	58 vehicle movements	30 vehicle movements	43 vehicle movements	400 vehicle movements
High Density Residential	14 vehicle movements	8 vehicle movements	11 vehicle movements	112 vehicle movements
Medium Density Residential	25 vehicle movements	18 vehicle movements	25 vehicle movements	247 vehicle movements
Retirement Living	18 vehicle movements	25 vehicle movements	36 vehicle movements	356 vehicle movements
Yeronga Community Centre	16 vehicle movements	15 vehicle movements	21 vehicle movements	191 vehicle movements
TOTAL	**130 vehicle movements**	**95 vehicle movements**	**135 vehicle movements**	**1,306 vehicle movements**

The proposed Master Plan could be expected to generate in the order of 95 to 135 vehicle trips in the AM, PM School and PM Commuter peak hours. The proposed Master Plan could also be expected to generate in the order of 1,310 vehicle trips daily.

This vehicle trip generation is considered to be conservative, as it assumes all land uses within the proposed development generate vehicle trips during the same peak hours. It also then overlays the peak vehicle trips onto the peak hours of the external road network.

In reality, based on evidence from similar mixed-use developments, the peak vehicle trips associated with both the Community Centre and Retirement Living land uses could be expected to occur outside the road network peak hours.

Nevertheless, for the purpose of a conservative assessment, the vehicle trip generation rates as provided in Table 7.2 have been adopted for the subsequent traffic impact analysis.

7.6. Vehicle Trip Distribution

7.6.1. In / Out Splits

Industry standard in / out splits have been applied to the estimated vehicle trip generation and are provided in Table 7.3.

Table 7.3: Vehicle Trip In / Out Splits

Land Use	AM Peak		PM Peak (School & Commuter)	
	In	Out	In	Out
High Density Residential	20%	80%	70%	30%
Medium Density Residential	20%	80%	70%	30%
Aged Care Apartment	25%	75%	75%	25%
Community Centre	75%	25%	25%	75%
Commercial Centre	90%	10%	10%	90%

7.6.2. Directional Distribution

The directional distribution and assignment of vehicle trips generated by the proposed development will be influenced by a number of factors, including the following:

- Configuration of the existing road network in the vicinity of the proposed development
- Existing operation of intersections providing access between the local and arterial road network
- Distribution of households and other vehicle trip generators (such as surrounding employment centres) in the vicinity of the proposed development
- Proposed configuration of the internal street network.

The adopted vehicle trip distributions and assignment of vehicle trips on the external road network are summarised in Table 7.4 for the AM, PM School and PM Commuter peak hours.

Table 7.4: Adopted Distributions

Land Use	Residential		Other Uses	
	In	Out	In	Out
North (on Park Road)	50%	40%	40%	30%
South (on Park Road)	40%	40%	50%	50%
East (on Villa Street)	10%	20%	10%	20%

The existing network traffic demand and anticipated distribution of development vehicle trips has been provided in Appendix G. It is noted that these are generally consistent with the distributions adopted as part of the initial traffic impact analysis prepared to inform the Yeronga PDA Development Scheme, noting that we have further refined based on a review of the ABS Census Journey to Work Data and origins / destinations of resident and staff trips to / from Yeronga plus a review of possible travel times along route options.

7.7. Operational Impact

The operation of key intersections has been assessed using SIDRA. This assessment has been completed to compare the operation of the key intersections adjacent to the development under the 'base case' and 'development case' scenarios for the year of opening (2024) and for a 10-year design horizon (2034).

One of the commonly used measures of intersection performance is referred to as the Degree of Saturation (DOS). The DOS value represents the volume-to-capacity ratio for the most critical movement on each leg of the intersection. For unsignalised intersections, a DOS of around 0.80 is typically adopted as the 'practical' limit[2].

Other measures of intersection performance include the average delay, queue length and the level of service (LOS), a qualitative score from A to F with LOS A representing an excellent level and LOS F a very poor level of performance.

The following sections of this report set out the findings of the SIDRA assessments undertaken for the proposed Master Plan to understand road network impacts on the existing intersection of Park Road / Villa Street and to understand the operations of the future North Road and South Road connections. Detailed SIDRA outputs are provided in Appendix I.

7.7.1. Existing Conditions

An assessment of the intersection performance under the existing (2021) conditions has been completed, with results provided in Table 7.5.

Table 7.5: Intersection Performance – Existing Conditions (2021)

Intersection	Peak Hour	Existing Conditions			
		DOS	LOS [1]	Average Delay (sec)	Average queue (m)
Park Road / Villa Street	AM Peak	0.37	A	3s	5m
	PM School Peak	0.35	A	3s	5m

[2] SIDRA INTERSECTION adopts the following criteria for Level of Service assessment:

Level of Service		Control delay per vehicle in seconds (X)		
		Signals	Roundabout	Priority Controlled
A	Excellent	d ≤ 10	d ≤ 10	d ≤ 10
B	Very Good	10 < d ≤ 20	10 < d ≤ 20	10 < d ≤ 15
C	Good	20 < d ≤ 35	20 < d ≤ 35	15 < d ≤ 25
D	**Acceptable**	**35 < d ≤ 55**	**35 < d ≤ 50**	**25 < d ≤ 35**
E	Poor	55 < d ≤ 80	50 < d ≤ 70	35 < d ≤ 50
F	Very Poor	80 < d	70 < d	50 < d

	PM Commuter Peak	0.34	A	2s	10m
Signalised Pedestrian Crossing	AM Peak	0.34	A	9s	18m
	PM School Peak	0.27	A	4s	18m
	PM Commuter Peak	0.27	A	1s	41m

[1] LOS for unsignalised intersections based on worst-performing movement

The results of the analysis indicate that the Park Road / Villa Street intersection currently operates well within its practical performance limits under the existing conditions. It is noted that the average queue length results from the SIDRA Network model are within approximately 1 vehicle length of the observed average queue lengths. This indicates that the SIDRA Network model is calibrated satisfactorily to the existing conditions.

7.7.2. Year of Opening (2024)

The comparison between intersection performance for the year of opening (2024) for the 'base case' and the 'development case' scenario is provided in Table 7.6.

Table 7.6: Intersection Performance – Year of Opening (2024) – Base and Development Scenarios

Intersection	Peak Hour	Base Case Scenario				Development Case Scenario			
		DOS	LOS [1]	Average Delay (sec)	Average queue (m)	DOS	LOS [1]	Average Delay (sec)	Average queue (m)
Park Road / Villa Street	AM Peak	0.40	A	3s	6m	0.47 (+0.07)	A	4s	6m
	PM School Peak	0.37	A	3s	5m	0.43 (+0.06)	A	3s	6m
	PM Commuter Peak	0.37	A	2s	11m	0.47 (+0.10)	B	3s	15m
Signalised Pedestrian Crossing	AM Peak	0.35	A	9s	19m	0.42 (+0.07)	A	9s	23m
	PM School Peak	0.30	A	4s	20m	0.32 (+0.02)	A	4s	22m
	PM Commuter Peak	0.28	A	1s	44m	0.34 (+0.06)	A	1s	55m

[1] LOS for unsignalised intersections based on worst-performing movement

The performance for the year of opening (2024) for the proposed North Road and South Road connections to Park Road are provided in Table 7.7.

Table 7.7: Intersection Performance – Year of Opening (2024) – North Road & South Road intersections

Intersection	Peak Hour	Year of Opening Scenario			
		DOS	LOS [1]	Average Delay (sec)	Average queue (m)

Park Road / North Road	AM Peak	0.17	A	1s	< 1m
	PM School Peak	0.18	A	< 1s	< 1m
	PM Commuter Peak	0.27	B	1s	1m
Park Road / South Road	AM Peak	0.20	A	< 1s	< 1m
	PM School Peak	0.19	A	< 1s	< 1m
	PM Commuter Peak	0.28	A	< 1s	3m

The network is expected to operate comfortably within practical limits during each of the peak hours, with key results summarised below:

- The proposed Master Plan is expected to result in DoS impact at the Park Road / Villa Street intersection in the order of +0.06 to +0.10
- The proposed Master Plan is expected to result in an average delay impact at the Park Road / Villa Street intersection in the order of up to +1 seconds
- The proposed Master Plan is expected to result in an average queue impact at the Park Road / Villa Street intersection in the order of +1m to +4m.
- The proposed North Road and South Road connections to Park Road are expected to operate well within their practical limits.

Having regard for the above, the road network proximate to the proposed Master Plan could be expected to operate satisfactorily at the year of opening.

7.7.3. 10-Year Design Horizon (2034)

The comparison between intersection performance for the 10-year future design horizon (2034) for the 'base case' and the 'development case' scenarios is provided in Table 7.8.

Table 7.8: Intersection Performance – 10-Year Design Horizon (2034) – Base and Development Scenario

Intersection	Peak Hour	Base Case Scenario				Development Case Scenario			
		DOS	LOS [1]	Average Delay (sec)	Average queue (m)	DOS	LOS [1]	Average Delay (sec)	Average queue (m)
Park Road / Villa Street	AM Peak	0.50	B	4s	7m	0.59 (+0.09)	B	5s	9m
	PM School Peak	0.46	A	3s	7m	0.52 (+0.06)	A	4s	6m
	PM Commuter Peak	0.49	B	3s	13m	0.62 (+0.13)	B	3s	15m
Signalised Pedestrian Crossing	AM Peak	0.40	A	9s	22m	0.46 (+0.06)	A	10s	25m
	PM School Peak	0.34	A	4s	24m	0.37 (+0.03)	A	5s	27m

Intersection	Peak Hour	Base Case Scenario				Development Case Scenario			
		DOS	LOS [1]	Average Delay (sec)	Average queue (m)	DOS	LOS [1]	Average Delay (sec)	Average queue (m)
	PM Commuter Peak	0.32	A	1s	52m	0.35 (+0.03)	A	1s	55m

[1] LOS for unsignalised intersections based on worst-performing movement

The performance for the 10-year future design horizon (2034) for the proposed North Road and South Road connections to Park Road are provided in Table 7.9.

Table 7.9: Intersection Performance – 10-Year Horizon (2034) – North Road & South Road intersections

Intersection	Peak Hour	10-Year Horizon Scenario			
		DOS	LOS [1]	Average Delay (sec)	Average queue (m)
Park Road / North Road	AM Peak	0.21	B	1s	1m
	PM School Peak	0.23	B	< 1s	< 1m
	PM Commuter Peak	0.30	C	1s	1m
Park Road / South Road	AM Peak	0.24	A	< 1s	< 1m
	PM School Peak	0.22	A	< 1s	< 1m
	PM Commuter Peak	0.32	A	< 1s	4m

The network is expected to operate within practical limits during each of the peak hours, with key results summarised below:

- The proposed Master Plan is expected to result in DoS impact at the Park Road / Villa Street intersection in the order of +0.06 to +0.13
- The proposed Master Plan is expected to result in an average delay impact at the Park Road / Villa Street intersection in the order of up to +1 seconds
- The proposed Master Plan is expected to result in an average queue impact at the Park Road / Villa Street intersection in the order of up to +2m.
- The proposed North Road and South Road connections to Park Road are expected to operate well within their practical limits.

Having regard for the above, the road network proximate to the proposed Master Plan could be expected to operate satisfactorily up to the 10-year future design horizon.

7.7.4. Operational Impact Summary

The traffic impact analysis completed and presented within this section of the report indicates that the road network proximate to the proposed Master Plan could be expected to operate satisfactorily up to the 10-year future design horizon. The operational assessment indicates that mitigation works are not triggered by the proposed Master Plan at the Park Road / Villa Street intersection from an operational impact perspective.

7.7.5. Road Safety Audit Response – Intersection Treatments

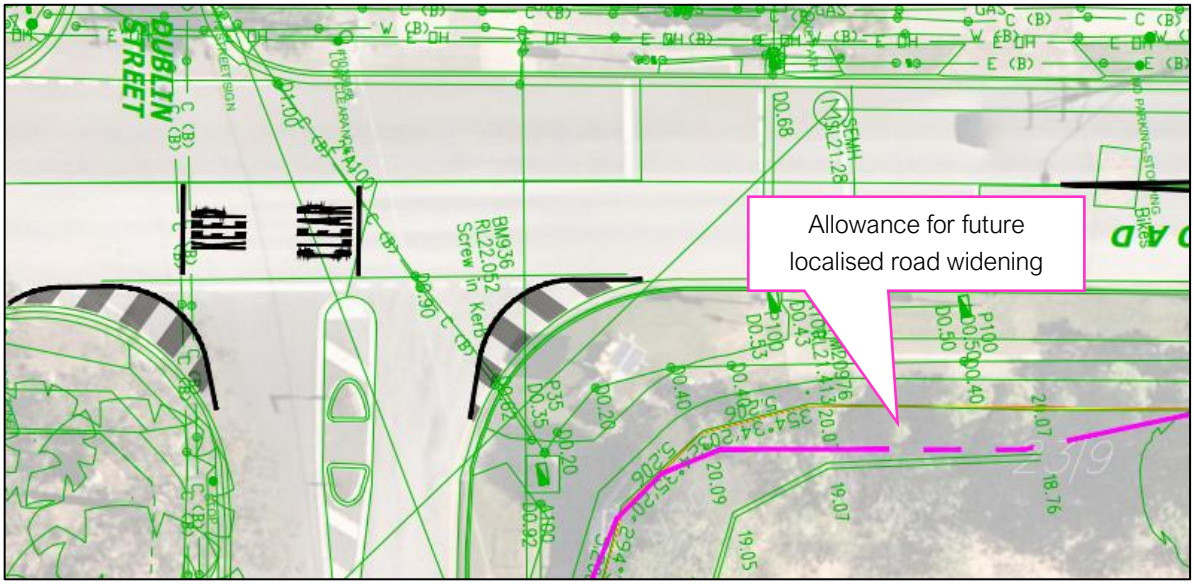
As identified in Section 1.3 of this report, a RSA was completed on a preliminary (superseded) Master Plan. The RSA identified a number of existing safety risks associated with the design and operations of the Park Road / Villa Street intersection. The RSA also identified the signalisation of this intersection as the ultimate solution to address the identified safety risks.

It is expected that the ultimate solution at this location to address the existing safety risks could be to signalise the intersection. However, given the transport infrastructure and land constraint challenges in this location, signalisation will require a long-term planning approach by Council. The Master Plan has proposed the following intersection treatments to contribute to the interim and ultimate solutions of these existing safety risks:

- Chevron line marking is proposed to narrow turn radiuses and attempt to slow vehicle speeds at the intersection of Park Road / Villa Street
- 'Keep Clear' line marking is proposed on Park Road and opportunities to reduce vehicle speeds are to be considered
- Allowance has been made for future localised road widening along the Park Road frontage should it be required to accommodate the intersection signalisation.

The intersection treatments are demonstrated in Figure 7.2 and in the Concept Sketch provided in Appendix D. A holistic response to the RSA is provided in Appendix B.

Figure 7.2: Park Road / Villa Street Intersection Treatments



7.8. Traffic Impact Analysis – Daily

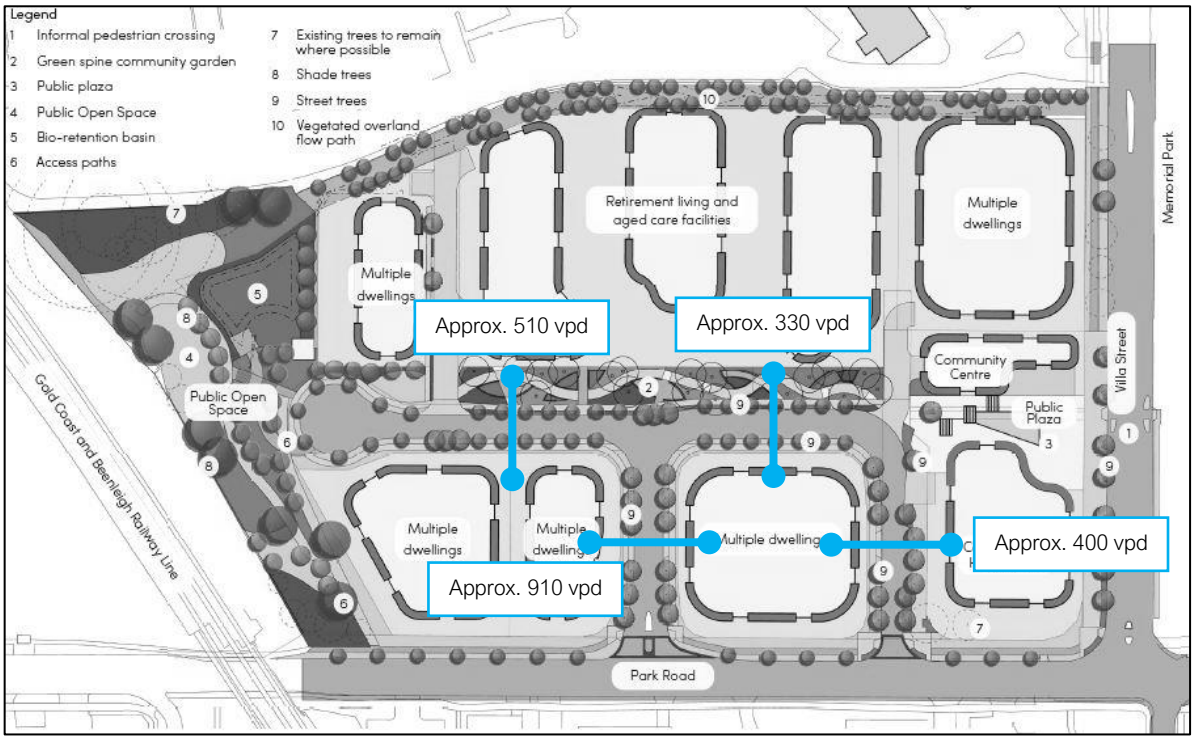
Stantec has undertaken analysis of the estimated daily vehicle trip volumes to determine the appropriate road classifications for the proposed internal street network, including North Road, East Road and South Road. The estimated daily vehicle trip volumes along each of these streets is presented in Figure 7.3 and summarised as follows:

- North Road approximately 910 vehicle trips per day

- East Road approximately 510 vehicle trips per day
- South Road approximately 400 vehicle trips per day.

Council's ID PSP identifies daily vehicle trip thresholds for each type of road within the road hierarchy. The expected daily vehicle trip volumes for North Road, East Road and South Road sit within the daily volumes for a Local Street (i.e. up to 1,000 vehicles per day). Having regard for the expected daily vehicle trip volumes and their proposed function, the Local Street classification is considered to be appropriate.

Figure 7.3: Estimated Daily Vehicle Trips



8. CONCLUSION

08

CONCLUSION

Based on the analysis and discussions presented within this report, the following conclusions are made:

1. This Transport Impact Assessment has been prepared at a level of detail commensurate to the proposed Master Plan
2. Further detail is to be provided in support of the subsequent Development Application submissions
3. The proposed Master Plan includes high-quality active travel network throughout the site which will facilitate connections between each Precinct, individual Lots and the surrounding active travel network
4. These facilities are expected to provide connectivity between the proposed Master Plan and surrounding public transport options for staff, residents and visitors of each Precinct and individual Lots
5. The proposed Master Plan does not propose to impact the existing public transport network or public transport infrastructure
6. The internal street network is expected to provide up to 16 on-street car parking spaces
7. As recommended by the RSA, the kerbside car parking spaces along the eastern side of Park Road are to be removed to provide suitable sight distances along Park Road
8. Based on the car parking demand surveys, there is sufficient on-street car parking supply and capacity in the immediate vicinity to accommodate the relocation of this identified car parking demand
9. Furthermore, the provision of up to 16 spaces proposed within the internal street network plus an additional 3-4 spaces on Villa Street results in a net positive of 3-4 on-street car parking spaces.
10. The delivery and collection of goods to and from the proposed Master Plan is to be restricted to MRV's only, with a 10.3m long RCV adopted as the design vehicles for designing the internal street network.
11. The proposed Park Road connections and internal street network have been developed in response to the findings of the RSA by taking guidance from the Council's ID PSP, Austroads Guidelines and applying a suitable level of transport engineering rigor.
12. The proposed internal road network is designed generally in accordance with Council's ID PSP
13. Having regard for the expected daily vehicle trip volumes and their proposed function, the Local Street classification is considered to be appropriate for the internal street network
14. A comprehensive review has been completed for the proposed spacing of intersections along Park Road and the minimum spacing of 60m is considered to be supportable in this instance.
15. The configuration of the proposed Park Road connections are considered appropriate to accommodate the size and demand of vehicles expected to access the precinct in a safe and efficient manner
16. A turn warrant assessment indicates that a Channelised Right-Turn (short) treatment is required at the North Road connection to Park Road for the 10-year post development year of assessment (2034)
17. Key findings from the traffic impact analysis are summarised as follows:
    - The Master Plan could be expected to generate in the order of 95 to 135 vehicle trips during the AM, PM School and PM Commuter peak hours, and in the order of 1,310 vehicle trips daily
    - The road network proximate to the proposed Master Plan could be expected to operate satisfactorily up to the 10-year future design horizon.
    - The operation assessment indicates that mitigation works are not triggered by the proposed Master Plan at the Park Road / Villa Street intersection from an operational impact perspective.
18. The Master Plan has proposed a number of intersection treatments to contribute to the interim and ultimate solutions of the existing safety risks identified at the Park Road / Villa Street intersection.

A. ROL AND ACCESS & MOVEMENT PLANS

A

PRELIMINARY

Final intended use of new Lots & Easements:

Lot 500 - is for Stage 2.
Lots 1 & 11 - are for future development
Easement 6 - is for Right of Way for Access & Services - burdening Lot 500, benefiting Lot 11
Easement 11 - is for Right of Way for Access & Services - burdening Lot 500, benefiting Lots 1 & 11

450
SP117130

55·5
48·0
76·5
7·4
6·9
2·2
26·1
1·9
24·2
12·1
12·2
52·4
5·4
15·8
20·1
0·6
27·4
61·0
48·4
20·8
44·5
44·5
20·8
5·1
7·0
43·4
5·9
2·9 each
23·9
17·5
5·2 each
(166·3)

ROAD

PARK

500

2·797 ha

STAGE 1

2
SP300888

Easement 11

Easement 6

1
2334m²

11
930m²

VILLA STREET

N

Legend

Right of Way for Access & Services Easements

Notes

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2. Design subject to local authority approval & detailed engineering requirements, areas and dimensions are approximate only and are subject to survey. Therefore this drawing is not to be used for engineering design.
3. Easements locations from others and are approximate only.
4. This note is an integral part of this plan. This plan may not be reproduced without this notation being included.

Table of Development

Gross area of subject land.....3.123 ha
Number of proposed lots..... 3
Number of existing lots..... 1

WOLTER consulting group
Planning Urban Design Landscape Environment Surveying
Brisbane: Level 2, 1 Breakfast Ck Road, Newstead, QLD 4006 Phone: (07) 3666 5200

Scale 1:1000 @ A3
Lengths are in Metres.
10 0 10 20 30 40

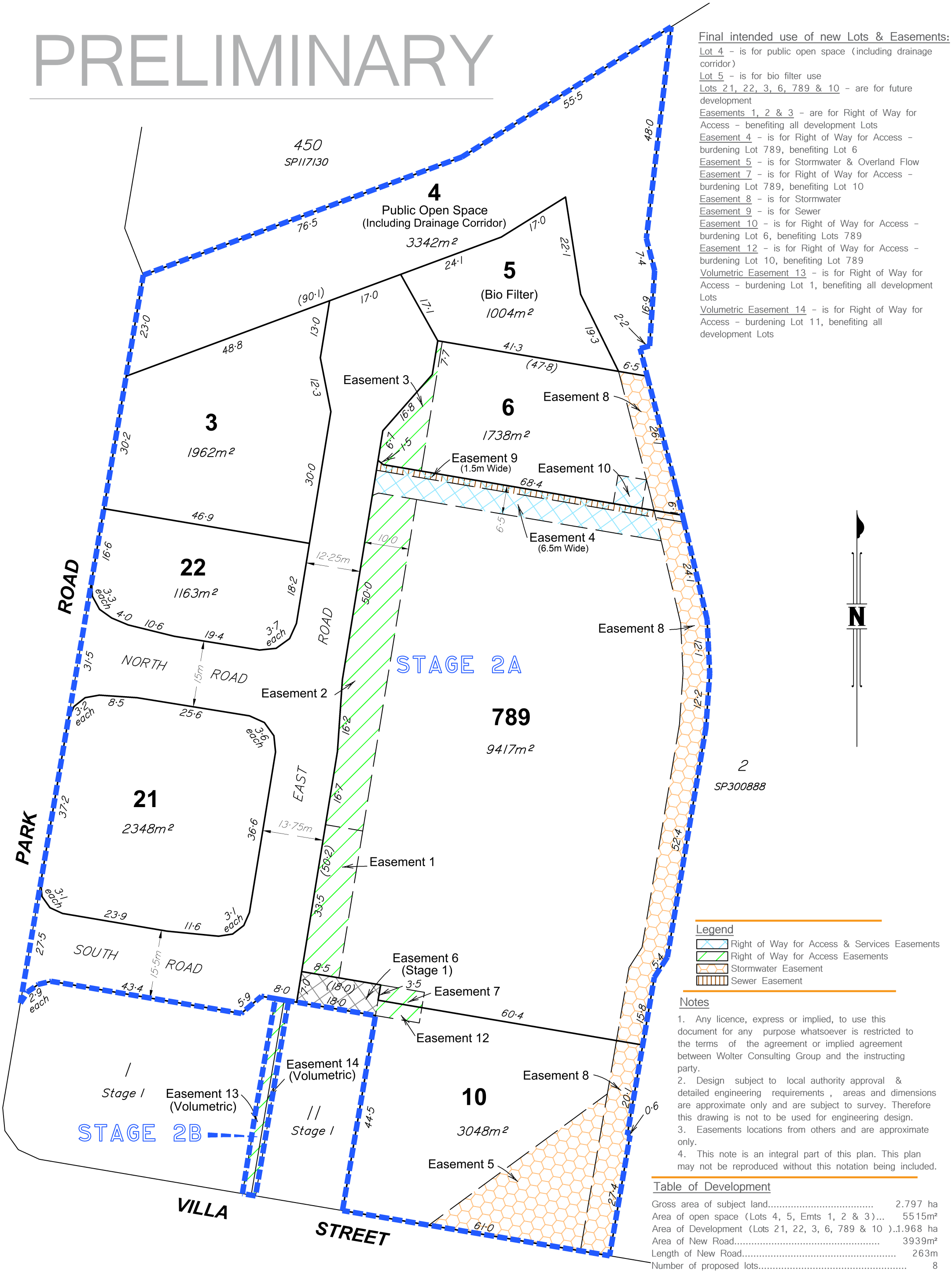
Plan of Reconfiguration - Stage 1

70 Park Road, Yeronga Tafe Site

Description Lot 3 on SP300888
Local Authority Brisbane City

DRAWING NO. 18-0765P-02
VERSION M
DATE DRAWN 13-09-2021
SHEET NO. 1 of 3

PRELIMINARY



Final intended use of new Lots & Easements:

Lot 4 – is for public open space (including drainage corridor)
Lot 5 – is for bio filter use
Lots 21, 22, 3, 6, 789 & 10 – are for future development
Easements 1, 2 & 3 – are for Right of Way for Access – benefiting all development Lots
Easement 4 – is for Right of Way for Access – burdening Lot 789, benefiting Lot 6
Easement 5 – is for Stormwater & Overland Flow
Easement 7 – is for Right of Way for Access – burdening Lot 789, benefiting Lot 10
Easement 8 – is for Stormwater
Easement 9 – is for Sewer
Easement 10 – is for Right of Way for Access – burdening Lot 6, benefiting Lots 789
Easement 12 – is for Right of Way for Access – burdening Lot 10, benefiting Lot 789
Volumetric Easement 13 – is for Right of Way for Access – burdening Lot 1, benefiting all development Lots
Volumetric Easement 14 – is for Right of Way for Access – burdening Lot 11, benefiting all development Lots

Legend

- Right of Way for Access & Services Easements
- Right of Way for Access Easements
- Stormwater Easement
- Sewer Easement

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Table of Development

Gross area of subject land	2.797 ha
Area of open space (Lots 4, 5, Emts 1, 2 & 3)	5515m²
Area of Development (Lots 21, 22, 3, 6, 789 & 10)	1.968 ha
Area of New Road	3939m²
Length of New Road	263m
Number of proposed lots	8
Number of existing lots	1

WOLTER consulting group
Planning Urban Design Landscape Environment Surveying
Brisbane: Level 2, 1 Breakfast Ck Road, Newstead, QLD 4006 Phone: (07) 3666 5200

Scale 1:1000 @ A3
Lengths are in Metres.
10 0 10 20 30 40

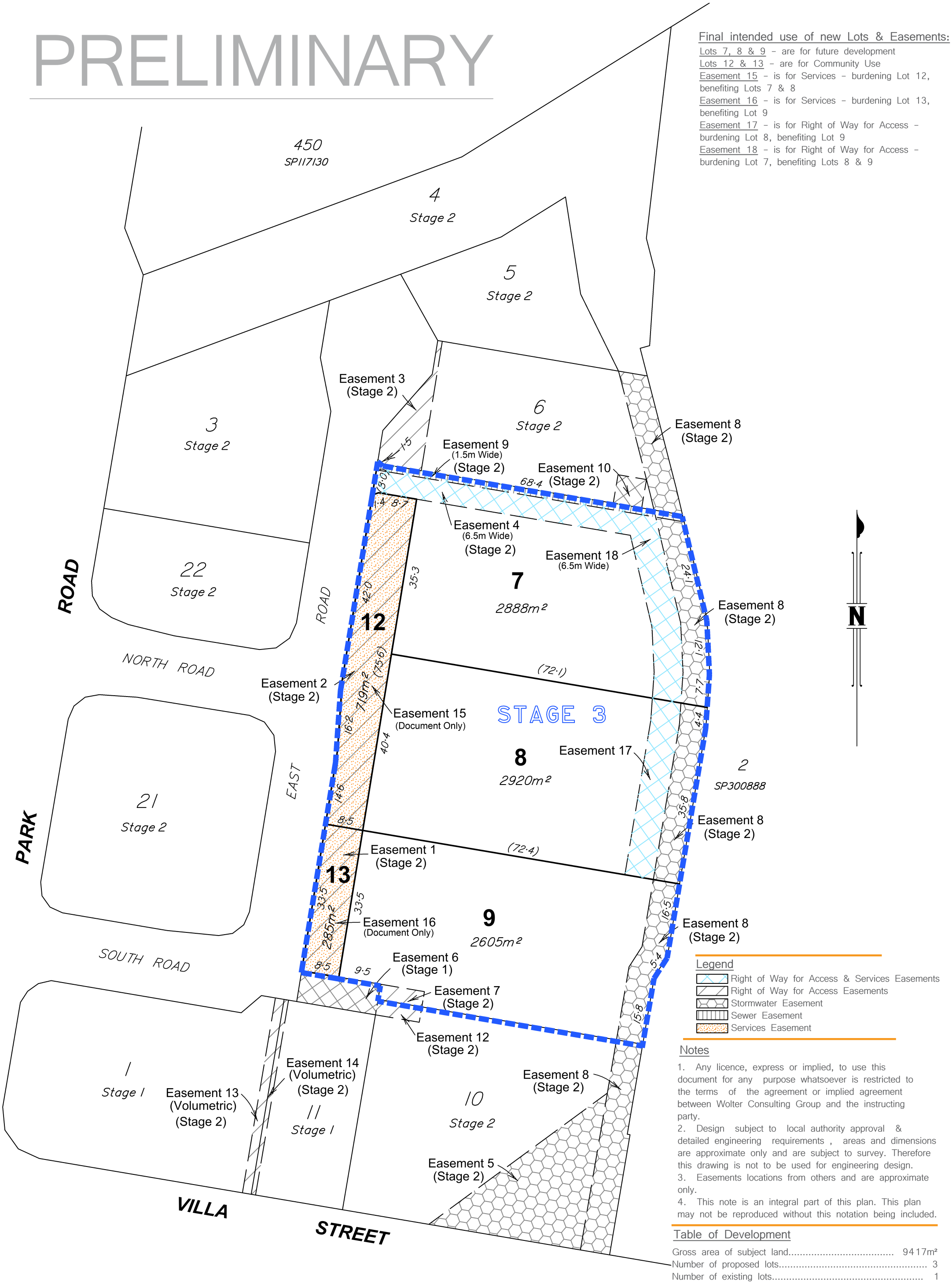
Plan of Reconfiguration – Stages 2A & 2B

70 Park Road, Yeronga Tafe Site

Description: Part of Lot 3 on SP300888
Local Authority: Brisbane City

DRAWING NO. 18-0765P-02
VERSION M
DATE DRAWN 13-09-2021
SHEET NO. 2 of 3

PRELIMINARY



Final intended use of new Lots & Easements:

Lots 7, 8 & 9 - are for future development
Lots 12 & 13 - are for Community Use
Easement 15 - is for Services - burdening Lot 12, benefiting Lots 7 & 8
Easement 16 - is for Services - burdening Lot 13, benefiting Lot 9
Easement 17 - is for Right of Way for Access - burdening Lot 8, benefiting Lot 9
Easement 18 - is for Right of Way for Access - burdening Lot 7, benefiting Lots 8 & 9

Legend

- Right of Way for Access & Services Easements
- Right of Way for Access Easements
- Stormwater Easement
- Sewer Easement
- Services Easement

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Table of Development

Gross area of subject land	9417m²
Number of proposed lots	3
Number of existing lots	1

WOLTER consulting group
Planning Urban Design Landscape Environment Surveying
Brisbane: Level 2, 1 Breakfast Ck Road, Newstead, QLD 4006 Phone: (07) 3666 5200

Scale 1:1000 @ A3
Lengths are in Metres.
10 0 10 20 30 40

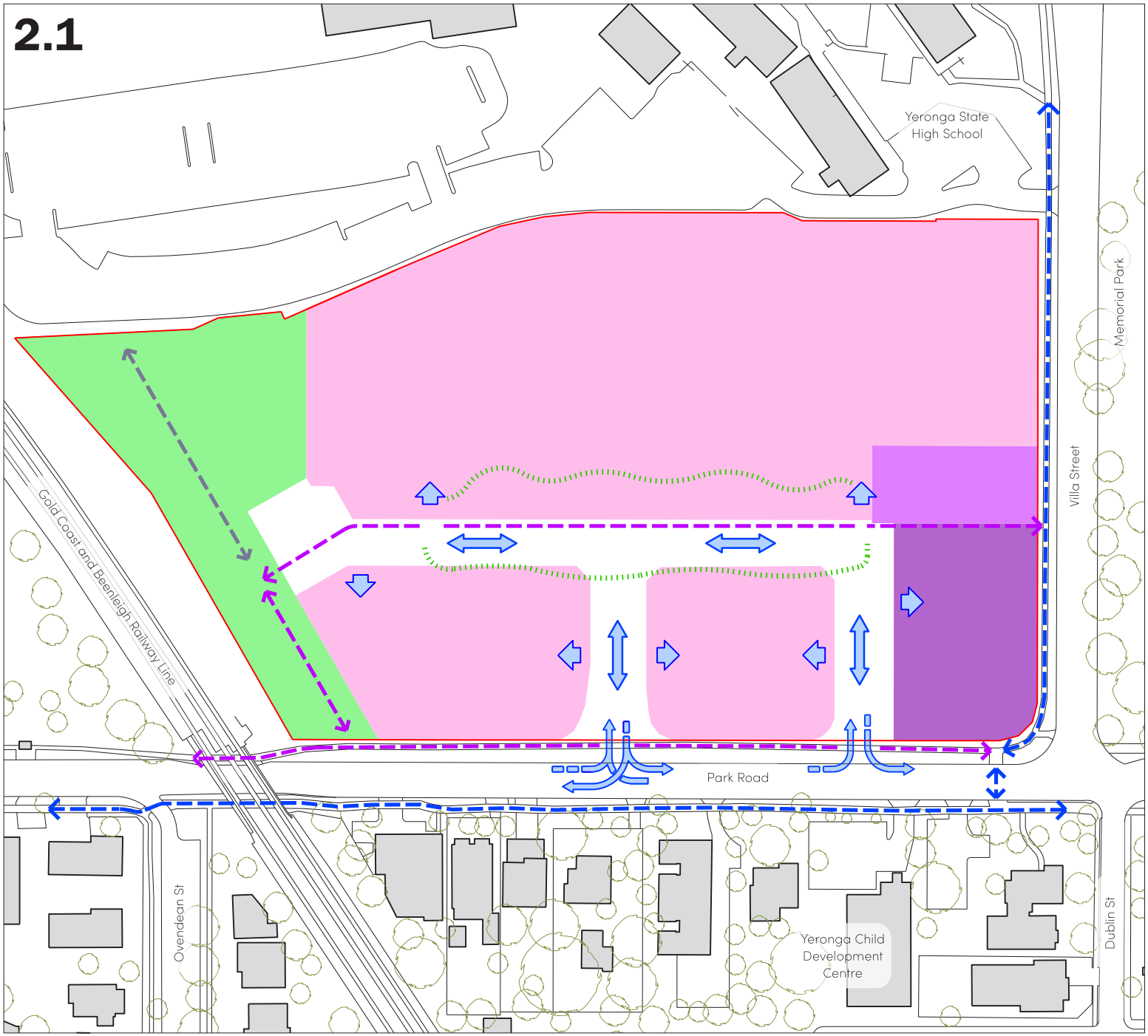
Plan of Reconfiguration - Stage 3

70 Park Road, Yeronga Tafe Site

Description: Part of Lot 3 on SP300888
Local Authority: Brisbane City

DRAWING NO.	VERSION
18-0765P-02	M
DATE DRAWN	SHEET NO.
13-09-2021	3 of 3

2.1



ACCESS & MOVEMENT

Access to lots is via a looped road network from Park Road, providing safe pedestrian movement along Villa Street, unbroken by vehicle access.

- Residential precinct
- Community precinct
- Commercial precinct
- Open space precinct
- Proposed public road
- Pedestrian / cyclist
- Pedestrian
- Potential future active transport connection (indicative)
- Indicative vehicle access point
- Green spine

0 5 10m 20m 50m

Scale 1 : 1000 @ A3

N

B. RESPONSE TO ROAD SAFETY AUDIT

B

APPENDIX: RESPONSE TO ROAD SAFETY AUDIT

No.	Deficiency	Frequency	Severity	Risk Ranking	Recommendation	Master Plan Response
1.01	It is noted that the Yeronga Heart Master Plan layout reviewed by the auditors is a high-level layout only. Design drawings / elements were not available for review by the auditors and have not been considered as part of this audit, including but not limited to: • Service vehicle provisions and swept paths • Typical cross-sections – carriageway, verge • Longitudinal sections • Lighting • Signage • Landscaping • Stormwater drainage • PUP • Design speed • Design vehicle and check vehicle	N/A	N/A	N/A	Ensure Road Safety Audits are undertaken at subsequent stages of the design process.	Noted.
1.02	A community facility and commercial building is proposed in the development area. These types of land uses can have high parking demands. If insufficient parking is located within the development this will result in parking along surrounding streets. This increases the potential for unsafe parking and conflicts between stationary and moving vehicles	Occasional	Limited	Low	Review the provision of parking within the site and ensure adequate parking is provided for expected demands.	Car parking for the Commercial Lot and YCC are proposed to be provided in accordance with the statutory car parking requirements outlined within the Yeronga PDA Development Scheme. This will be further detailed as part of future planning for each of these Lots.

APPENDIX: RESPONSE TO ROAD SAFETY AUDIT

No.	Deficiency	Frequency	Severity	Risk Ranking	Recommendation	Master Plan Response
1.03	A community facility and commercial building is proposed in the development area. These types of land uses can have high traffic yields. Vehicles accessing these uses from the south and east will use North Road and be routed through the residential streets. This increases the potential for collisions with vehicles, pedestrians and cyclists at internal intersections and along internal roads. **POTENTIAL FSI CRASH**	Occasional	Serious	High	Review the location of external accesses and the community facility and commercial building to minimise interaction between traffic for the different land uses.	A second connection to Park Road is proposed (left-in/left-out only) to assist in distributing vehicle trips associated with the Commercial Lot and minimise interactions between different land uses. The internal road network and vehicle access arrangements to each Lot are designed and planned to minimise conflicts, including between vehicles accessing different land uses.
1.04	Internal road intersections control / priority are not clear. This could lead to driver confusion and collisions.	Occasional	Minor	Medium	Review internal intersections layout and control type.	Details of the internal street network priorities are shown in the Concept Sketch provided in Appendix D.
1.05	At least two residential driveways on South Road are located very close to Park Road. Vehicles manoeuvring to / from these driveways may lead to rear-end or angle crashes with vehicles turning from Park Road.	Probable	Limited	Medium	Review the location of the residential driveways along South Road. Consideration should be given to relocating the driveways behind the residential dwellings.	Townhouse driveways have been consolidated within the latest Master Plan. As outlined in Section 6.3.1 of this report, the proposed driveway locations are considered to be acceptable having regard for Council's TAPS PSP and the relevant Australian Standards. Details of the proposed driveways are to be provided as part of future planning for each of these Lots.

APPENDIX: RESPONSE TO ROAD SAFETY AUDIT

No.	Deficiency	Frequency	Severity	Risk Ranking	Recommendation	Master Plan Response
1.06	The access driveway to the commercial building along North Road is in close proximity to Park Road. This may result in vehicles waiting to turn right into the access queuing back onto Park Road, especially if queues extend east along North Road, which could result in rear-end collisions.	Probable	Limited	Medium	Review the location of the commercial building access driveway and ensure it is beyond the influence area of queuing from the Park Road intersection.	The Commercial Lot driveway has been located as far east as possible away from Park Road. As outlined in Section 6.3.1 of this report, the proposed driveway location is considered to be acceptable having regard for Council's TAPS PSP and the relevant Australian Standards. Details of the proposed driveway is to be provided as part of future planning for this Lot.
1.07	Retirement facilities are proposed in the development area. Elderly residents will cross internal roads to access Park Road and Villa Street. These vulnerable users can be slower and unpredictable when crossing the road. There are no pedestrian crossings shown across the internal roads. **POTENTIAL FSI CRASH**	Probable	Serious	Intolerable	Review the provision of pedestrian crossings and measures such as traffic calming on internal roads.	Details of pedestrian facilities are outlined in Section 3 of this report. The design has been specifically developed to avoid elderly people from crossing internal street network to access YCC, Park Road or Villa Street.
1.08	School students were observed to cross Villa Street in the vicinity of community centre to walk along the southern side of Villa Street which has no footpath, or they cross to access the adjacent park. There is no current or proposed pedestrian facility at this location. The proposed development will increase vehicle traffic on Villa Street and increase foot traffic along and across Villa Street. This increases the risk of pedestrian and vehicle conflicts. **POTENTIAL FSI CRASH**	Frequent	Serious	Intolerable	Provide a pedestrian crossing facility on Villa Street (determine type by warrant assessment) and a new footpath along the southern side of Villa Street, with connections to Park Road and the existing path to the east.	This is an existing issue related to the Yeronga State High School and existing Council transport infrastructure. If required, this issue is to be addressed by the school and Council. Notwithstanding, as outlined in Section 3 of this report, a new pedestrian crossing point is proposed across Villa Street adjacent to the pedestrian plaza (to connect to the existing pedestrian footpath on the south side of Villa Street).

No.	Deficiency	Frequency	Severity	Risk Ranking	Recommendation	Master Plan Response
1.09	At the unsignalised Park Road / North Road intersection vehicles turning right from Park Road into the development will prop in the through lane increasing the potential for rear-end crashes.	Probable	Minor	High	Review intersection layout and control type. Consideration should be given to treatments such as the provision of a turn lane, restricting turn movements and positive intersection control (i.e. signalised intersection).	Details of the proposed channelised right-turn lane, designed in accordance with the Austroads Guidelines, have been provided to address risk of rear-end collisions. Details of the are outlined in the Concept Sketch provided in Appendix D.
1.10	On-street parking is currently permitted on Park Road and was observed to be highly utilised along the eastern side north of Villa Street. This parking would potentially obstruct visibility of vehicles entering and leaving the site via the two unsignalised intersections on Park Road (North Road and South Road). This could increase the risk of angle crashes. The existing parking may also block visibility of pedestrians for vehicles entering the site, resulting in increased likelihood of vehicle-pedestrian incidents. **POTENTIAL FSI CRASH**	Probable	Serious	Intolerable	Review sight distances and ensure required sight distances are achieved.	On-street car parking is proposed to be removed from the eastern kerb of Park Road to address sight distance limitations and deliver a channelised right-turn lane. Details are provided in Section 4 of this report.
1.11	The nearby rail overpass on Park Road (north of the proposed intersection on Park Road) impacts on sight distances at the unsignalised Park Road / North Road which may lead to angle crashes. **POTENTIAL FSI CRASH**	Probable	Serious	Intolerable	Review sight distances and ensure required sight distances are achieved.	Safe Intersection Sight Distance (SISD) to be provided between North Road and the rail overpass, in accordance with the Austroads Guidelines. These arrangements are considered to be acceptable.

No.	Deficiency	Frequency	Severity	Risk Ranking	Recommendation	Master Plan Response
1.12	On-road cyclists were observed travelling southbound along Park Road during the site visit (Park Road and Villa Street facilitates access to parts of the existing cycle network). BAZ are in place along Park Road. The two unsignalised intersections on Park Road increases the risk of collisions involving cyclists as vehicles turn to / from Park Road. Parking adjacent to these intersections may potentially block visibility of these cyclists, further increasing this risk. **POTENTIAL FSI CRASH**	Occasional	Serious	High	Consider removing parking along Park Road and review warrants for providing on-road cycle lanes.	This is primarily an existing issue related to Council's transport infrastructure. If required, any further cycling provisions are to be considered by Council noting that there are no planned on-road cycling lanes in this location and focus instead has been placed on delivering a shared path within the western verge of Park Road. The removal of on-street car parking from the eastern kerb of Park Road is expected to provide a safer environment for cyclists riding southbound along Park Road by removing the potential conflict with people getting in and out of parked vehicles and parking activity.
1.13	The development is expected to result in an increase in foot traffic and off-road cyclists along the eastern footpath on Park Road adjacent to the development site and across the proposed intersection. The two unsignalised intersections on Park Road increases the risk of pedestrian / cyclist and vehicle conflicts as vehicles turn to / from Park Road. **POTENTIAL FSI CRASH**	Occasional	Serious	High	Review intersection layout and control type. Provide treatments such as positive intersection control (i.e. signalised intersection) and coloured pavement threshold treatment.	Signalisation of the connections to Park Road is unlikely to be feasible due to the proximity of the existing signalised pedestrian crossing and potential future signalisation of the Park Road / Villa Street intersection (to be delivered by Council if required). Instead, coloured pavement threshold treatment, pedestrian refuges and turn movement restrictions are proposed to address the identified risk. These arrangements are detailed in Appendix D and are considered to be acceptable.

No.	Deficiency	Frequency	Severity	Risk Ranking	Recommendation	Master Plan Response
1.14	The unsignalised Park Road / South Road intersection is in close proximity to the signalised pedestrian crossing on Park Road (north of Villa Street) which may impact on sight distances for vehicles turning right from the development. Increasing the potential for angle crashes. This is exacerbated during school peaks when these signals are triggered frequently, and queues extend along Park Road.	Probable	Minor	High	Review the location of the Park Road / South Road intersection and ensure it is beyond the influence area of queuing from the signalised crossing. Provide treatments such as “Keep Clear” pavement markings or intersection control (i.e. signalised intersection, which may require consolidation of access intersections on Park Road).	South Road is proposed to be physically restricted to left-in / left-out vehicle movements only. Traffic impact analysis indicates that vehicle queues from the existing signalised pedestrian crossing are unlikely to have a material impact on the operations of the Park Road / South Road intersection.
1.15	The unsignalised Park Road / South Road intersection does not cater for right-turn movements to South Road. Vehicles may undertake this manoeuvre if physical restrictions are not in place. This may lead to angle crashes.	Occasional	Minor	Medium	Review intersection layout and control type. Provide treatments that physically restrict vehicles tuning right into South Road.	South Road is proposed to be physically restricted to left-in / left-out vehicle movements only. These arrangements are detailed in Appendix D and are considered to be acceptable.
1.16	Driveway accesses to a day care centre and medical facility are located on the western side of Park Road (north of Villa Street). The unsignalised Park Road / South Road intersection is in close vicinity to these driveways and this increases the potential for turn movement conflicts and resulting crashes.	Probable	Minor	High	Review the location of the Park Road / South Road intersection in relevance to the driveway accesses. Provide treatments such as restricting movements to minimise turn conflicts including physical treatments (i.e. median islands).	South Road is proposed to be physically restricted to left-in / left-out vehicle movements only. An offset in excess of 8m (edge of kerb to edge of driveway) is provided between the existing driveway on the western side of Park Road and the proposed South Road connection location. There is clear line of sight between drivers exiting either the driveway or South Road. These arrangements are detailed in Appendix D, are expected to minimise turn conflicts and operational impacts to the existing driveway, and are considered to be acceptable.

No.	Deficiency	Frequency	Severity	Risk Ranking	Recommendation	Master Plan Response
1.17	South Road and North Road are located approximately 90m apart. The proximity of these two intersections may increase the likelihood of rear-end collisions, as trailing vehicles misinterpret which intersection vehicles are turning into and do not adjust their speed accordingly.	Probable	Minor	High	Review the location of the South Road and North Road intersections and the spacing between the intersections. Restrict movements or consolidate to a single intersection on Park Road (intersection control to be reviewed).	As outlined in Section 6.2.3 of this report, a comprehensive review has been completed of the various methods outlined within the relevant Austroads Guidelines (AGRD4, Appendix E) for the spacing of unsignalised minor road intersections and driveways. Based on this review, the proposed minimum spacing of 60m is considered to be supportable in this instance.
1.18	The departure lane on Villa Street is relatively wide which encourages vehicles to make the right-turn from Park Road at higher speeds and 'cut the corner'. This was observed to occur several times during the site visit. There is a pedestrian crossing with median refuge across the Villa Street leg and vehicles turning at higher speeds increases the severity of potential vehicle-pedestrian conflicts. The proposed development increases the volume of traffic turning left into Villa street and also the number of pedestrians using this crossing, including vulnerable users from the retirement land uses (i.e. crossing Villa Street to access the bus stops). Therefore, increasing the potential for vehicle-pedestrian conflicts. **POTENTIAL FSI CRASH**	Probable	Serious	Intolerable	Review intersection geometry and consider improvements that restrict vehicles from cutting the corner. Upgrade the pedestrian facility (determine type by warrant assessment) and provide positive intersection control (i.e. signalised intersection).	This is primarily an existing issue related to Council's transport infrastructure and if required, this issue is to be addressed by Council. It is expected that the ultimate solution at this location could be to signalise the intersection. However, given the transport infrastructure and land constraint challenges in this location, signalisation will require a long-term planning approach by Council. The Master Plan has made allowance for future localised road widening along the Park Road frontage in this location. As an interim solution, it is proposed to provide an alternate pedestrian crossing (as above) and introduce further chevron line marking to reduce vehicle speeds (noting that physical treatments are not feasible due to the existing bus route in this location).

No.	Deficiency	Frequency	Severity	Risk Ranking	Recommendation	Master Plan Response
1.19	The northbound bus stop on Park Road (prior to Villa Street) does not provide sufficient road width for a vehicle to pass while a bus is dwelling. Cars were observed to cross onto the other side of the road to pass buses servicing this stop. This poses a risk of head-on collisions, which may increase with additional traffic on Park Road from the development. **POTENTIAL FSI CRASH**	Occasional	Serious	High	Review carriageway cross-section and consider indenting or relocating the bus stop.	This is an existing issue related to Council's transport infrastructure. If required, this issue is to be addressed by Council.
1.20	Some of the existing footpaths along Villa Street and Park Road are in poor condition. The pram ramp at the crossing of Villa Street poses a tripping hazard for pedestrians. This risk may increase if pedestrian demands increase as a result of the development, particularly if the number of elderly pedestrians increases.	Occasional	Minor	Medium	Upgrade the existing footpaths and pram ramps.	As outlined in Section 3 of this report, footpaths along the subject site frontages are proposed to be upgraded as part of the Master Plan.

No.	Deficiency	Frequency	Severity	Risk Ranking	Recommendation	Master Plan Response
1.21	The right-turn out of Villa Street onto Park Road northbound is restricted due to the close proximity of signalised pedestrian crossing on Park Road. This results in right-turn vehicles 'bunching' and forcing their way onto Park Road while the southbound through traffic is stopped at the pedestrian crossing. These right-turn vehicles may potentially block southbound through traffic or vehicles turning right from Park Road into Villa Street and increase the likelihood of side swipe and angle crashes. This issue will be exacerbated by increased traffic through this intersection associated with the development (to / from Villa Street and along Park Road). **POTENTIAL FSI CRASH**	Probable	Serious	Intolerable	Review intersection layout and control type. Provide positive intersection control (i.e. signalised intersection) with signalised pedestrian crossings on all approaches.	This is primarily an existing issue related to Council's transport infrastructure and if required, this issue is to be addressed by Council. The issue is also understood to relate to drivers queueing back through the Park Road / Villa Street intersection during the peak school pick-up period. It is expected that the ultimate solution at this location could be to signalise the intersection. However, given the transport infrastructure and land constraint challenges in this location, signalisation will require a long-term planning approach by Council. The Master Plan has made allowance for future localised road widening along the Park Road frontage in this location. As an interim solution, it is proposed to provide 'Keep Clear' line marking on Park Road and opportunities to reduce vehicle speeds are to be considered.
1.22	Sections of Park Road and Villa Street are poorly lit at night-time. There are some large trees which can block the light. This increases the risk of tripping and reduces the visibility of pedestrians and cyclists at the two intersections on Park Road. This may result in vehicle – pedestrian / cyclist collisions. **POTENTIAL FSI CRASH**	Occasional	Serious	High	Ensure lighting requirements are appropriately addressed at subsequent stages of the design.	Lighting requirements will be addressed at the subsequent stages of design development.

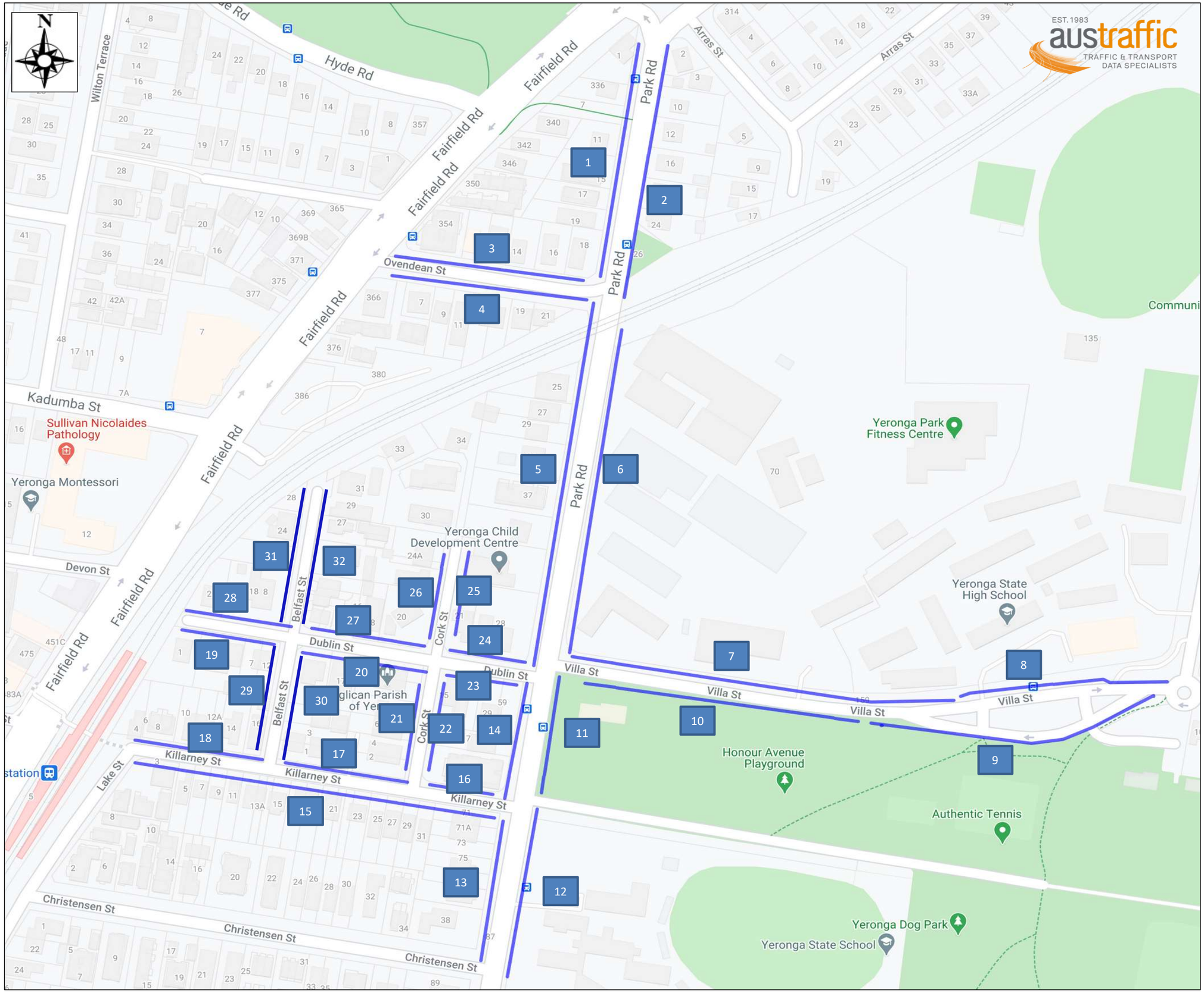
APPENDIX: RESPONSE TO ROAD SAFETY AUDIT

No.	Deficiency	Frequency	Severity	Risk Ranking	Recommendation	Master Plan Response
1.23	The Park Road / North Road intersection is identified in BCC flood awareness mapping as being impacted by flooding. This may result in restricted access to the development and / or vehicle aquaplaning at the intersection.	Occasional	Minor	Medium	Review design to ensure impacts due to flooding have been addressed. Ensure consideration to drainage is provided in the future design stages.	The proposed South Road connection to Park Road provides access beyond the identified flooding impact. In addition, the design of the North Road connection (including stormwater and flooding) is to be further refined at the subsequent stages of design development.

C. CAR PARKING DEMAND SURVEYS

C

17263 Yeronga Parking Survey Street Location Map



EST. 1983 austraffic TRAFFIC & TRANSPORT DATA SPECIALISTS

1 Street section

EST. 1983 austraffic TRAFFIC & TRANSPORT DATA SPECIALISTS

17263 Yeronga Parking Survey

Survey Date: Thursday 19 November 2020

			Number of vehicles parked each hour																Maximum
PARK ROAD		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	**Occupancy**
Street Section 1	No Parking	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1
Street Section 2	Unrestricted	13	2	2	1	1	1	1	1	1	1	1	2	1	0	2	1	1	2
Street Section 5	No Parking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 6	Unrestricted	16	3	9	12	15	16	13	13	10	10	12	10	4	2	3	2	3	16
Street Section 11	Unrestricted	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 11	Loading Zone Passengers 2 mins max 6am-10pm Mon-Fri	2	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	1
Street Section 12	Loading Zone Passengers 2 mins max 7-9am 2-4pm School Days	6	0	3	0	1	3	2	1	1	0	3	2	5	3	0	0	0	5
Street Section 12	Bus Zone 2:30-4pm Mon-Fri	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Street Section 13	Loading Zone Passengers 2 mins max 7-9am 2-4pm School Days	3	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	1
Street Section 13	Unrestricted	2	1	1	1	2	3	3	2	2	2	1	1	1	1	1	1	1	3
Street Section 14	Unrestricted	2	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1	0	1
Occupancy (number of vehicles)			6	15	15	21	23	20	18	14	13	20	15	12	7	8	6	6	23
Supply		49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	
Occupancy (%)			12%	31%	31%	43%	47%	41%	37%	29%	27%	41%	31%	24%	14%	16%	12%	12%	47%
OVERDEAN STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 3	Unrestricted	12	7	7	6	6	6	6	7	7	6	4	4	6	8	9	7	8	9
Street Section 4	Unrestricted	13	5	5	4	4	4	3	3	3	3	3	3	4	3	2	2	3	5
Occupancy (number of vehicles)			12	12	10	10	10	9	10	10	9	7	7	10	11	11	9	11	12
Supply		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
Occupancy (%)			48%	48%	40%	40%	40%	36%	40%	40%	36%	28%	28%	40%	44%	44%	36%	44%	48%
VILLA STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 7	Passenger Zone Pickup & Setdown Only 8am-5:30pm Mon-Fri	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 7	Unrestricted	2	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1
Street Section 8	Bus Zone 7-9am 2-4pm School Days	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	1	7
Street Section 8	Loading Zone Passengers 2 mins max 7-9am 2-4pm School Days	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2
Street Section 9	Loading Zone Passengers 2 mins max 7-9am 2-4pm Mon-Fri	9	1	3	6	7	8	9	3	5	6	2	6	6	9	7	7	7	9
Street Section 10	Unrestricted	10	0	0	0	0	0	0	0	0	0	2	0	1	0	4	4	0	4
Occupancy (number of vehicles)			1	3	7	8	9	10	4	6	7	5	7	7	9	20	20	10	20
Supply		32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
Occupancy (%)			3%	9%	22%	25%	28%	31%	13%	19%	22%	16%	22%	22%	28%	63%	63%	31%	63%
KILLARNEY STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 15	No Stopping	0	0	0	1	1	2	2	2	1	2	1	1	1	1	0	0	0	2
Street Section 16	Unrestricted	5	0	1	2	1	2	2	2	1	2	3	1	2	1	2	1	1	3
Street Section 17	Unrestricted	6	3	3	6	6	6	6	5	4	4	4	3	3	3	3	4	4	6
Street Section 17	No Parking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 18	Unrestricted	5	4	4	5	4	4	4	4	4	4	4	4	4	4	4	3	3	5
Occupancy (number of vehicles)			7	8	14	12	14	14	13	10	12	12	9	10	9	9	8	8	14
Supply		16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	

EST. 1983 austraffic TRAFFIC & TRANSPORT DATA SPECIALISTS

17263 Yeronga Parking Survey

Survey Date: Thursday 19 November 2020

			Number of vehicles parked each hour																Maximum
Occupancy (%)			44%	50%	88%	75%	88%	88%	81%	63%	75%	75%	56%	63%	56%	56%	50%	50%	88%
DUBLIN STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 19	Unrestricted	6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Street Section 20	No Parking 9am-7pm Mon-Fri	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 23	No Stopping	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 24	No Parking 9am-7pm Mon-Fri	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 27	No Parking 9am-7pm Mon-Fri	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 28	Unrestricted	2	1	2	1	1	1	1	1	2	2	2	1	0	0	1	2	1	2
Occupancy (number of vehicles)			1	2	1	1	1	1	1	2	2	2	1	1	0	1	2	1	2
Supply		22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
Occupancy (%)			5%	9%	5%	5%	5%	5%	5%	9%	9%	9%	5%	5%	0%	5%	9%	5%	9%
CORK STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 21	Unrestricted	6	2	3	2	5	6	6	4	4	5	5	4	3	3	2	2	2	6
Street Section 21	1/4P	3	0	0	0	0	2	1	0	0	1	0	1	1	1	0	0	0	2
Street Section 22	No Stopping (yellow line)	0	0	0	0	0	2	1	0	0	1	0	1	1	1	0	0	0	2
Street Section 25	No Parking 9am-7pm Mon-Fri	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 26	No Parking 9am-7pm Mon-Fri	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Occupancy (number of vehicles)			2	3	2	5	10	8	4	4	7	5	6	5	5	2	2	2	10
Supply		22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
Occupancy (%)			9%	14%	9%	23%	45%	36%	18%	18%	32%	23%	27%	23%	23%	9%	9%	9%	45%
BELFAST STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 29	No Parking 9am-7pm Mon-Fri	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 30	No Parking 9am-7pm Mon-Fri	8	1	2	2	2	2	2	2	2	2	3	2	2	2	1	1	1	3
Street Section 31	No Stopping 9am-7pm Mon-Fri	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 32	Unrestricted	6	4	5	3	4	5	5	3	5	3	4	5	4	4	4	5	5	5
Occupancy (number of vehicles)			5	7	5	6	7	7	5	7	5	7	7	6	6	5	6	6	7
Supply		32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
Occupancy (%)			16%	22%	16%	19%	22%	22%	16%	22%	16%	22%	22%	19%	19%	16%	19%	19%	22%

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17263 Yeronga Parking Survey

Survey Date: Saturday 28 November 2020

PARK ROAD		SUPPLY	Number of vehicles parked each hour															Maximum Occupancy
			6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	
Street Section 1	No Parking	0	0	0	0	0	0	0	0	0	1	1	2	1	1	1	1	1	2
Street Section 2	Unrestricted	13	2	2	2	4	1	0	0	1	1	0	1	0	0	0	0	0	4
Street Section 5	No Parking	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Street Section 6	Unrestricted	16	5	4	4	4	4	4	3	3	2	1	2	1	1	0	1	1	5
Street Section 11	Unrestricted	2	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2
Street Section 11	Loading Zone Passengers 2 mins max 6am-10pm Mon-Fri	2	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2	2	2
Street Section 12	Loading Zone Passengers 2 mins max 7-9am 2-4pm School Days	6	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1
Street Section 12	Bus Zone 2:30-4pm Mon-Fri	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 13	Loading Zone Passengers 2 mins max 7-9am 2-4pm School Days	3	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1
Street Section 13	Unrestricted	2	1	1	1	0	0	0	0	0	0	0	0	1	1	0	1	1	1
Street Section 14	Unrestricted	2	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	1	1
Occupancy (number of vehicles)			9	8	8	9	7	6	6	5	6	3	6	6	5	6	8	8	9
Supply		49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	
Occupancy (%)			18%	16%	16%	18%	14%	12%	12%	10%	12%	6%	12%	12%	10%	12%	16%	16%	18%
OVERDEAN STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 3	Unrestricted	12	9	9	8	8	7	7	7	5	6	6	8	8	8	7	9	9	9
Street Section 4	Unrestricted	13	3	3	3	4	5	5	5	3	3	2	1	1	3	4	6	8	8
Occupancy (number of vehicles)			12	12	11	12	12	12	12	8	9	8	9	9	11	11	15	17	17
Supply		25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
Occupancy (%)			48%	48%	44%	48%	48%	48%	48%	32%	36%	32%	36%	36%	44%	44%	60%	68%	68%
VILLA STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 7	Passenger Zone Pickup & Setdown Only 8am-5:30pm Mon-Fri	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 7	Unrestricted	2	0	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2
Street Section 8	Bus Zone 7-9am 2-4pm School Days	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 8	Loading Zone Passengers 2 mins max 7-9am 2-4pm School Days	2	0	0	0	0	0	2	2	1	2	2	2	1	0	0	0	0	2
Street Section 9	Loading Zone Passengers 2 mins max 7-9am 2-4pm Mon-Fri	8	3	3	3	3	2	1	1	3	7	7	3	4	7	8	8	8	8
Street Section 10	Unrestricted	10	0	0	0	0	1	0	0	0	0	0	0	1	2	6	7	6	7
Occupancy (number of vehicles)			3	3	3	3	3	3	3	4	9	9	5	7	11	16	17	16	17
Supply		31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
Occupancy (%)			10%	10%	10%	10%	10%	10%	10%	13%	29%	29%	16%	23%	35%	52%	55%	52%	55%
KILLARNEY STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 15	No Stopping	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 16	Unrestricted	5	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	2
Street Section 17	Unrestricted	6	2	1	2	3	1	2	1	2	3	3	3	3	3	3	3	3	3
Street Section 17	No Parking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 18	Unrestricted	5	3	4	4	3	3	3	4	4	2	2	2	4	3	3	4	2	4
Occupancy (number of vehicles)			6	6	7	7	5	6	6	7	7	7	6	8	7	7	8	6	8
Supply		16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	
Occupancy (%)			38%	38%	44%	44%	31%	38%	38%	44%	44%	44%	38%	50%	44%	44%	50%	38%	50%

EST. 1983 austraffic TRAFFIC & TRANSPORT DATA SPECIALISTS

17263 Yeronga Parking Survey

Survey Date: Saturday 28 November 2020

			Number of vehicles parked each hour																Maximum
DUBLIN STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 19	Unrestricted	6	2	2	1	1	2	3	2	2	2	1	1	0	1	1	1	1	3
Street Section 20	No Parking 9am-7pm Mon-Fri	7	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	1
Street Section 23	No Stopping	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Street Section 24	No Parking 9am-7pm Mon-Fri	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 27	No Parking 9am-7pm Mon-Fri	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 28	Unrestricted	2	1	1	1	1	1	0	1	1	0	0	0	1	1	1	1	1	1
Occupancy (number of vehicles)			3	3	2	2	4	4	3	3	3	1	1	1	2	3	3	2	4
Supply		22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	
Occupancy (%)			14%	14%	9%	9%	18%	18%	14%	14%	14%	5%	5%	5%	9%	14%	14%	9%	18%
CORK STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 21	Unrestricted	6	2	2	2	2	3	2	2	1	1	1	1	1	1	1	1	1	3
Street Section 21	1/4P	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 22	No Stopping (yellow line)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 25	No Parking 9am-7pm Mon-Fri	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Street Section 26	No Parking 9am-7pm Mon-Fri	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Occupancy (number of vehicles)			2	2	2	2	3	2	3	1	1	1	1	1	1	1	1	1	3
Supply		22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
Occupancy (%)			9%	9%	9%	9%	14%	9%	14%	5%	5%	5%	5%	5%	5%	5%	5%	5%	14%
BELFAST STREET		**SUPPLY**	**6:00**	**7:00**	**8:00**	**9:00**	**10:00**	**11:00**	**12:00**	**13:00**	**14:00**	**15:00**	**16:00**	**17:00**	**18:00**	**19:00**	**20:00**	**21:00**	
Street Section 29	No Parking 9am-7pm Mon-Fri	8	0	0	0	0	0	0	0	0	0	1	2	1	2	1	1	1	2
Street Section 30	No Parking 9am-7pm Mon-Fri	8	3	3	3	1	1	1	1	1	1	1	1	1	2	1	1	1	3
Street Section 31	No Stopping 9am-7pm Mon-Fri	10	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1
Street Section 32	Unrestricted	6	5	4	3	3	4	4	6	6	5	6	4	3	4	4	4	4	6
Occupancy (number of vehicles)			8	7	6	5	5	5	7	7	6	9	8	5	8	6	6	6	9
Supply		32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
Occupancy (%)			25%	22%	19%	16%	16%	16%	22%	22%	19%	28%	25%	16%	25%	19%	19%	19%	28%

D. CONCEPT SKETCH

D

CHR(S) DESIGN SPEED 60KM/HR

50.0
LATERAL MOVEMENT

15.0
TAPER

22.5
STORAGE

PARK ROAD

3.4
3.0
3.6

GOBLIN STREET

VILLA STREET

SOUTH ROAD

NORTH ROAD

EAST ROAD

5.5

3.75 2.5 5.5 3.75

3.75 7.5 3.75

60.5m
BETWEEN CENTRE LINES

64.9
BETWEEN CENTRE LINES

52.2
BETWEEN KERB LINES

58.3
BETWEEN KERB LINES

3.75
7.5
2.5

3.75
6.0
2.5

Proposed Lot 3
SP300888

Stage 2

21

22

Stage 2

Stage 2

Residential Flood Level

Ø18.0

3.75

3.75

REFER INSERT FOR CONTINUATION

SL10.74

SL10.85

SL10.55

IL8.41

IL9.11

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THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

DESIGNED H.TRUONG	DESIGN CHECK T.WILLIAMS
APPROVED BY T.WILLIAMS	DATE ISSUED 15 SEPTEMBER 2021

SCALE A3 0 2.5 5 10 1:500

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YERONGA HEART TRAFFIC STUDY
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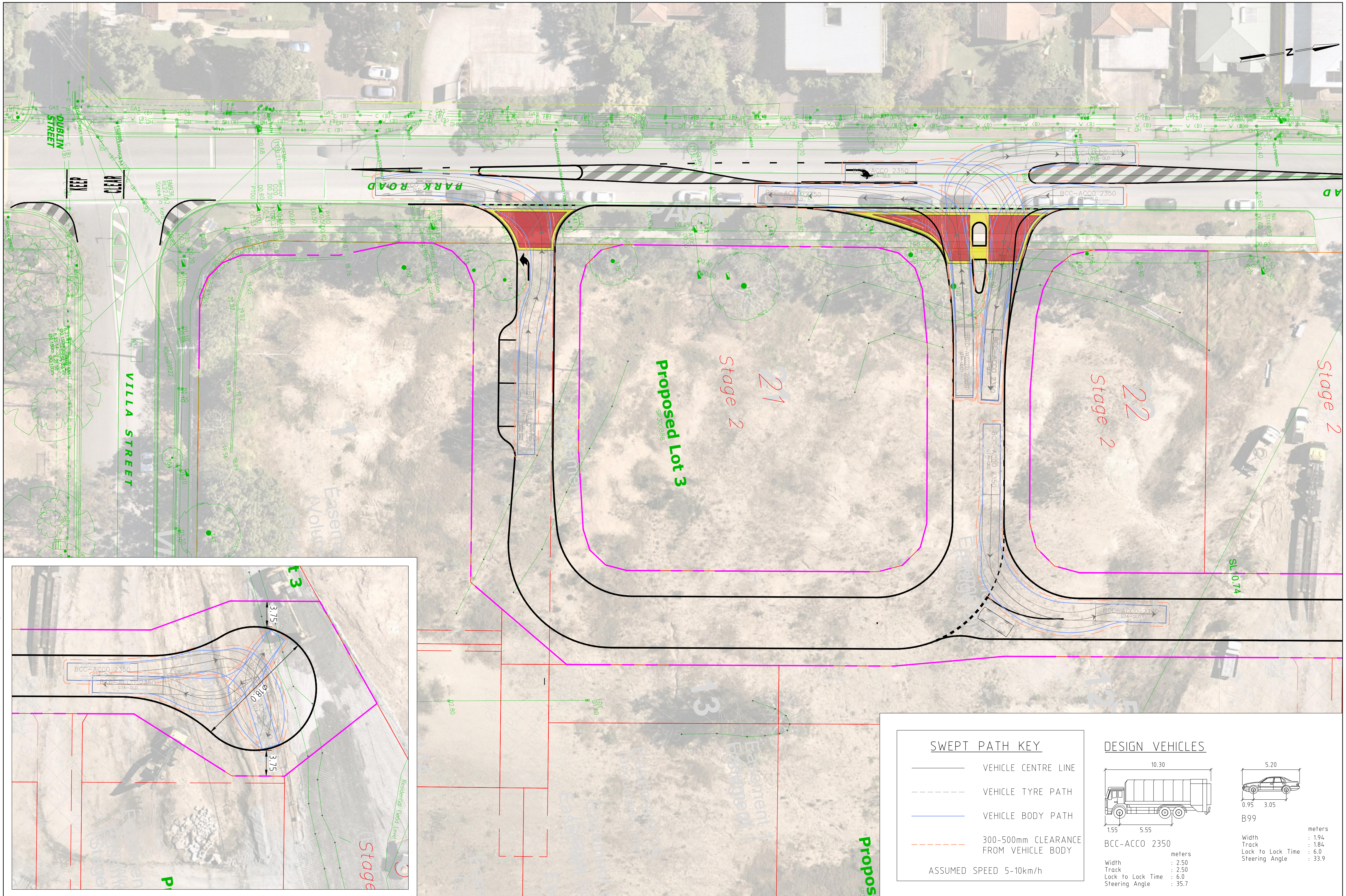
E. SWEPT PATH ASSESSMENTS

E



SWEPT PATH KEY

VEHICLE CENTRE LINE

VEHICLE TYRE PATH

VEHICLE BODY PATH

300-500mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5-10km/h

DESIGN VEHICLES

10.30
1.55
5.55

BCC-ACCO 2350

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 35.7

5.20
0.95
3.05

B99

	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 33.9

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SCALE A3 0 2.5 5 10 1:500

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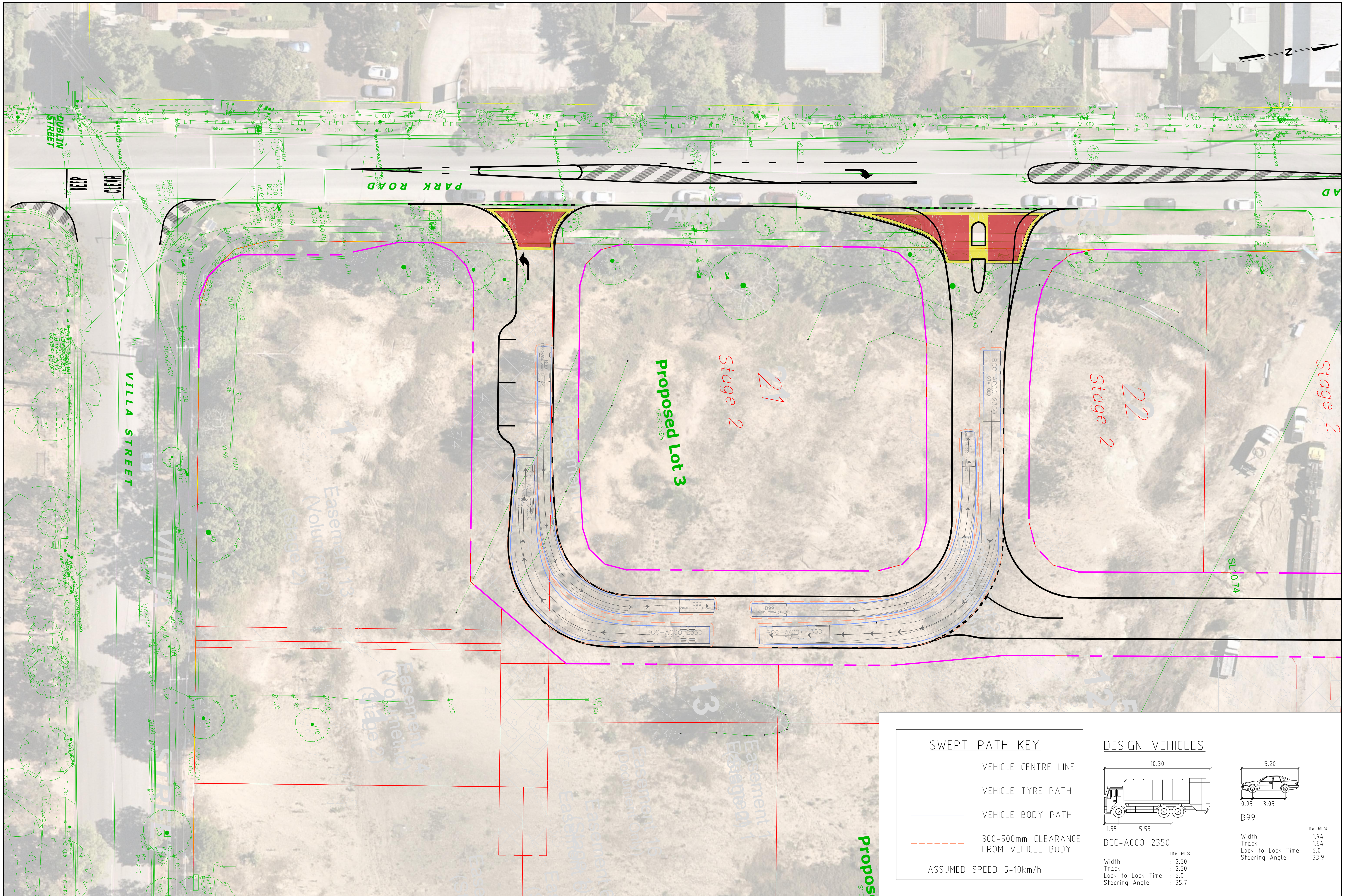

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YERONGA HEART TRAFFIC STUDY
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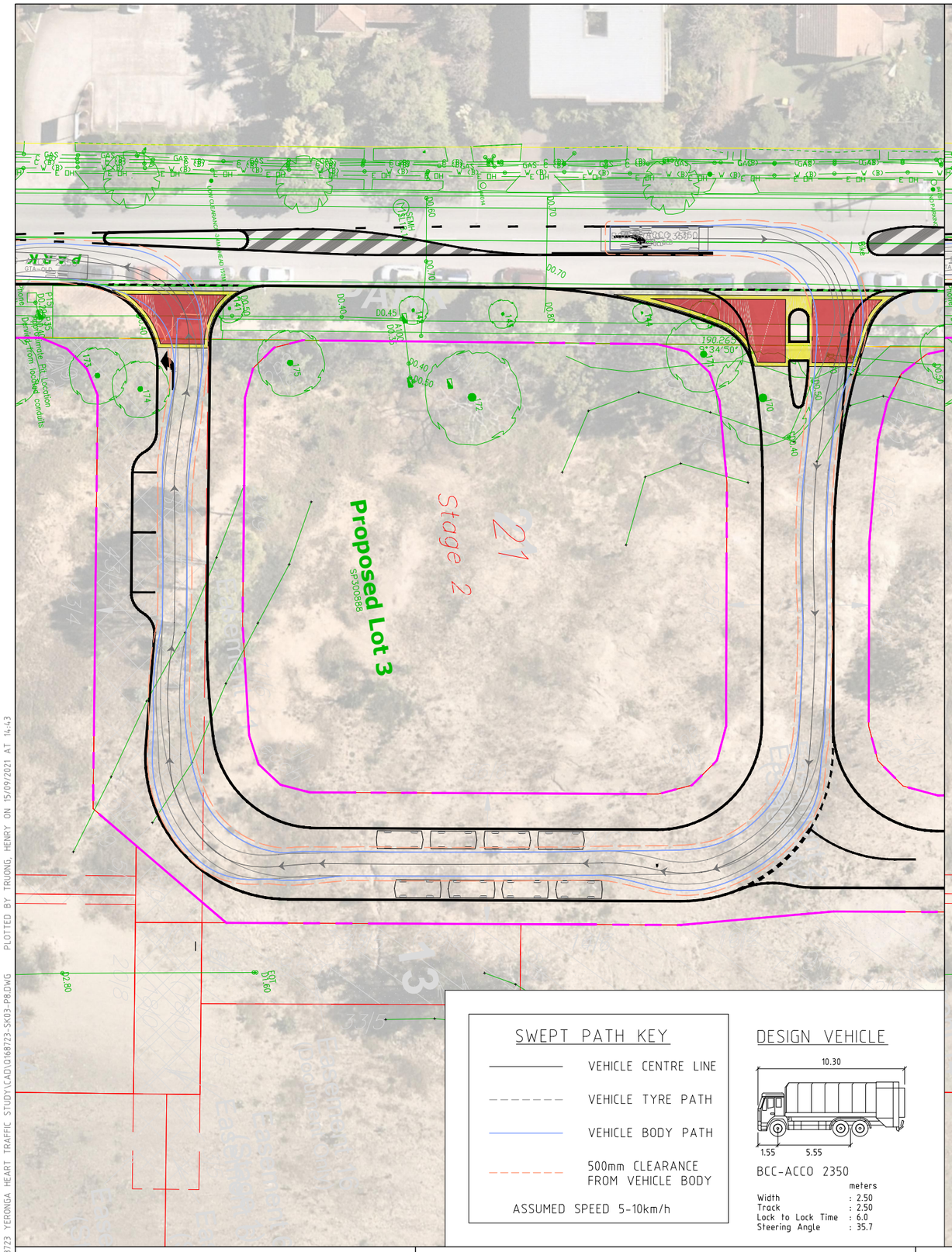

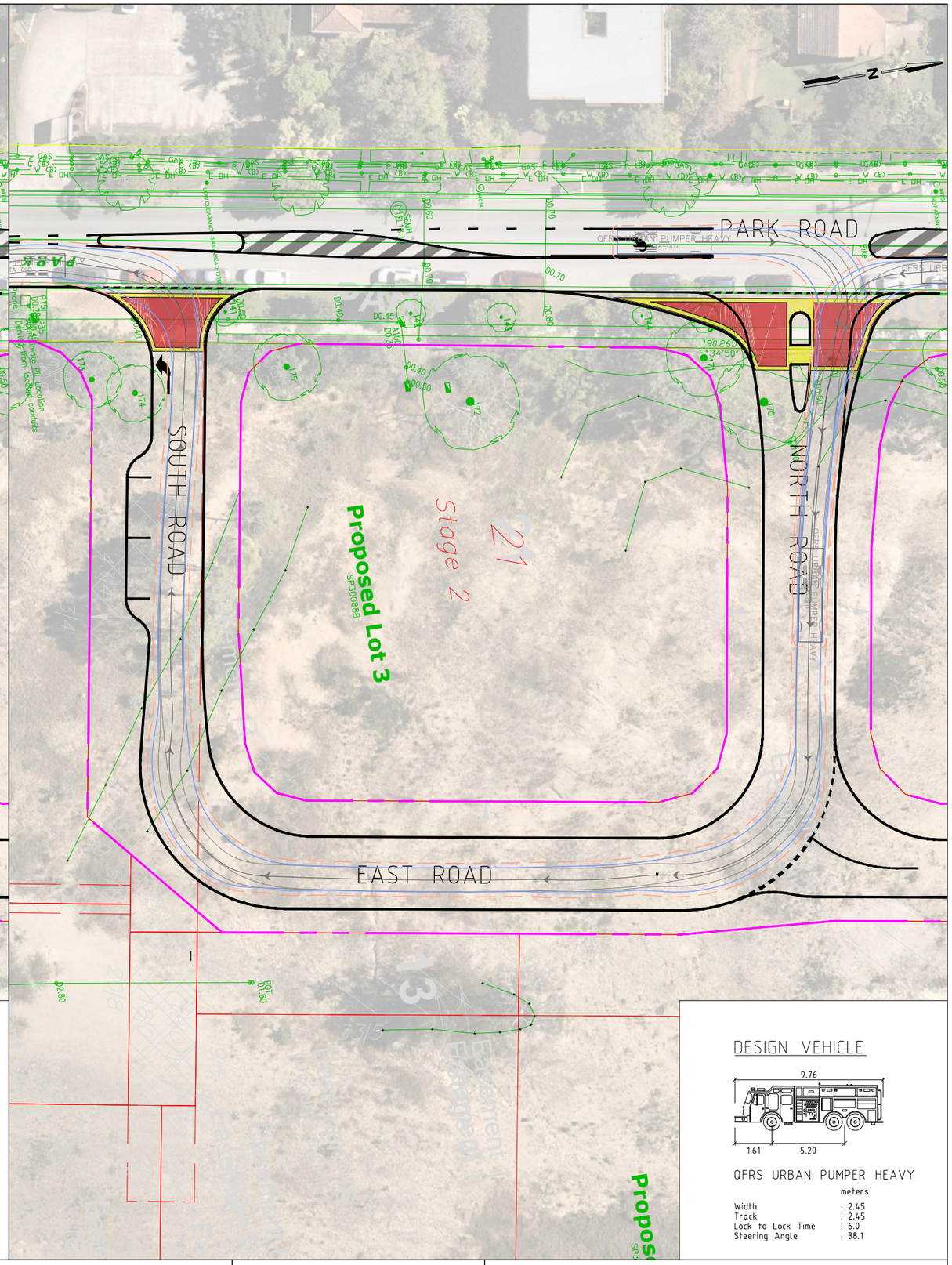

SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 500mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5-10km/h

DESIGN VEHICLE

BCC-ACCO 2350

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 35.7

DESIGN VEHICLE

QFRS URBAN PUMPER HEAVY

	meters
Width	: 2.45
Track	: 2.45
Lock to Lock Time	: 6.0
Steering Angle	: 38.1

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F. SIGHT DISTANCE DIAGRAM (SISD)

F

117m SISD (MIN. REQUIREMENT)

PARK ROAD

5m SETBACK FROM KERB

NORTH ROAD

BRIDGE STRUCTURE / ABUTMENT

OVENDEAN STREET

BEENLEIGH RAIL LINE

133m SISD (MIN. REQUIREMENT)

117m SISD (MIN. REQUIREMENT)

PARK ROAD

5m SETBACK FROM KERB

SOUTH ROAD

NORTH ROAD

VILLA STREET

Proposed L

Stage 2

21

22

3

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YERONGA HEART TRAFFIC STUDY
CONCEPT DESIGN

DRAWING NO. Q168723-SK03-05 SHEET 5 OF 5 ISSUE P8

G. TURNING MOVEMENT DIAGRAMS

APPENDIX: TURNING MOVEMENT DIAGRAMS

Figure G.1: Turn Movement Diagram – Base Scenario 2021 AM Peak

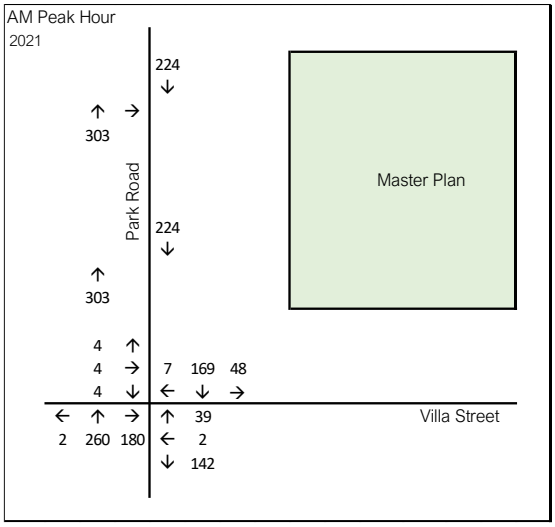


Figure G.2: Turn Movement Diagram – Base Scenario 2021 PM School Peak

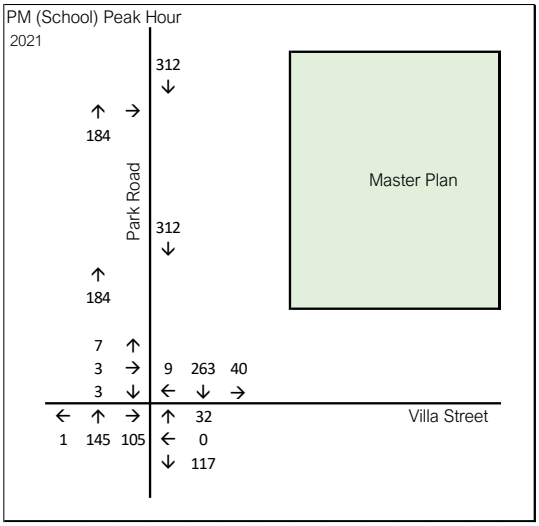


Figure G.3: Turn Movement Diagram – Base Scenario 2021 PM Commuter Peak

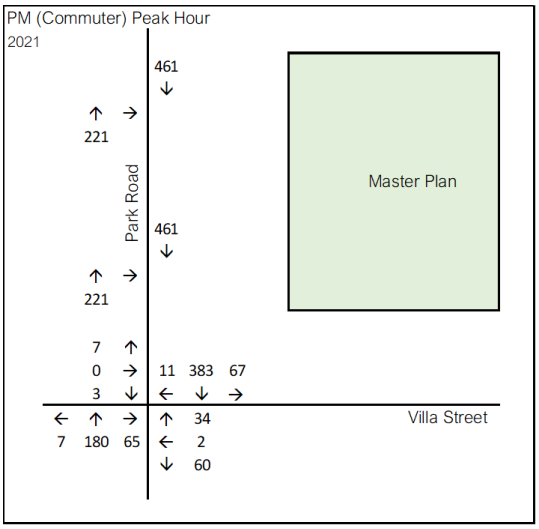


Figure G.4: Turn Movement Diagram – Base Scenario 2024 AM Peak

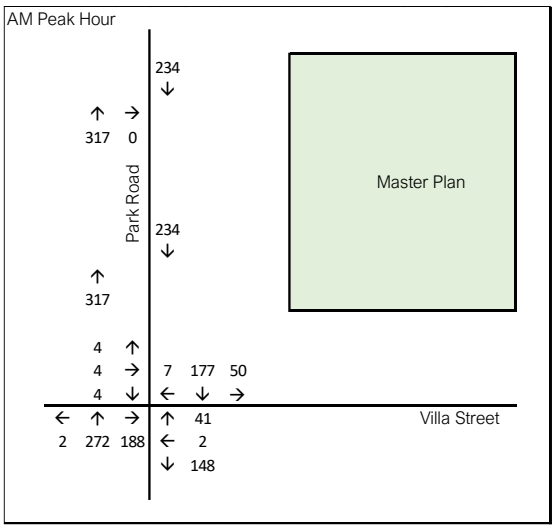


Figure G.5: Turn Movement Diagram – Base Scenario 2024 PM School Peak

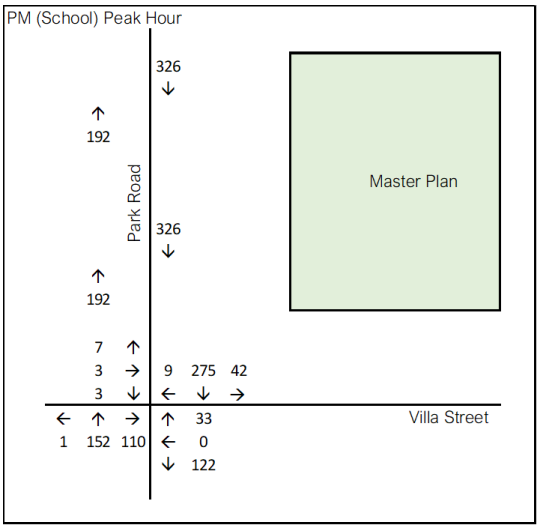


Figure G.6: Turn Movement Diagram – Base Scenario 2024 PM Commuter Peak

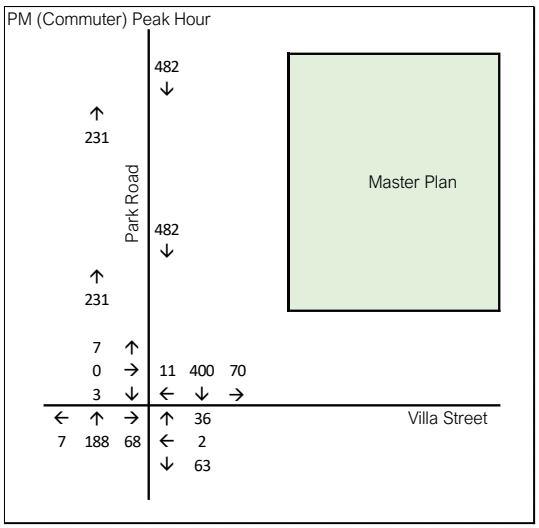


Figure G.7: Turn Movement Diagram – Base Scenario 2034 AM Peak

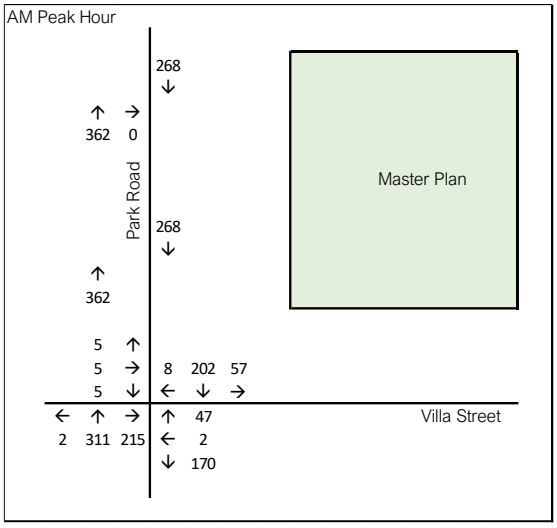


Figure G.8: Turn Movement Diagram – Base Scenario 2034 PM School Peak

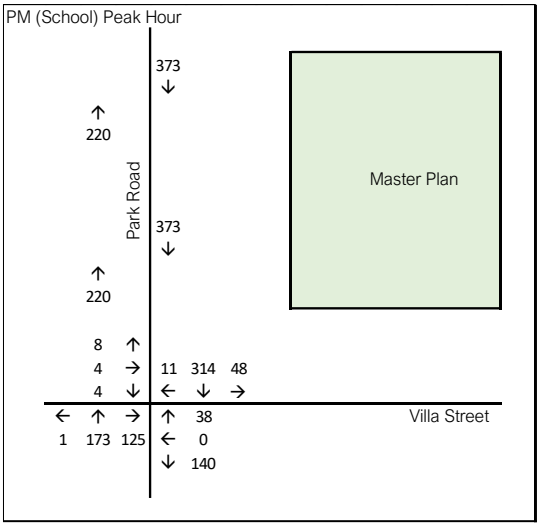


Figure G.9: Turn Movement Diagram – Base Scenario 2034 PM Commuter Peak

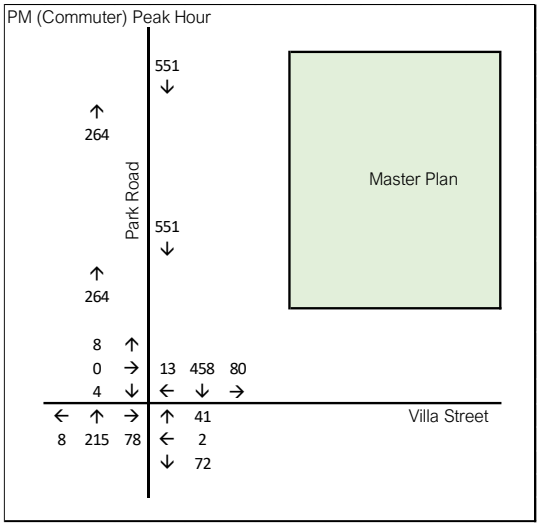


Figure G.10: Turn Movement Diagram – Master Plan Scenario 2024 AM Peak

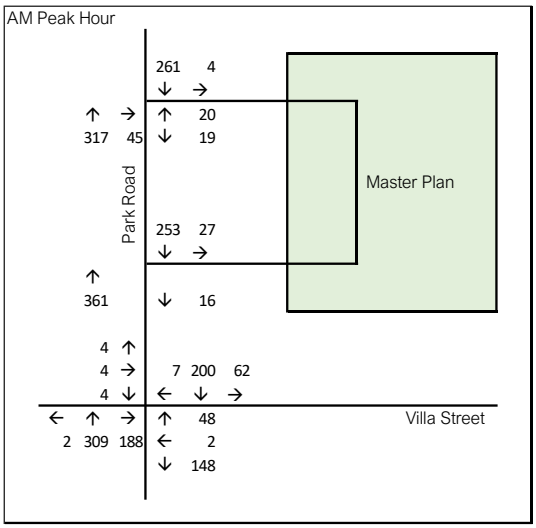


Figure G.11: Turn Movement Diagram – Master Plan Scenario 2024 PM School Peak

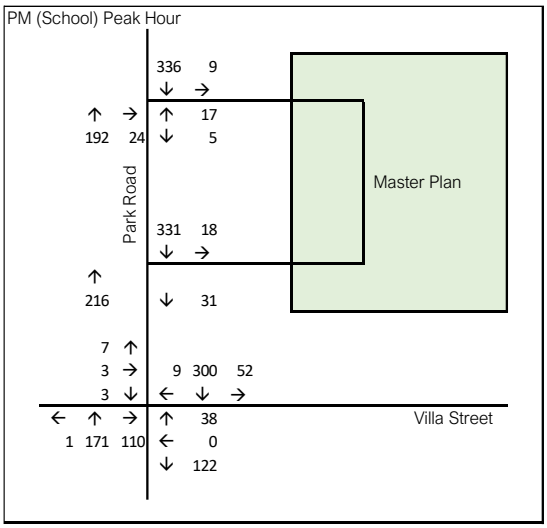


Figure G.12: Turn Movement Diagram – Master Plan Scenario 2024 PM Commuter Peak

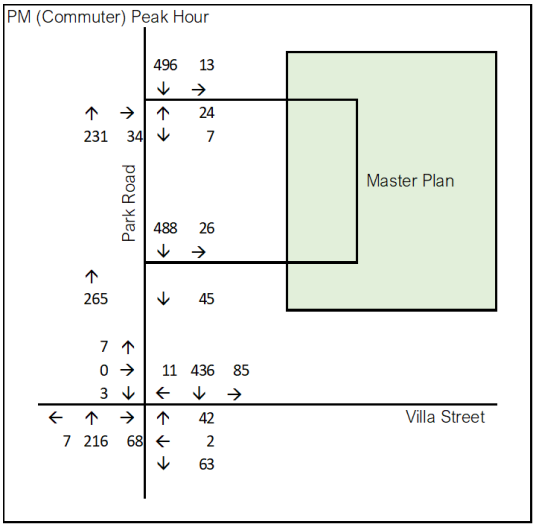


Figure G.13: Turn Movement Diagram – Master Plan Scenario 2034 AM Peak

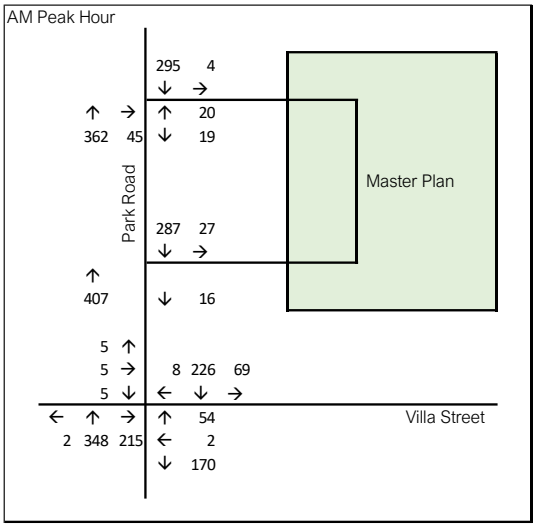


Figure G.14: Turn Movement Diagram – Master Plan Scenario 2034 PM School Peak

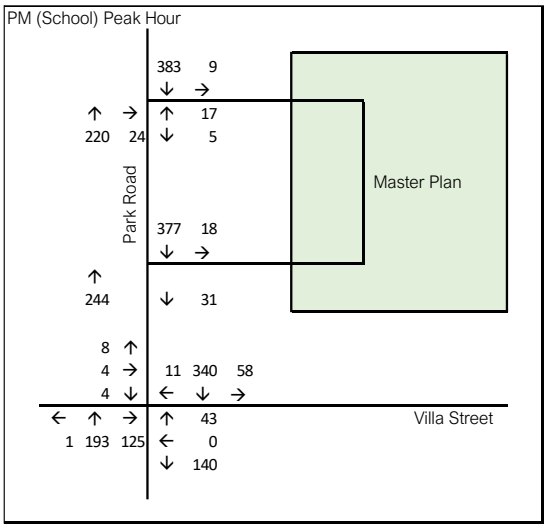
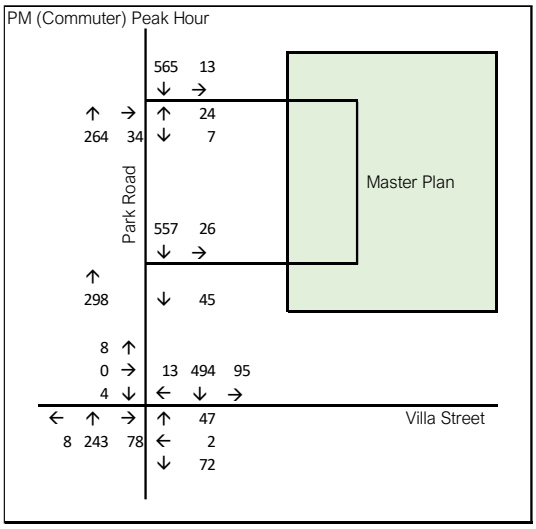


Figure G.15: Turn Movement Diagram – Master Plan Scenario 2034 PM Commuter Peak



H. TURN WARRANT ASSESSMENT

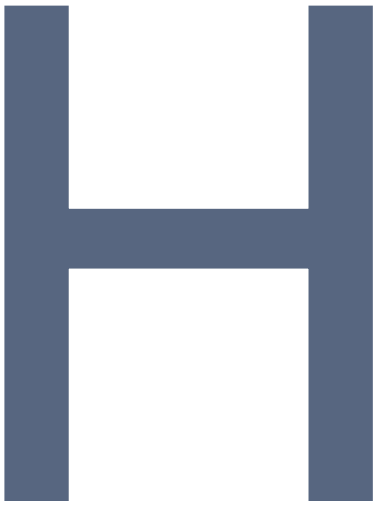


Table H.1: Turn Warrant Assessment – Park Road / North Road (2034)

	AM Peak		PM Peak (Commuter)	
	Right Turn	Left Turn	Right Turn	Left Turn
Q(L/R)	45	4	34	13
Q(M)	661	295	842	565

Figure H.16: Turn Warrant Assessment – Park Road / North Road

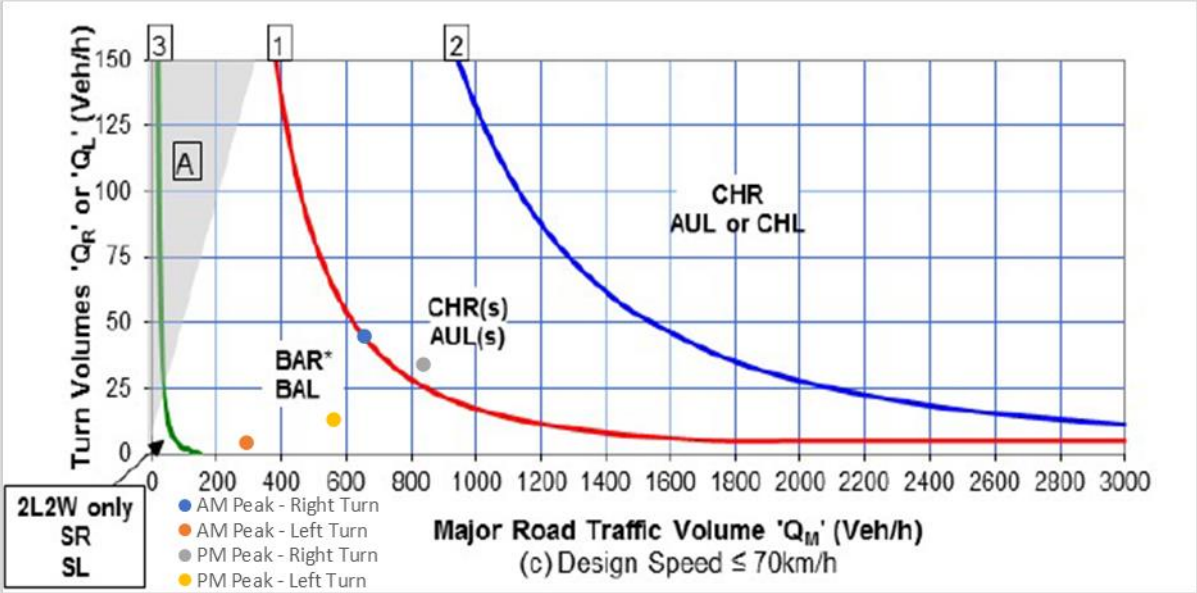
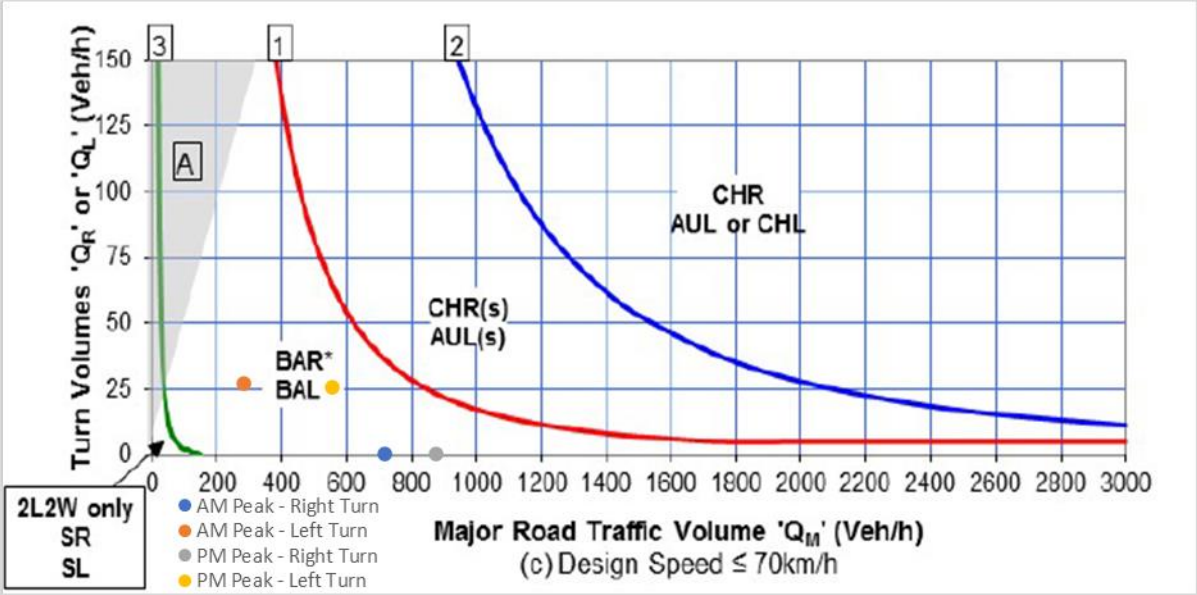


Table H.2: Turn Warrant Assessment – Park Road / South Road (2034)

	AM Peak		PM Peak (Commuter)	
	Right Turn	Left Turn	Right Turn	Left Turn
Q(L/R)	0	27	0	26
Q(M)	721	287	881	557

Figure H.17: Turn Warrant Assessment – Park Road / North Road



I. SIDRA NETWORK MODELLING RESULTS

LANE SUMMARY

Site: [Park Road / Villa Street - Existing / Base - AM Peak]

Network: N101 [Existing - Base - AM Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	501	2.0	501	2.0	1625	0.308	100	3.2	LOS A	0.8	5.4	Full	500	0.0	0.0
Approach	501	2.0	501	2.0		0.308		3.2	NA	0.8	5.4				
East: Villa Street															
Lane 1	235	2.0	235	2.0	639	0.367	100	5.6	LOS A	0.5	3.2	Full	500	-35.6 N3	0.0
Approach	235	2.0	235	2.0		0.367		5.6	LOS A	0.5	3.2				
North: Park Road															
Lane 1	283	2.0	283	2.0	1859	0.152	100	0.7	LOS A	0.0	0.3	Full	4	0.0	0.0
Approach	283	2.0	283	2.0		0.152		0.7	NA	0.0	0.3				
West: Dublin Street															
Lane 1	13	2.0	13	2.0	289	0.046	100	8.3	LOS A	0.0	0.2	Full	500	-50.0 N3	0.0
Approach	13	2.0	13	2.0		0.046		8.3	LOS A	0.0	0.2				
Intersection	1032	2.0	1032	2.0		0.367		3.1	NA	0.8	5.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: [Midblock Crossing - Existing / Base - AM Peak]

Network: N101 [Existing - Base - AM Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	337	2.0	337	2.0	995	0.339	100	9.2	LOS A	0.6[N 4]	4.0[N4]	Full	4	0.0	50.0
Approach	337	2.0	337	2.0		0.339		9.2	LOS A	0.6	4.0				
North: Park Road															
Lane 1	249	2.0	249	2.0	995	0.250	100	8.7	LOS A	2.5	17.7	Full	500	0.0	0.0
Approach	249	2.0	249	2.0		0.250		8.7	LOS A	2.5	17.7				
Intersection	586	2.0	586	2.0		0.339		9.0	LOS A	2.5	17.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - Existing / Base - PM (Commuter) Peak]

Network: N101 [Existing - Base - PM (Commuter) Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	284	2.0	284	2.0	1557	0.182	100	2.9	LOS A	1.4	10.0	Full	500	0.0	0.0
Approach	284	2.0	284	2.0		0.182		2.9	NA	1.4	10.0				
East: Villa Street															
Lane 1	108	2.0	108	2.0	314	0.343	100	7.8	LOS A	0.3	1.9	Full	500	-54.2 N3	0.0
Approach	108	2.0	108	2.0		0.343		7.8	LOS A	0.3	1.9				
North: Park Road															
Lane 1	512	2.0	512	2.0	1896	0.270	100	0.4	LOS A	0.1	0.4	Full	4	0.0	0.0
Approach	512	2.0	512	2.0		0.270		0.4	NA	0.1	0.4				
West: Dublin Street															
Lane 1	12	2.0	12	2.0	274	0.042	100	6.8	LOS A	0.0	0.1	Full	500	-65.6 N3	0.0
Approach	12	2.0	12	2.0		0.042		6.8	LOS A	0.0	0.1				
Intersection	915	2.0	915	2.0		0.343		2.1	NA	1.4	10.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: [Midblock Crossing - Existing / Base - PM (Commuter) Peak]

Network: N101 [Existing - Base - PM (Commuter) Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 600 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	233	2.0	233	2.0	1826	0.127	100	0.9	LOS A	0.6 [N 4]	4.0 [N4]	Full	4	0.0	50.0
Approach	233	2.0	233	2.0		0.127		0.9	LOS A	0.6	4.0				
North: Park Road															
Lane 1	485	2.0	485	2.0	1826	0.266	100	1.1	LOS A	5.7	40.6	Full	500	0.0	0.0
Approach	485	2.0	485	2.0		0.266		1.1	LOS A	5.7	40.6				
Intersection	718	2.0	718	2.0		0.266		1.0	LOS A	5.7	40.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - Existing / Base - PM (School) Peak]

Network: N101 [Existing - Base - PM (School) Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	318	3.6	318	3.6	1584	0.201	100	3.0	LOS A	0.6	4.6	Full	500	0.0	0.0
Approach	318	3.6	318	3.6		0.201		3.0	NA	0.6	4.6				
East: Villa Street															
Lane 1	224	2.0	224	2.0	639	0.350	100	5.6	LOS A	0.4	3.0	Full	500	-36.4 N3	0.0
Approach	224	2.0	224	2.0		0.350		5.6	LOS A	0.4	3.0				
North: Park Road															
Lane 1	356	3.0	356	3.0	1880	0.189	100	0.4	LOS A	0.0	0.3	Full	4	0.0	0.0
Approach	356	3.0	356	3.0		0.189		0.4	NA	0.0	0.3				
West: Dublin Street															
Lane 1	15	2.0	15	2.0	307	0.050	100	6.6	LOS A	0.0	0.2	Full	500	-61.8 N3	0.0
Approach	15	2.0	15	2.0		0.050		6.6	LOS A	0.0	0.2				
Intersection	913	2.9	913	2.9		0.350		2.7	NA	0.6	4.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: [Midblock Crossing - Existing / Base - PM (School) Peak]

Network: N101 [Existing - Base - PM (School) Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	204	2.0	204	2.0	1283	0.159	100	4.0	LOS A	0.6[N 4]	4.0[N4]	Full	4	0.0	50.0
Approach	204	2.0	204	2.0		0.159		4.0	LOS A	0.6	4.0				
North: Park Road															
Lane 1	347	2.0	347	2.0	1283	0.270	100	4.4	LOS A	2.5	17.9	Full	500	0.0	0.0
Approach	347	2.0	347	2.0		0.270		4.4	LOS A	2.5	17.9				
Intersection	551	2.0	551	2.0		0.270		4.2	LOS A	2.5	17.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Midblock Crossing - Opening / Base - AM Peak]

Network: N101 [Year of Opening - Base - AM Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	352	2.0	352	2.0	995	0.354	100	9.3	LOS A	0.6[N 4]	4.0[N4]	Full	4	0.0	50.0
Approach	352	2.0	352	2.0		0.354		9.3	LOS A	0.6	4.0				
North: Park Road															
Lane 1	260	2.0	260	2.0	995	0.261	100	8.8	LOS A	2.6	18.6	Full	500	0.0	0.0
Approach	260	2.0	260	2.0		0.261		8.8	LOS A	2.6	18.6				
Intersection	612	2.0	612	2.0		0.354		9.1	LOS A	2.6	18.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - Opening / Base - AM Peak]

Network: N101 [Year of Opening - Base - AM Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	524	2.0	524	2.0	1615	0.324	100	3.3	LOS A	0.8	5.8	Full	500	0.0	0.0
Approach	524	2.0	524	2.0		0.324		3.3	NA	0.8	5.8				
East: Villa Street															
Lane 1	245	2.0	245	2.0	621	0.395	100	6.0	LOS A	0.5	3.8	Full	500	-35.8 N3	0.0
Approach	245	2.0	245	2.0		0.395		6.0	LOS A	0.5	3.8				
North: Park Road															
Lane 1	296	2.0	296	2.0	1859	0.159	100	0.7	LOS A	0.0	0.3	Full	4	0.0	0.0
Approach	296	2.0	296	2.0		0.159		0.7	NA	0.0	0.3				
West: Dublin Street															
Lane 1	13	2.0	13	2.0	275	0.048	100	8.6	LOS A	0.0	0.2	Full	500	-50.0 N3	0.0
Approach	13	2.0	13	2.0		0.048		8.6	LOS A	0.0	0.2				
Intersection	1078	2.0	1078	2.0		0.395		3.3	NA	0.8	5.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: [Midblock Crossing - Opening / Base - PM (School) Peak]

Network: N101 [Year of Opening - Base - PM (School) Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	226	2.0	226	2.0	1283	0.176	100	4.0	LOS A	0.6 [N 4]	4.0 [N4]	Full	4	0.0	50.0
Approach	226	2.0	226	2.0		0.176		4.0	LOS A	0.6	4.0				
North: Park Road															
Lane 1	384	2.0	384	2.0	1283	0.299	100	4.5	LOS A	2.9	20.3	Full	500	0.0	0.0
Approach	384	2.0	384	2.0		0.299		4.5	LOS A	2.9	20.3				
Intersection	609	2.0	609	2.0		0.299		4.3	LOS A	2.9	20.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - Opening / Base - PM (School) Peak]

Network: N101 [Year of Opening - Base - PM (School) Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	333	2.0	333	2.0	1587	0.210	100	3.1	LOS A	0.8	5.4	Full	500	0.0	0.0
Approach	333	2.0	333	2.0		0.210		3.1	NA	0.8	5.4				
East: Villa Street															
Lane 1	233	2.0	233	2.0	631	0.369	100	5.8	LOS A	0.5	3.4	Full	500	-36.2 N3	0.0
Approach	233	2.0	233	2.0		0.369		5.8	LOS A	0.5	3.4				
North: Park Road															
Lane 1	372	2.0	372	2.0	1882	0.198	100	0.5	LOS A	0.0	0.3	Full	4	0.0	0.0
Approach	372	2.0	372	2.0		0.198		0.5	NA	0.0	0.3				
West: Dublin Street															
Lane 1	15	2.0	15	2.0	299	0.051	100	6.8	LOS A	0.0	0.2	Full	500	-61.8 N3	0.0
Approach	15	2.0	15	2.0		0.051		6.8	LOS A	0.0	0.2				
Intersection	954	2.0	954	2.0		0.369		2.8	NA	0.8	5.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: [Midblock Crossing - Opening / Base - PM (Commuter) Peak]

Network: N101 [Year of Opening - Base - PM (Commuter) Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 600 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	243	2.0	243	2.0	1826	0.133	100	0.9	LOS A	0.6[N 4]	4.0[N4]	Full	4	0.0	50.0
Approach	243	2.0	243	2.0		0.133		0.9	LOS A	0.6	4.0				
North: Park Road															
Lane 1	507	2.0	507	2.0	1826	0.278	100	1.1	LOS A	6.1	43.1	Full	500	0.0	0.0
Approach	507	2.0	507	2.0		0.278		1.1	LOS A	6.1	43.1				
Intersection	751	2.0	751	2.0		0.278		1.1	LOS A	6.1	43.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - Opening / Base - PM (Commuter) Peak]

Network: N101 [Year of Opening - Base - PM (Commuter) Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	285	2.0	285	2.0	1527	0.187	100	3.1	LOS A	1.5	10.6	Full	500	0.0	0.0
Approach	285	2.0	285	2.0		0.187		3.1	NA	1.5	10.6				
East: Villa Street															
Lane 1	113	2.0	113	2.0	304	0.373	100	8.4	LOS A	0.3	2.1	Full	500	-54.3 N3	0.0
Approach	113	2.0	113	2.0		0.373		8.4	LOS A	0.3	2.1				
North: Park Road															
Lane 1	534	2.0	534	2.0	1892	0.282	100	0.4	LOS A	0.1	0.4	Full	4	0.0	0.0
Approach	534	2.0	534	2.0		0.282		0.4	NA	0.1	0.4				
West: Dublin Street															
Lane 1	12	2.0	12	2.0	268	0.043	100	6.9	LOS A	0.0	0.1	Full	500	-65.6 N3	0.0
Approach	12	2.0	12	2.0		0.043		6.9	LOS A	0.0	0.1				
Intersection	944	2.0	944	2.0		0.373		2.3	NA	1.5	10.6				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: [Midblock Crossing - 10-Year / Base - AM Peak]

Network: N101 [10-Year Horizon - Base - AM Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	402	2.0	402	2.0	995	0.404	100	9.6	LOS A	0.6[N 4]	4.0[N4]	Full	4	0.0	50.0
Approach	402	2.0	402	2.0		0.404		9.6	LOS A	0.6	4.0				
North: Park Road															
Lane 1	298	2.0	298	2.0	995	0.299	100	9.0	LOS A	3.1	21.9	Full	500	0.0	0.0
Approach	298	2.0	298	2.0		0.299		9.0	LOS A	3.1	21.9				
Intersection	700	2.0	700	2.0		0.404		9.3	LOS A	3.1	21.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - 10-Year / Base - AM Peak]

Network: N101 [10-Year Horizon - Base - AM Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	598	2.0	598	2.0	1581	0.379	100	3.6	LOS A	1.0	7.2	Full	500	0.0	0.0
Approach	598	2.0	598	2.0		0.379		3.6	NA	1.0	7.2				
East: Villa Street															
Lane 1	281	2.0	281	2.0	568	0.495	100	7.8	LOS A	0.9	6.1	Full	500	-35.8 N3	0.0
Approach	281	2.0	281	2.0		0.495		7.8	LOS A	0.9	6.1				
North: Park Road															
Lane 1	337	2.0	337	2.0	1849	0.182	100	0.8	LOS A	0.1	0.4	Full	4	0.0	0.0
Approach	337	2.0	337	2.0		0.182		0.8	NA	0.1	0.4				
West: Dublin Street															
Lane 1	17	2.0	17	2.0	232	0.072	100	10.0	LOS B	0.0	0.3	Full	500	-50.0 N3	0.0
Approach	17	2.0	17	2.0		0.072		10.0	LOS B	0.0	0.3				
Intersection	1234	2.0	1234	2.0		0.495		3.9	NA	1.0	7.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: [Midblock Crossing - 10-Year / Base - PM (School) Peak]

Network: N101 [10-Year Horizon - Base - PM (School) Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	259	2.0	259	2.0	1283	0.202	100	4.1	LOS A	0.6[N 4]	4.0[N4]	Full	4	0.0	50.0
Approach	259	2.0	259	2.0		0.202		4.1	LOS A	0.6	4.0				
North: Park Road															
Lane 1	439	2.0	439	2.0	1283	0.342	100	4.6	LOS A	3.4	24.2	Full	500	0.0	0.0
Approach	439	2.0	439	2.0		0.342		4.6	LOS A	3.4	24.2				
Intersection	698	2.0	698	2.0		0.342		4.4	LOS A	3.4	24.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - 10-Year / Base - PM (School) Peak]

Network: N101 [10-Year Horizon - Base - PM (School) Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	379	2.0	379	2.0	1543	0.245	100	3.4	LOS A	1.0	6.9	Full	500	0.0	0.0
Approach	379	2.0	379	2.0		0.245		3.4	NA	1.0	6.9				
East: Villa Street															
Lane 1	267	2.0	267	2.0	587	0.456	100	7.1	LOS A	0.7	5.1	Full	500	-36.3 N3	0.0
Approach	267	2.0	267	2.0		0.456		7.1	LOS A	0.7	5.1				
North: Park Road															
Lane 1	426	2.0	426	2.0	1876	0.227	100	0.5	LOS A	0.1	0.5	Full	4	0.0	0.0
Approach	426	2.0	426	2.0		0.227		0.5	NA	0.1	0.5				
West: Dublin Street															
Lane 1	19	2.0	19	2.0	270	0.070	100	7.5	LOS A	0.0	0.3	Full	500	-60.0 N3	0.0
Approach	19	2.0	19	2.0		0.070		7.5	LOS A	0.0	0.3				
Intersection	1091	2.0	1091	2.0		0.456		3.3	NA	1.0	6.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: [Midblock Crossing - 10-Year / Base - PM (Commuter) Peak]

Network: N101 [10-Year Horizon - Base - PM (Commuter) Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 600 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	278	2.0	278	2.0	1826	0.152	100	1.0	LOS A	0.6[N 4]	4.0[N4]	Full	4	0.0	50.0
Approach	278	2.0	278	2.0		0.152		1.0	LOS A	0.6	4.0				
North: Park Road															
Lane 1	580	2.0	580	2.0	1826	0.318	100	1.2	LOS A	7.3	51.9	Full	500	0.0	0.0
Approach	580	2.0	580	2.0		0.318		1.2	LOS A	7.3	51.9				
Intersection	858	2.0	858	2.0		0.318		1.1	LOS A	7.3	51.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - 10-Year / Base - PM (Commuter) Peak]

Network: N101 [10-Year Horizon - Base - PM (Commuter) Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	327	2.0	327	2.0	1459	0.224	100	3.7	LOS A	1.8	12.9	Full	500	0.0	0.0
Approach	327	2.0	327	2.0		0.224		3.7	NA	1.8	12.9				
East: Villa Street															
Lane 1	129	2.0	129	2.0	265	0.488	100	11.0	LOS B	0.4	3.0	Full	500	-54.3 N3	0.0
Approach	129	2.0	129	2.0		0.488		11.0	LOS B	0.4	3.0				
North: Park Road															
Lane 1	611	2.0	611	2.0	1889	0.324	100	0.4	LOS A	0.1	0.6	Full	4	0.0	0.0
Approach	611	2.0	611	2.0		0.324		0.4	NA	0.1	0.6				
West: Dublin Street															
Lane 1	14	2.0	14	2.0	234	0.059	100	7.8	LOS A	0.0	0.2	Full	500	-64.9 N3	0.0
Approach	14	2.0	14	2.0		0.059		7.8	LOS A	0.0	0.2				
Intersection	1081	2.0	1081	2.0		0.488		2.8	NA	1.8	12.9				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: 102 [Park Rd / South St - Opening / Project - AM Peak]

Network: N101 [Year of Opening - Project - AM Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	381	2.0	381	2.0	1925	0.198	100	0.0	LOS A	0.0	0.0	Full	55	0.0	0.0
Approach	381	2.0	381	2.0		0.198		0.0	NA	0.0	0.0				
East: South Street															
Lane 1	7	2.0	7	2.0	1260	0.006	100	6.4	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	7	2.0	7	2.0		0.006		6.4	LOS A	0.0	0.1				
North: Park Road (N)															
Lane 1	302	2.0	302	2.0	1916	0.158	100	0.4	LOS A	0.0	0.0	Full	65	0.0	0.0
Approach	302	2.0	302	2.0		0.158		0.4	NA	0.0	0.0				
Intersection	691	2.0	691	2.0		0.198		0.3	NA	0.0	0.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

LANE SUMMARY

Site: 101 [Park Rd / North St - Opening / Project - AM Peak]

Network: N101 [Year of Opening - Project - AM Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	334	2.0	334	2.0	1913	0.174	100	0.0	LOS A	0.0	0.0	Full	65	0.0	0.0
Lane 2	47	2.0	47	2.0	1069	0.044	100	5.6	LOS A	0.1	0.5	Short	58	0.0	NA
Approach	381	2.0	381	2.0		0.174		0.7	NA	0.1	0.5				
East: North Street															
Lane 1	51	2.0	51	2.0	636	0.079	100	9.1	LOS A	0.1	0.8	Full	500	0.0	0.0
Approach	51	2.0	51	2.0		0.079		9.1	LOS A	0.1	0.8				
North: Park Road (N)															
Lane 1	7	2.0	7	2.0	1831	0.004	100	5.6	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	274	2.0	274	2.0	1925	0.142	100	0.0	LOS A	0.0	0.0	Full	200	0.0	0.0
Approach	281	2.0	281	2.0		0.142		0.2	NA	0.0	0.0				
Intersection	713	2.0	713	2.0		0.174		1.1	NA	0.1	0.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

LANE SUMMARY

Site: [Midblock Crossing - Opening / Project - AM Peak]

Network: N101 [Year of Opening - Project - AM Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	416	2.0	416	2.0	995	0.418	100	9.7	LOS A	0.6 [N 4]	4.0 [N4]	Full	4	0.0	50.0
Approach	416	2.0	416	2.0		0.418		9.7	LOS A	0.6	4.0				
North: Park Road															
Lane 1	308	2.0	308	2.0	995	0.310	100	9.0	LOS A	3.2	22.8	Full	55	0.0	0.0
Approach	308	2.0	308	2.0		0.310		9.0	LOS A	3.2	22.8				
Intersection	724	2.0	724	2.0		0.418		9.4	LOS A	3.2	22.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - Opening / Project - AM Peak]

Network: N101 [Year of Opening - Project - AM Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	562	2.0	562	2.0	1599	0.352	100	3.4	LOS A	0.9	6.4	Full	500	0.0	0.0
Approach	562	2.0	562	2.0		0.352		3.4	NA	0.9	6.4				
East: Villa Street															
Lane 1	253	2.0	253	2.0	537	0.471	100	7.6	LOS A	0.7	5.2	Full	500	-38.8 N3	0.0
Approach	253	2.0	253	2.0		0.471		7.6	LOS A	0.7	5.2				
North: Park Road															
Lane 1	339	2.0	339	2.0	1859	0.182	100	0.7	LOS A	0.1	0.4	Full	4	0.0	0.0
Approach	339	2.0	339	2.0		0.182		0.7	NA	0.1	0.4				
West: Dublin Street															
Lane 1	13	2.0	13	2.0	251	0.053	100	9.4	LOS A	0.0	0.2	Full	500	-50.0 N3	0.0
Approach	13	2.0	13	2.0		0.053		9.4	LOS A	0.0	0.2				
Intersection	1168	2.0	1168	2.0		0.471		3.6	NA	0.9	6.4				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: [Midblock Crossing - Opening / Project - PM (School) Peak]

Network: N101 [Year of Opening - Project - PM (School) Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	253	2.0	253	2.0	1315	0.192	100	3.7	LOS A	0.6[N 4]	4.0[N4]	Full	4	0.0	50.0
Approach	253	2.0	253	2.0		0.192		3.7	LOS A	0.6	4.0				
North: Park Road															
Lane 1	425	2.0	425	2.0	1315	0.323	100	4.1	LOS A	3.1	22.0	Full	55	0.0	0.0
Approach	425	2.0	425	2.0		0.323		4.1	LOS A	3.1	22.0				
Intersection	678	2.0	678	2.0		0.323		4.0	LOS A	3.1	22.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - Opening / Project - PM (School) Peak]

Network: N101 [Year of Opening - Project - PM (School) Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	357	2.0	357	2.0	1572	0.227	100	3.1	LOS A	0.9	6.1	Full	500	0.0	0.0
Approach	357	2.0	357	2.0		0.227		3.1	NA	0.9	6.1				
East: Villa Street															
Lane 1	240	2.0	240	2.0	564	0.425	100	6.8	LOS A	0.6	4.2	Full	500	-38.8 N3	0.0
Approach	240	2.0	240	2.0		0.425		6.8	LOS A	0.6	4.2				
North: Park Road															
Lane 1	413	2.0	413	2.0	1881	0.220	100	0.5	LOS A	0.1	0.4	Full	4	0.0	0.0
Approach	413	2.0	413	2.0		0.220		0.5	NA	0.1	0.4				
West: Dublin Street															
Lane 1	15	2.0	15	2.0	282	0.054	100	7.1	LOS A	0.0	0.2	Full	500	-61.8 N3	0.0
Approach	15	2.0	15	2.0		0.054		7.1	LOS A	0.0	0.2				
Intersection	1025	2.0	1025	2.0		0.425		3.0	NA	0.9	6.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: 102 [Park Rd / South St - Opening / Project - PM (School) Peak]

Network: N101 [Year of Opening - Project - PM (School) Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	226	2.0	226	2.0	1925	0.118	100	0.0	LOS A	0.0	0.0	Full	55	0.0	0.0
Approach	226	2.0	226	2.0		0.118		0.0	NA	0.0	0.0				
East: South Street															
Lane 1	28	2.0	28	2.0	1162	0.024	100	6.8	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	28	2.0	28	2.0		0.024		6.8	LOS A	0.0	0.3				
North: Park Road (N)															
Lane 1	367	2.0	367	2.0	1921	0.191	100	0.2	LOS A	0.0	0.0	Full	65	0.0	0.0
Approach	367	2.0	367	2.0		0.191		0.2	NA	0.0	0.0				
Intersection	622	2.0	622	2.0		0.191		0.4	NA	0.0	0.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

LANE SUMMARY

Site: 101 [Park Rd / North St - Opening / Project - PM (School) Peak]

Network: N101 [Year of Opening - Project - PM (School) Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	202	2.0	202	2.0	1912	0.106	100	0.0	LOS A	0.0	0.0	Full	65	0.0	0.0
Lane 2	23	2.0	23	2.0	969	0.024	100	6.0	LOS A	0.0	0.3	Short	58	0.0	NA
Approach	225	2.0	225	2.0		0.106		0.6	NA	0.0	0.3				
East: North Street															
Lane 1	26	2.0	26	2.0	569	0.046	100	9.7	LOS A	0.1	0.5	Full	500	0.0	0.0
Approach	26	2.0	26	2.0		0.046		9.7	LOS A	0.1	0.5				
North: Park Road (N)															
Lane 1	20	2.0	20	2.0	1831	0.011	100	5.6	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	346	2.0	346	2.0	1925	0.180	100	0.0	LOS A	0.0	0.0	Full	200	0.0	0.0
Approach	366	2.0	366	2.0		0.180		0.3	NA	0.0	0.0				
Intersection	618	2.0	618	2.0		0.180		0.8	NA	0.1	0.5				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

LANE SUMMARY

Site: [Midblock Crossing - Opening / Project - PM (Commuter) Peak]

Network: N101 [Year of Opening - Project - PM (Commuter) Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 600 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	309	2.0	309	2.0	1826	0.169	100	1.0	LOS A	0.6[N 4]	4.0[N4]	Full	4	0.0	50.0
Approach	309	2.0	309	2.0		0.169		1.0	LOS A	0.6	4.0				
North: Park Road															
Lane 1	626	2.0	626	2.0	1826	0.343	100	1.2	LOS A	7.7[N 4]	55.0[N4]	Full	55	0.0	50.0
Approach	626	2.0	626	2.0		0.343		1.2	LOS A	7.7	55.0				
Intersection	935	2.0	935	2.0		0.343		1.1	LOS A	7.7	55.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - Opening / Project - PM (Commuter) Peak]

Network: N101 [Year of Opening - Project - PM (Commuter) Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	313	2.0	313	2.0	1509	0.207	100	3.3	LOS A	2.1	15.0	Full	500	0.0	0.0
Approach	313	2.0	313	2.0		0.207		3.3	NA	2.1	15.0				
East: Villa Street															
Lane 1	121	2.0	121	2.0	255	0.474	100	10.6	LOS B	0.4	2.7	Full	500	-56.6 N3	0.0
Approach	121	2.0	121	2.0		0.474		10.6	LOS B	0.4	2.7				
North: Park Road															
Lane 1	590	2.0	590	2.0	1891	0.312	100	0.4	LOS A	0.1	0.5	Full	4	0.0	0.0
Approach	590	2.0	590	2.0		0.312		0.4	NA	0.1	0.5				
West: Dublin Street															
Lane 1	12	2.0	12	2.0	248	0.047	100	7.3	LOS A	0.0	0.2	Full	500	-65.6 N3	0.0
Approach	12	2.0	12	2.0		0.047		7.3	LOS A	0.0	0.2				
Intersection	1036	2.0	1036	2.0		0.474		2.5	NA	2.1	15.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: 101 [Park Rd / North St - Opening / Project - PM (Commuter) Peak]

Network: N101 [Year of Opening - Project - PM (Commuter) Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	243	2.0	243	2.0	1913	0.127	100	0.0	LOS A	0.0	0.0	Full	65	0.0	0.0
Lane 2	34	2.0	34	2.0	774	0.044	100	7.3	LOS A	0.1	0.5	Short	58	0.0	NA
Approach	277	2.0	277	2.0		0.127		0.9	NA	0.1	0.5				
East: North Street															
Lane 1	39	2.0	39	2.0	400	0.097	100	13.1	LOS B	0.1	1.0	Full	500	0.0	0.0
Approach	39	2.0	39	2.0		0.097		13.1	LOS B	0.1	1.0				
North: Park Road (N)															
Lane 1	28	2.0	28	2.0	1831	0.016	100	5.6	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	511	2.0	511	2.0	1925	0.265	100	0.0	LOS A	0.0	0.0	Full	200	0.0	0.0
Approach	539	2.0	539	2.0		0.265		0.3	NA	0.0	0.0				
Intersection	855	2.0	855	2.0		0.265		1.1	NA	0.1	1.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

LANE SUMMARY

Site: 102 [Park Rd / South St - Opening / Project - PM (Commuter) Peak]

Network: N101 [Year of Opening - Project - PM (Commuter) Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	277	2.0	277	2.0	1925	0.144	100	0.0	LOS A	0.0	0.0	Full	55	0.0	0.0
Approach	277	2.0	277	2.0		0.144		0.0	NA	0.0	0.0				
East: South Street															
Lane 1	41	2.0	41	2.0	238	0.172	100	7.7	LOS A	0.1	0.5	Full	500	-75.0 N3	0.0
Approach	41	2.0	41	2.0		0.172		7.7	LOS A	0.1	0.5				
North: Park Road (N)															
Lane 1	543	2.0	543	2.0	1921	0.283	100	0.2	LOS A	0.4 N5	2.8 N5	Full	65	0.0	0.0
Approach	543	2.0	543	2.0		0.283		0.2	NA	0.4	2.8				
Intersection	861	2.0	861	2.0		0.283		0.5	NA	0.4	2.8				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.
N5 Continuous Lane results determined by Back of Queue values of downstream lanes.

LANE SUMMARY

Site: [Midblock Crossing - 10-Year / Project - AM Peak]

Network: N101 [10-Year Horizon - Project - AM Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	452	2.0	452	2.0	995	0.455	100	9.9	LOS A	0.6 [N 4]	4.0 [N4]	Full	4	0.0	50.0
Approach	452	2.0	452	2.0		0.455		9.9	LOS A	0.6	4.0				
North: Park Road															
Lane 1	336	2.0	336	2.0	995	0.337	100	9.2	LOS A	3.5	25.2	Full	55	0.0	0.0
Approach	336	2.0	336	2.0		0.337		9.2	LOS A	3.5	25.2				
Intersection	788	2.0	788	2.0		0.455		9.6	LOS A	3.5	25.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - 10-Year / Project - AM Peak]

Network: N101 [10-Year Horizon - Project - AM Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	637	2.0	637	2.0	1562	0.408	100	4.0	LOS A	1.3	9.2	Full	500	0.0	0.0
Approach	637	2.0	637	2.0		0.408		4.0	NA	1.3	9.2				
East: Villa Street															
Lane 1	289	2.0	289	2.0	490	0.589	100	10.2	LOS B	1.1	8.1	Full	500	-38.4 N3	0.0
Approach	289	2.0	289	2.0		0.589		10.2	LOS B	1.1	8.1				
North: Park Road															
Lane 1	381	2.0	381	2.0	1849	0.206	100	0.8	LOS A	0.1	0.5	Full	4	0.0	0.0
Approach	381	2.0	381	2.0		0.206		0.8	NA	0.1	0.5				
West: Dublin Street															
Lane 1	17	2.0	17	2.0	209	0.080	100	10.9	LOS B	0.1	0.4	Full	500	-50.0 N3	0.0
Approach	17	2.0	17	2.0		0.080		10.9	LOS B	0.1	0.4				
Intersection	1324	2.0	1324	2.0		0.589		4.5	NA	1.3	9.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: 102 [Park Rd / South St - 10 Year / Project - AM Peak]

Network: N101 [10-Year Horizon - Project - AM Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	452	2.0	452	2.0	1925	0.235	100	0.0	LOS A	0.0	0.0	Full	55	0.0	0.0
Approach	452	2.0	452	2.0		0.235		0.0	NA	0.0	0.0				
East: South Street															
Lane 1	8	2.0	8	2.0	1192	0.007	100	6.6	LOS A	0.0	0.1	Full	500	0.0	0.0
Approach	8	2.0	8	2.0		0.007		6.6	LOS A	0.0	0.1				
North: Park Road (N)															
Lane 1	357	2.0	357	2.0	1917	0.186	100	0.4	LOS A	0.0	0.0	Full	65	0.0	0.0
Approach	357	2.0	357	2.0		0.186		0.4	NA	0.0	0.0				
Intersection	817	2.0	817	2.0		0.235		0.2	NA	0.0	0.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

LANE SUMMARY

Site: 101 [Park Rd / North St - 10 Year / Project - AM Peak]

Network: N101 [10-Year Horizon - Project - AM Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	402	2.0	402	2.0	1912	0.210	100	0.0	LOS A	0.0	0.0	Full	65	0.0	0.0
Lane 2	50	2.0	50	2.0	1006	0.050	100	5.9	LOS A	0.1	0.5	Short	58	0.0	NA
Approach	452	2.0	452	2.0		0.210		0.7	NA	0.1	0.5				
East: North Street															
Lane 1	53	2.0	53	2.0	542	0.098	100	10.4	LOS B	0.1	1.0	Full	500	0.0	0.0
Approach	53	2.0	53	2.0		0.098		10.4	LOS B	0.1	1.0				
North: Park Road (N)															
Lane 1	8	2.0	8	2.0	1831	0.004	100	5.6	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	326	2.0	326	2.0	1925	0.169	100	0.0	LOS A	0.0	0.0	Full	200	0.0	0.0
Approach	333	2.0	333	2.0		0.169		0.1	NA	0.0	0.0				
Intersection	839	2.0	839	2.0		0.210		1.1	NA	0.1	1.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

LANE SUMMARY

Site: [Midblock Crossing - 10-Year / Project - PM (School) Peak]

Network: N101 [10-Year Horizon - Project - PM (School) Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 60 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	285	2.0	285	2.0	1283	0.222	100	4.2	LOS A	0.6[N 4]	4.0[N4]	Full	4	0.0	50.0
Approach	285	2.0	285	2.0		0.222		4.2	LOS A	0.6	4.0				
North: Park Road															
Lane 1	480	2.0	480	2.0	1283	0.374	100	4.8	LOS A	3.8	27.2	Full	55	0.0	0.0
Approach	480	2.0	480	2.0		0.374		4.8	LOS A	3.8	27.2				
Intersection	765	2.0	765	2.0		0.374		4.6	LOS A	3.8	27.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - 10-Year / Project - PM (School) Peak]

Network: N101 [10-Year Horizon - Project - PM (School) Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	403	2.0	403	2.0	1528	0.264	100	3.5	LOS A	0.6	4.3	Full	500	0.0	0.0
Approach	403	2.0	403	2.0		0.264		3.5	NA	0.6	4.3				
East: Villa Street															
Lane 1	274	2.0	274	2.0	526	0.520	100	8.4	LOS A	0.9	6.1	Full	500	-38.6 N3	0.0
Approach	274	2.0	274	2.0		0.520		8.4	LOS A	0.9	6.1				
North: Park Road															
Lane 1	467	2.0	467	2.0	1875	0.249	100	0.5	LOS A	0.1	0.5	Full	4	0.0	0.0
Approach	467	2.0	467	2.0		0.249		0.5	NA	0.1	0.5				
West: Dublin Street															
Lane 1	19	2.0	19	2.0	254	0.074	100	7.9	LOS A	0.0	0.3	Full	500	-60.0 N3	0.0
Approach	19	2.0	19	2.0		0.074		7.9	LOS A	0.0	0.3				
Intersection	1163	2.0	1163	2.0		0.520		3.5	NA	0.9	6.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: 102 [Park Rd / South St - 10 Year / Project - PM (School) Peak]

Network: N101 [10-Year Horizon - Project - PM (School) Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	255	2.0	255	2.0	1925	0.132	100	0.0	LOS A	0.0	0.0	Full	55	0.0	0.0
Approach	255	2.0	255	2.0		0.132		0.0	NA	0.0	0.0				
East: South Street															
Lane 1	28	2.0	28	2.0	1099	0.026	100	7.0	LOS A	0.0	0.3	Full	500	0.0	0.0
Approach	28	2.0	28	2.0		0.026		7.0	LOS A	0.0	0.3				
North: Park Road (N)															
Lane 1	417	2.0	417	2.0	1921	0.217	100	0.2	LOS A	0.0	0.0	Full	65	0.0	0.0
Approach	417	2.0	417	2.0		0.217		0.2	NA	0.0	0.0				
Intersection	700	2.0	700	2.0		0.217		0.4	NA	0.0	0.3				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

LANE SUMMARY

Site: 101 [Park Rd / North St - 10 Year / Project - PM (School) Peak]

Network: N101 [10-Year Horizon - Project - PM (School) Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	259	2.0	259	2.0	1909	0.136	100	0.0	LOS A	0.0	0.0	Full	65	0.0	0.0
Lane 2	26	2.0	26	2.0	856	0.030	100	6.7	LOS A	0.0	0.3	Short	58	0.0	NA
Approach	285	2.0	285	2.0		0.136		0.6	NA	0.0	0.3				
East: North Street															
Lane 1	29	2.0	29	2.0	449	0.065	100	11.8	LOS B	0.1	0.7	Full	500	0.0	0.0
Approach	29	2.0	29	2.0		0.065		11.8	LOS B	0.1	0.7				
North: Park Road (N)															
Lane 1	22	2.0	22	2.0	1831	0.012	100	5.6	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	441	2.0	441	2.0	1925	0.229	100	0.0	LOS A	0.0	0.0	Full	200	0.0	0.0
Approach	464	2.0	464	2.0		0.229		0.3	NA	0.0	0.0				
Intersection	778	2.0	778	2.0		0.229		0.8	NA	0.1	0.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

LANE SUMMARY

Site: [Midblock Crossing - 10-Year / Project - PM (Commuter) Peak]

Network: N101 [10-Year Horizon - Project - PM (Commuter) Peak]

Park Road Mid-Block Crossing
Site Category: (None)
Pedestrian Crossing (Signals) - Fixed Time Isolated Cycle Time = 600 seconds (Site User-Given Cycle Time)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	312	2.0	312	2.0	1826	0.171	100	1.0	LOS A	0.6[N 4]	4.0[N4]	Full	4	0.0	50.0
Approach	312	2.0	312	2.0		0.171		1.0	LOS A	0.6	4.0				
North: Park Road															
Lane 1	633	2.0	633	2.0	1826	0.347	100	1.2	LOS A	7.7[N 4]	55.0[N4]	Full	55	0.0	50.0
Approach	633	2.0	633	2.0		0.347		1.2	LOS A	7.7	55.0				
Intersection	944	2.0	944	2.0		0.347		1.1	LOS A	7.7	55.0				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Intersection and Approach LOS values are based on average delay for all lanes.
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.

N4 Average back of queue has been restricted to the available queue storage space.

LANE SUMMARY

Site: [Park Road / Villa Street - 10-Year / Project - PM (Commuter) Peak]

Network: N101 [10-Year Horizon - Project - PM (Commuter) Peak]

Park Road / Villa Street
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road															
Lane 1	354	2.0	354	2.0	1436	0.246	100	3.9	LOS A	2.1	15.2	Full	500	0.0	0.0
Approach	354	2.0	354	2.0		0.246		3.9	NA	2.1	15.2				
East: Villa Street															
Lane 1	137	2.0	137	2.0	222	0.615	100	14.8	LOS B	0.6	4.0	Full	500	-56.3 N3	0.0
Approach	137	2.0	137	2.0		0.615		14.8	LOS B	0.6	4.0				
North: Park Road															
Lane 1	667	2.0	667	2.0	1888	0.353	100	0.5	LOS A	0.1	0.7	Full	4	0.0	0.0
Approach	667	2.0	667	2.0		0.353		0.5	NA	0.1	0.7				
West: Dublin Street															
Lane 1	14	2.0	14	2.0	214	0.064	100	8.3	LOS A	0.0	0.2	Full	500	-64.9 N3	0.0
Approach	14	2.0	14	2.0		0.064		8.3	LOS A	0.0	0.2				
Intersection	1171	2.0	1171	2.0		0.615		3.3	NA	2.1	15.2				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

LANE SUMMARY

Site: 102 [Park Rd / South St - 10 Year / Project - PM (Commuter) Peak]

Network: N101 [10-Year Horizon - Project - PM (Commuter) Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	312	2.0	312	2.0	1925	0.162	100	0.0	LOS A	0.0	0.0	Full	55	0.0	0.0
Approach	312	2.0	312	2.0		0.162		0.0	NA	0.0	0.0				
East: South Street															
Lane 1	41	2.0	41	2.0	216	0.190	100	8.1	LOS A	0.1	0.5	Full	500	-75.0 N3	0.0
Approach	41	2.0	41	2.0		0.190		8.1	LOS A	0.1	0.5				
North: Park Road (N)															
Lane 1	616	2.0	616	2.0	1921	0.321	100	0.2	LOS A	0.5 N5	3.7 N5	Full	65	0.0	0.0
Approach	616	2.0	616	2.0		0.321		0.2	NA	0.5	3.7				
Intersection	968	2.0	968	2.0		0.321		0.5	NA	0.5	3.7				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.
N5 Continuous Lane results determined by Back of Queue values of downstream lanes.

LANE SUMMARY

Site: 101 [Park Rd / North St - 10 Year / Project - PM (Commuter) Peak]

Network: N101 [10-Year Horizon - Project - PM (Commuter) Peak]

New Site
Site Category: (None)
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows		Arrival Flows		Cap.	Deg. Satn	Lane Util.	Average Delay	Level of Service	Aver. Back of Queue		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	Total veh/h	HV %	Total veh/h	HV %	veh/h	v/c	%	sec		Veh	Dist m		m	%	%
South: Park Road (S)															
Lane 1	278	2.0	278	2.0	1912	0.145	100	0.0	LOS A	0.0	0.0	Full	65	0.0	0.0
Lane 2	34	2.0	34	2.0	696	0.048	100	7.9	LOS A	0.1	0.5	Short	58	0.0	NA
Approach	312	2.0	312	2.0		0.145		0.9	NA	0.1	0.5				
East: North Street															
Lane 1	39	2.0	39	2.0	330	0.118	100	15.3	LOS C	0.2	1.1	Full	500	0.0	0.0
Approach	39	2.0	39	2.0		0.118		15.3	LOS C	0.2	1.1				
North: Park Road (N)															
Lane 1	28	2.0	28	2.0	1831	0.016	100	5.6	LOS A	0.0	0.0	Short	60	0.0	NA
Lane 2	583	2.0	583	2.0	1925	0.303	100	0.0	LOS A	0.0	0.0	Full	200	0.0	0.0
Approach	612	2.0	612	2.0		0.303		0.3	NA	0.0	0.0				
Intersection	962	2.0	962	2.0		0.303		1.1	NA	0.2	1.1				

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Lane LOS values are based on average delay per lane.
Minor Road Approach LOS values are based on average delay for all lanes.
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 lanes.
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.