Appendix E – Integrated Transportation Assessment prepared by CKL

Planning | Surveying | Engineering | Environmental

Integrated Transportation Assessment

Lockerbie Estate Ltd

162 Studholme Street, Morrinsville, New Zealand

DOCUMENT CONTROL

CKL REFERENCE	B19059
DOCUMENT STATUS	Approved
REVISION NO.	3
FILE NAME	B19059-TR- -ITA_Stage4_Planchange
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OFFICE OF ORIGIN	Hamilton
DATE	15 December 2021

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1.1.1 This Broad Integrated Transportation Assessment (ITA) considers the traffic and transportation effects of a proposed zoning Plan Change for the northern half of the Lockerbie Estate site located at the northern edge of urban Morrinsville area. The northern part of the site is included within the Future Residential Policy Area as stipulated in the Matamata-Piako District Plan (MPODP). It is proposed to change the zoning to Residential to allow for the subdivision and development of this part of the site.

1.1.2 It is envisaged that some 1,200 dwellings could be feasibly developed within the Plan Change area. This report will assess the traffic effects of this extent of development and will include the following:

- Likely number of trips generated by the additional dwellings.
- Assessment of key intersections.
- Identification and timing for any mitigation measures to accommodate the future traffic volumes.
- Review of the likely internal road network within the site.
- Assessment on the relevant rules and policies of the MPODP.

1.1.3 The exact layout of the subdivision and future layout of the dwellings and other activities will be completed as part of future subdivision consent applications.

1.1.4 This report will also give consideration to the earlier stages the Lockerbie Estate subdivision, which are within the southern part of the site, to ensure that the road network integrates well and that the effects of the earlier stages are taken into account when assessing the proposed Plan Change. These earlier stages include some 321 dwellings, a retirement village, childcare centre, café and a public reserve.

1.1.5 Overall, it is concluded that the traffic effects of the proposed Plan Change can be appropriately mitigated with the inclusion of certain pieces of infrastructure. As such there are no transportation planning or traffic engineering reasons why the proposed Plan Change should not be approved.

2 Site Location

2.1.1 The 80ha wider subdivision site is currently a dairy farm located at the northern end of the urban Morrinsville area. Figure 1 below outlines the entirety of the Lockerbie Estate in orange with the subject Plan Change area outlined in red.

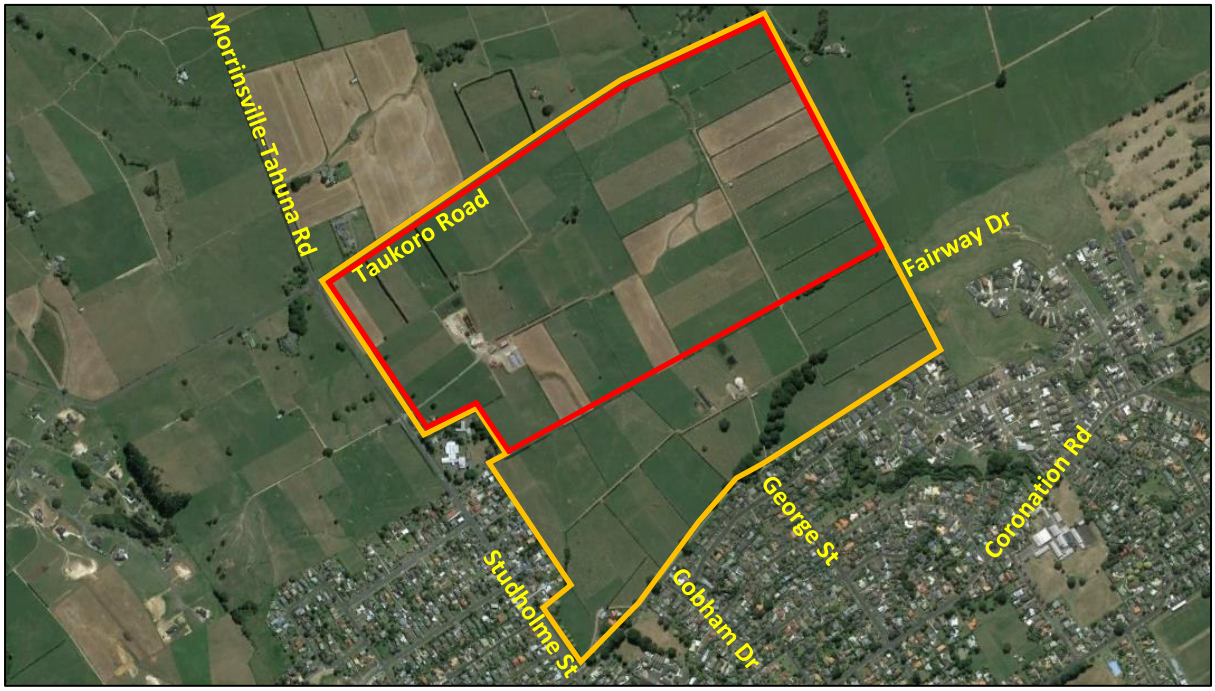


Figure 1: Site Location

2.1.2 The site is currently used as a dairy farm and much of the surrounding land to the north is also rural in nature. The Morrinsville township is to the south with predominantly residential dwellings bordering the site.

2.1.3 The southern part of the site is being developed in three stages. Stages 1 and 2 of the wider subdivision have been granted consent and are currently under construction. Stage 3 is currently going through the resource consent process. The Plan Change area will integrate with this initial stages of the wider subdivision.

2.1.4 Figure 2 below shows the existing zoning for the Lockerbie subdivision. The northern part of the site is within the Future Residential Policy Area and it is proposed to change this zoning to Residential and Medium Density Residential to allow for subsequent development. As with Figure 1, the subject Plan Change area is outlined below in red with the wider site outlined in orange.

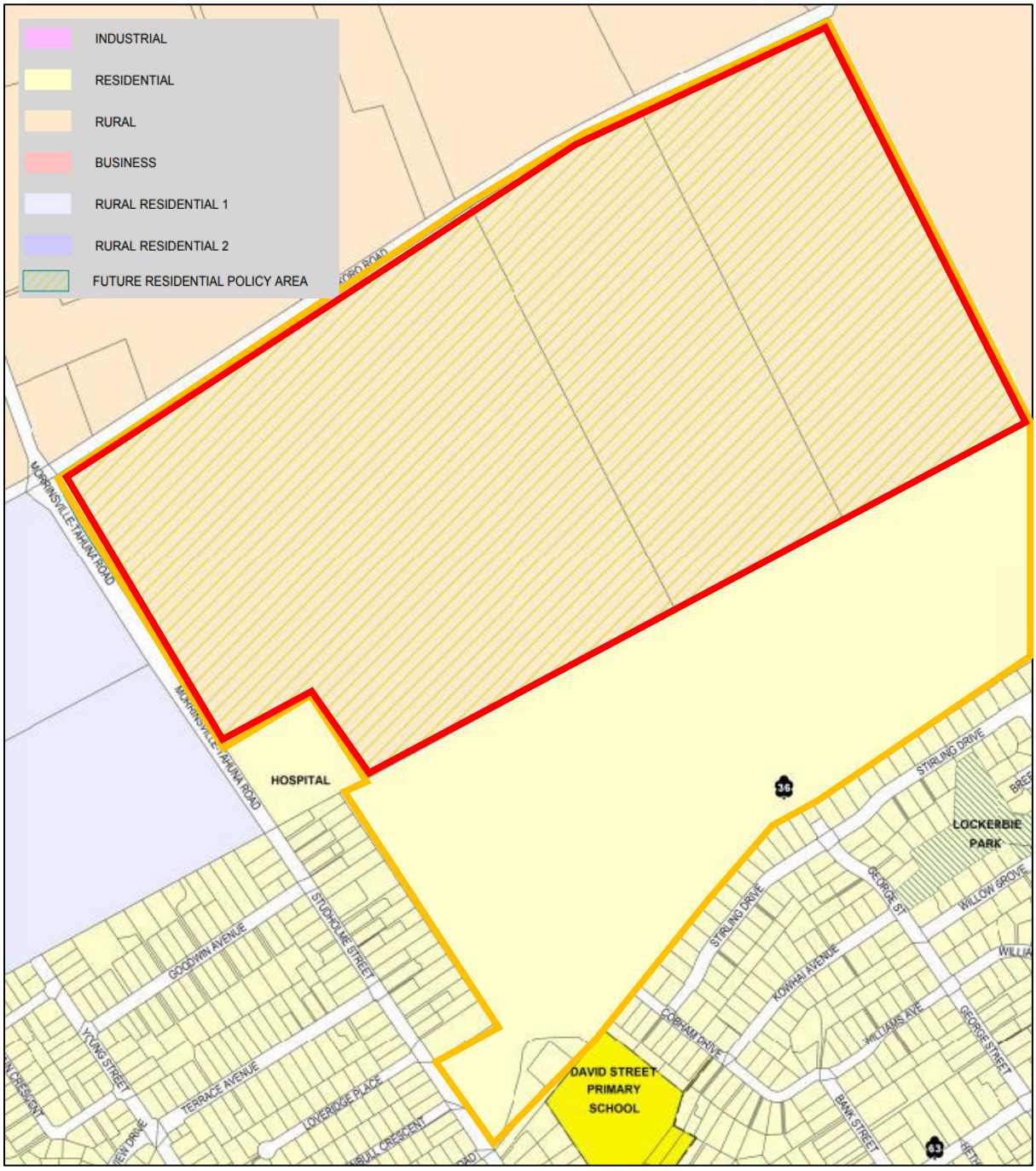


Figure 2: District Plan Zoning (From Map 26 of District Plan)

2.1.5 Ultimately, the site will have access to Studholme Street, George Street, Taukoro Road, Cobham Drive and Fairway Drive. The Rhoda Read hospital is not included within the site or Plan Change area.

3 Existing Road Network

3.1 Physical Environment

3.1.1 Studholme Street is a two-way, two-lane road with a painted flush median. It becomes Morrinsville-Tahuna Road at the intersection with Goodwin Avenue. Studholme Street is classified by the District Plan as an arterial road while Morrinsville-Tahuna Road is classified as a significant road. Morrinsville-Tahuna Road is also listed as a significant arterial road in the objectives and policies section of the District Plan. In general, the higher classification means that the road has a higher priority for catering for through traffic with less emphasis for access to abutting sites.

3.1.2 In the vicinity of the site frontage, Studholme Street is generally straight and rises to the north. The posted speed limit on Studholme Street is 50km/h and this increases on Morrinsville-Tahuna Road just north of the Rhoda Read hospital. It has an approximately 12m wide carriageway and allows for two traffic lanes and a flush median

3.1.3 The typical layout of Studholme Street is shown in Figure 3.

Figure 3: Studholme Road Looking North

3.1.4 Access to the wider subdivision from Studholme Street will be established approximately 30m south of Loveridge Place and will take the form of a priority-controlled T-intersection. The exact location and design of this intersection is currently going through the resource consent process in relation to Stage 3 of the Lockerbie Estate subdivision. In the vicinity of the new intersection into the site, Studholme Street is generally straight and rises towards the north. Visibility in both directions is over 200m which is more than the 123m standard stipulated in Part 4A of the AUSTROADs Guide to Road Design Unsignalised and Signalised Intersections.. No direct access is proposed to Morrinsville-Tahuna Road. The posted speed limit on Studholme Street is 50km/h and this increases on Morrinsville-Tahuna Road to 100km/h approximately 600m north of the site access.

3.1.5 Loveridge Place and Turnbull Crescent are two cul-de-sacs approximately 250m long and serving approximately 25 dwellings each. Both roads are classified as local roads with an approximately 8m wide carriageway within a 16m wide road reserve that branch off the western side of Studholme Street in the vicinity of the subject site's frontage. Parking is permitted on both sides of the road and the posted speed limit is 50km/h. The intersections to Studholme Street are Stop-controlled T-intersections with the intersection into the subject site to be located between these intersections.

3.1.6 Taukoro Road is located along the northern extent of the site and is classified as a local road. In contrast to arterial roads, the primary function of a local road is to provide access to abutting properties with less emphasis on catering for through traffic. Taukoro Road has a carriageway width of approximately 5m. It is generally unmarked and there are no shoulders or kerbs which is typical of local roads within a rural environment.

3.1.7 The typical cross-section of Taukoro Road is shown in Figure 4 below.

Figure 4: Taukoro Road Looking West

3.1.8 Taukoro Road forms a Stop-controlled crossroads intersection with Morrinsville-Tahuna Road where the speed limit on both roads is 100km/h. Visibility from Taukoro Road to Morrinsville-Tahuna Road is 190m to the south and over 225m to the north. Visibility is limited by the vertical geometry of the road and the crests near the intersection. For a 100km/h operating, the AUSTROADs standard states that at least 248m visibility should be available at the intersection. The visibility available therefore does not fully satisfy the AUSTROADs standards however there is potential for either the speed limit to be adjusted or undertake earthworks to improve the visibility available at the intersection. Such details can be assessed as part of future developments that seek to establish roading connections to Taukoro Road.

3.1.9 The typical road environment of George Street, which is also classified as a local road, is shown in Figure 5. It rises from south to north.

Figure 5: George Street Looking South

3.1.10 George Street has a carriageway width of approximately 11m. It is unmarked except near intersections. There are no restrictions to on-street parking although the demand for parking is not excessive. The posted speed limit is 50km/h.

3.1.11 George Street intersects with Stirling Drive just south of the Lockerbie Estate subdivision. This intersection takes the form of a roundabout where the central island is painted and not raised. This is shown in Figure 6.

Figure 6: George Street / Stirling Drive Roundabout Looking South

3.1.12 This roundabout will be upgraded to include a raised central island as required by way of consent conditions for Stage 2 of the subdivision. At the time of writing this report, the design of this roundabout is currently going through the engineering plan approval process. Whilst the final detailed design is to be confirmed, the upgraded roundabout will include a raised central island and improved crossing facilities for pedestrians.

3.1.13 Cobham Road is similar to George Street, as shown in Figure 7, and it is also classified as a local road. Its carriageway is approximately 8m wide which is narrower than other nearby streets but is sufficient to accommodate two-way vehicular movement. On-street parking restrictions are in place although it is not clear whether parking is not permitted at all times as indicated by the painted yellow lines or whether parking is only restricted during certain hours as indicated by the signs provided at frequent intervals. The text on these signs is shown in Figure 8.

Figure 7: Cobham Drive Looking South

Figure 8: No Parking Signs on Cobham Drive

3.1.14 Cobham Drive's intersection with Stirling Drive is an uncontrolled T-intersection and it is recommended that give-way road signs and markings should be added when Cobham Drive is connected through to the Lockerbie Estate subdivision site as part of Stage 3 of development. The current intersection, as viewed from the northern Cobham Drive leg, is shown in Figure 9.

Figure 9: Cobham Drive / Stirling Drive Intersection Looking South

3.2 Traffic Volumes

3.2.1 Existing traffic volumes on the surrounding roads have been taken from the MobileRoads database which extracts traffic volumes from the RAMM database of the Matamata-Piako District.

3.2.2 Existing traffic volumes are only available in vehicles per day (vpd). Peak hour volumes typically represent approximately 10% of daily volumes. Relevant daily traffic volumes from the MobileRoads database are provided in Table 1 along with the estimated peak hour volumes.

Table 1: Existing Two-Way Daily Traffic Volumes

Road	Location	Daily Volumes(vpd)	Estimated Peak Hour Volumes (vph)
George Street	North of Coronation Road	1,190	119
Cobham Drive	South of Kowhai Avenue	460	46
Coronation Road	East of Studholme Street	4,605	461
Studholme Street	South of Coronation Road	7,500	750
Fairway Drive	North of Coronation Road	645	65
Taukoro Road	East of Morrinsville-Tahuna Road	195	20

3.2.3 The above traffic volumes were reported in 2019 and are therefore not affected by any lockdowns associated with the COVID-19 pandemic.

3.2.4 Typically, a lane on a road can carry 1,200 to 1,800 vehicles per hour (vph). The traffic volumes above, which represent two-way flow, indicate that there is no notable congestion in the vicinity of the site.

3.2.5 In addition to the above volumes, a peak hour survey was undertaken of the intersections of Loveridge Place and Turnbull Crescent with Studholme Street to assist with the design of the proposed Stage 3 intersection with Studholme Street. The surveys were undertaken on 26 November 2020. This was considered to represent a typical weekday that was not affected by holidays or any lockdowns. The surveyed traffic volumes are shown in Figure 10 to Figure 13 below.

3.2.6 The observed peak hour volumes on Studholme Street were 622vph and 673vph for the morning and evening peak hours respectively. These are slightly lower than the estimated

peak hour volumes based on the MobileRoads data, however the volumes are not significantly different and indicate that the volumes reported in MobileRoads are still likely to be relevant for the surrounding area despite the disruption to regular traffic patterns throughout 2020.

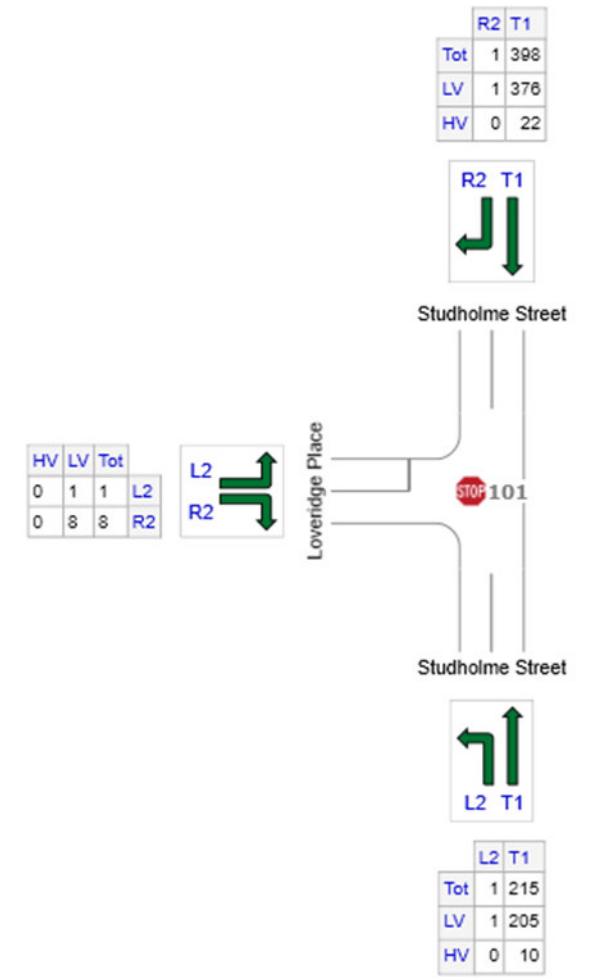


Figure 10: Loveridge Place Intersection Traffic Volumes – AM Peak

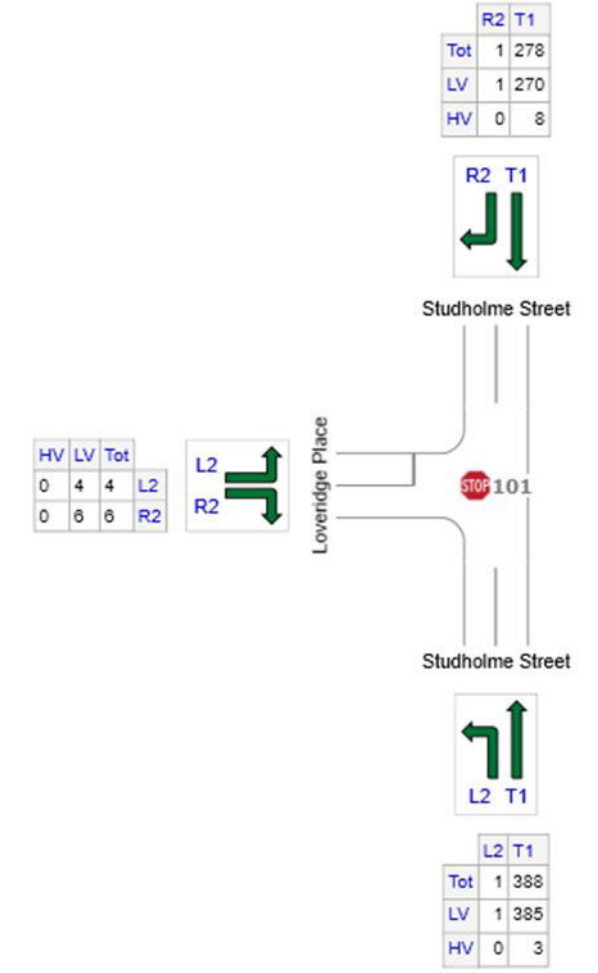


Figure 11: Loveridge Place Intersection Traffic Volumes - PM Peak

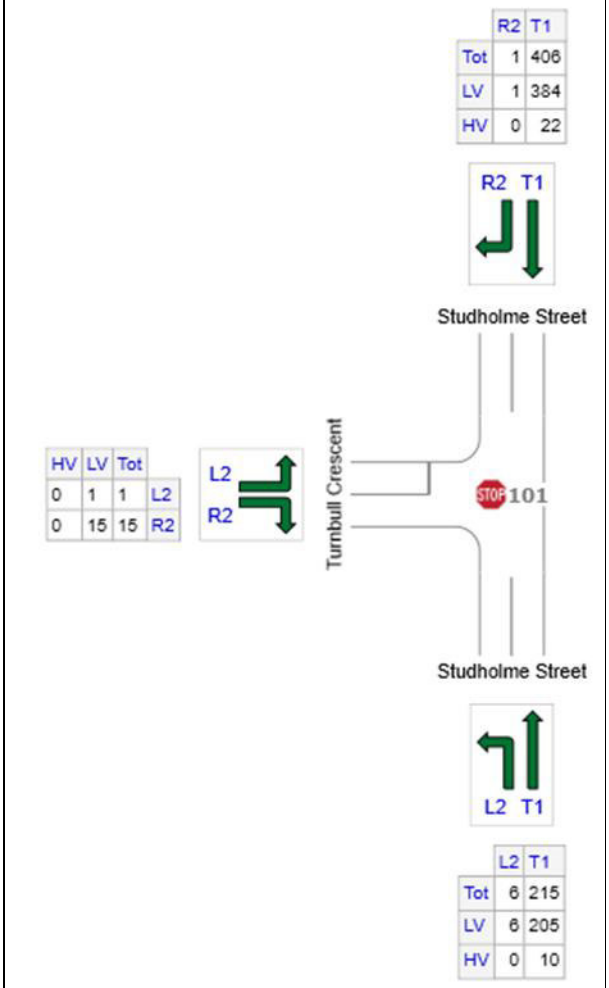


Figure 12: Turnbull Crescent Intersection Traffic Volumes – AM Peak

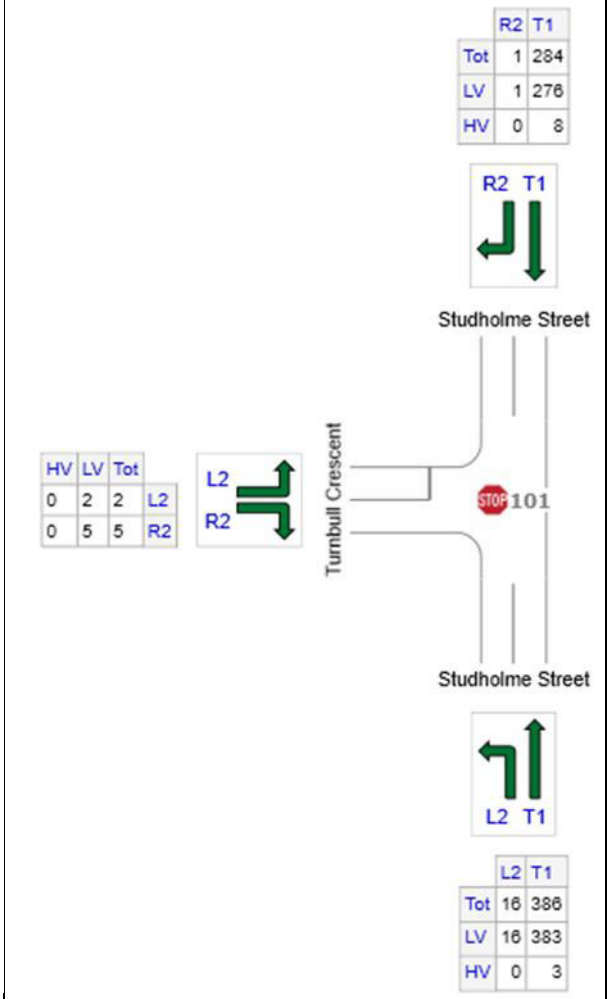


Figure 13: Turnbull Crescent Intersection Traffic Volumes - PM Peak

3.3 Road Safety

3.3.1 A search was made of the New Zealand Transport Agency's Crash Analysis System for all crashes that had been reported over the last five years within the vicinity of the site. The search area included George Street and Cobham Drive north of Stirling Drive, Studholme Street between Rushton Road and Goodwin Avenue and Taukoro Road from the site to Morrinsville-Tahuna Road.

3.3.2 The search found that six crashes had been reported within the study area, none of which resulted in any injuries. One crash occurred at the intersection between Cobham Drive and Stirling Drive where a vehicle lost control on a fresh sealed surface and hit the curb. One crash occurred mid-block on Studholme Street south of Terrace Avenue where a vehicle was reversing out of a driveway and was hit by a southbound vehicle. One crash occurred on Studholme Street north of Terrace Avenue where a vehicle hit a parked car. The fourth reported crash occurred at the intersection between Morrinsville-Tahuna Road and Taukoro Road where a vehicle lost control when driving southbound on Morrinsville-Tahuna Road and went into the ditch. Two crashes occurred on Studholme Street south of Taukoro Road. One was due to a vehicle hitting an animal on the road and the other was due to a heart attack.

3.3.3 Overall, the reported crashes occurred for a variety of reasons and in different locations. No crashes were reported that involved pedestrians or cyclists. As such, no specific road safety issues have been identified in relation to the subject site.

3.3.4 It is noted that the visibility at the Morrinsville-Tahuna Road intersection with Taukoro Road does not meet AUSTROADs standards. It may be appropriate to reduce the speed limits at the intersection once a connection from the site to Taukoro Road is established. This is addressed further in this report.

4 Sustainable Travel Modes

4.1 Walking and Cycling

4.1.1 Footpaths are provided on both sides of the surrounding streets to the south of the site. No footpaths are provided on Taukoro Road or Morrinsville-Tahuna Road north of Rhoda Read hospital as is common for roads in a rural environment.

4.1.2 No specific cycling infrastructure is provided in the vicinity of the site. Cyclists would be expected to share the road with motorised vehicles.

4.2 Public Transport

4.2.1 There are no public transport services in the Morrinsville area except for the twice daily service to/from Hamilton. The nearest bus stop for this service is approximately 1.2km south of the site within central Morrinsville.

5 Committed Environmental Changes

5.1.1 Aside from the 329 dwellings, retirement village, childcare centre and café in the southern part of the site, along with associated infrastructure upgrades such as the raising of the circulating island at the George Street/Stirling Street intersection and the extension of Fairway Drive through to Studholme Street, no other notable developments or infrastructure upgrades are confirmed that would affect the traffic patterns in the vicinity of the site or in the Morrinsville area.

6 Development Proposals

6.1.1 Subsequent to the current Plan Change process, it is proposed to subdivide and develop the current dairy farm on the northern side of the Morrinsville township known as Lockerbie Estate. The southern part of the site is included within the Residential zone and is currently under construction. The subject Plan Change process seeks to change the zoning of the northern part of the site from its Rural zoning with a Future Residential Policy Area overlay to the Residential and Medium Density Residential zone to allow for the subdivision and subsequent development of the full site.

6.1.2 It is possible that up to 1,200 dwellings could be developed within the Plan Change area. The exact design layout of the future subdivision, including number of dwellings, will be confirmed following approval of the proposed Plan Change and will be subject to the regular resource consent process.

6.1.3 Figure 14 shows the overview of the proposed Plan Change area with Figure 15 showing a conceptual layout of the roads within the subdivision. This includes the likely layout of the road network through this part of the site including the future pedestrian and shared path network. The exact layout of internal roads is indicative only and subject to change. However, the collector routes in Figure 14 are unlikely to change and can be considered fixed.

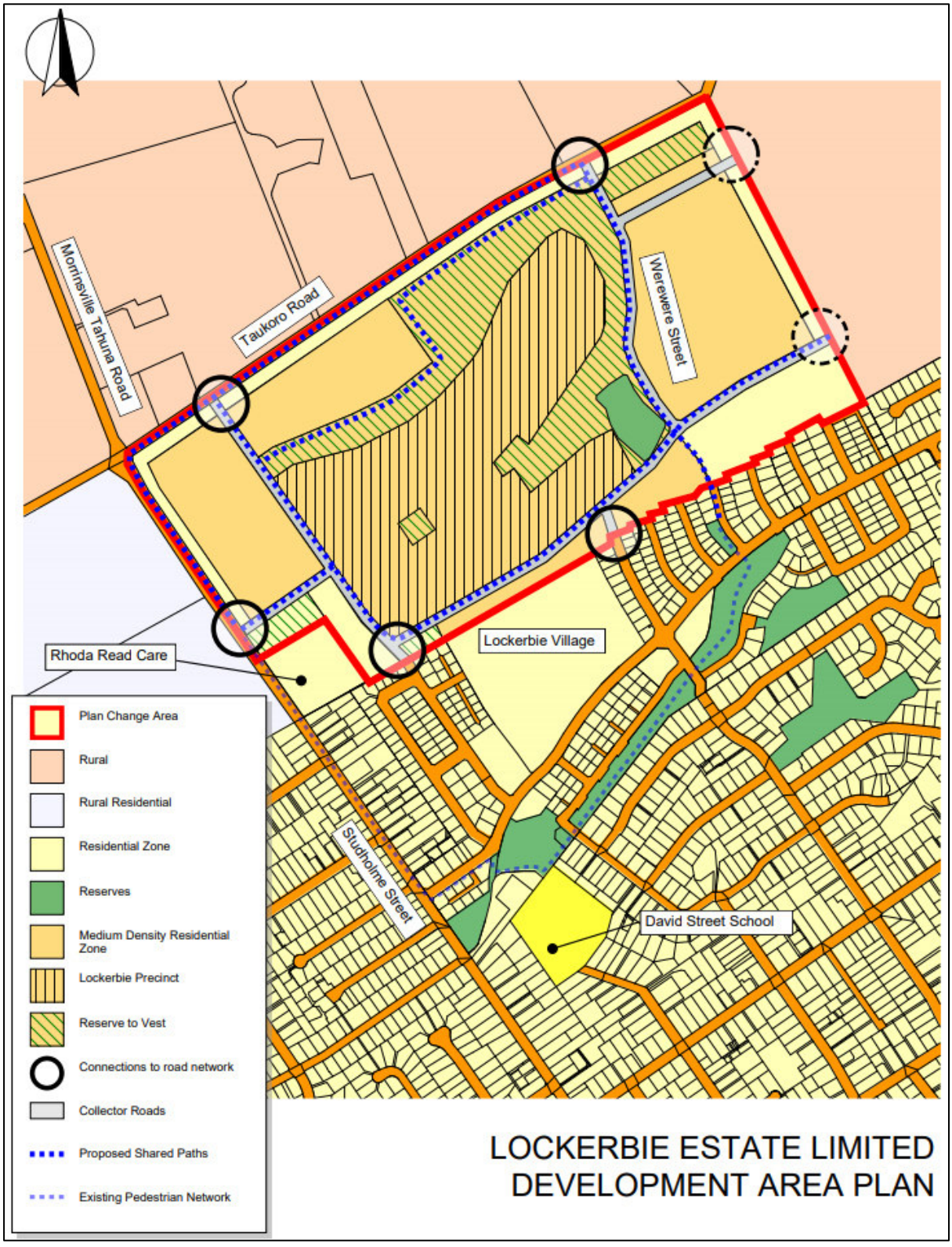


Figure 14: Conceptual Future Subdivision Masterplan

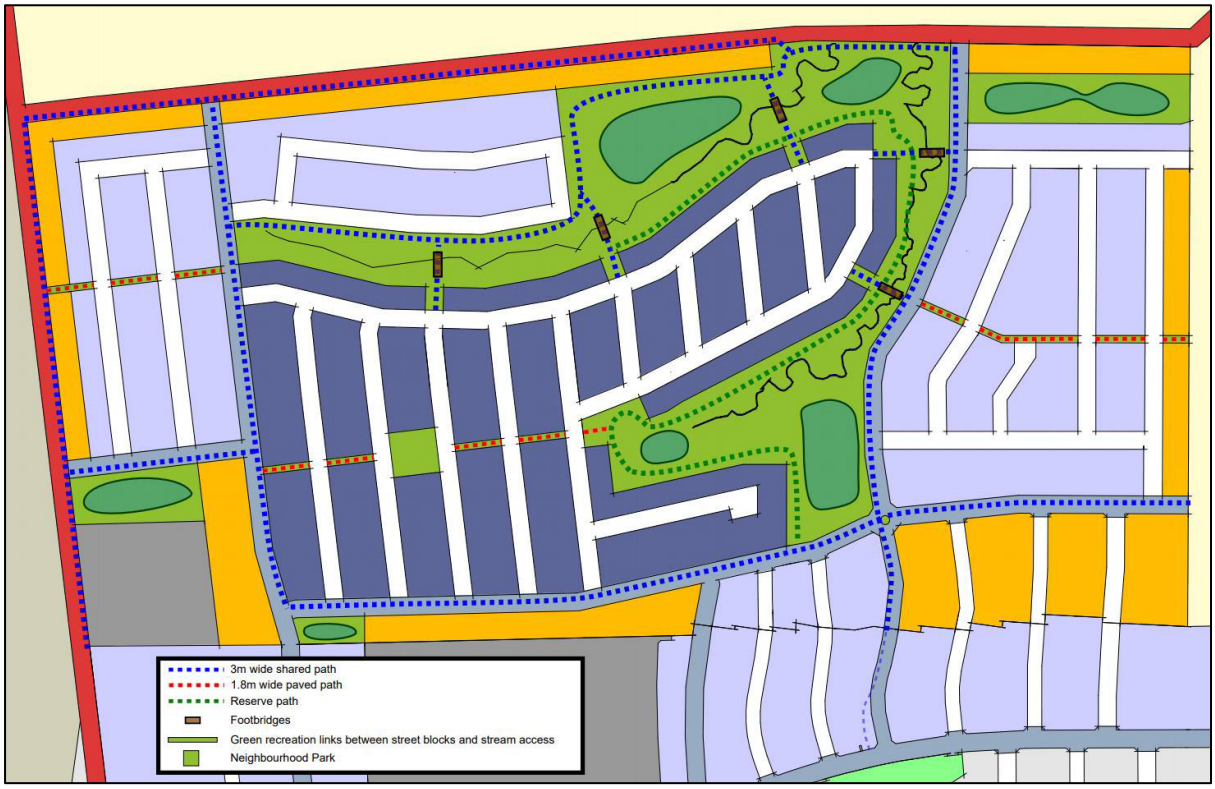


Figure 15: Internal Road Network

6.1.4 The central part of the site, as identified by the darker blue colour on Figure 15, is likely to include a higher density of dwellings consisting of typologies such as duplex and terrace housing. A more traditional medium density is proposed for the remaining bulk of the site with some large lots proposed around the boundaries of the site.

6.1.5 The site also includes a large portion of reserve land. This reflects the streams within the site and associated riparian margins. It is proposed to provide paths through the reserves to increase the permeability of the site for pedestrian and cyclists.

6.1.6 The roads within the Plan Change area are likely to be similar in style to those proposed and consented within the southern part of the site. Most roads will have a total road reserve width of 20m with 16m wide roads for those serving less than 25 lots. Three new external connections are likely to be established as part of subsequent development of the Plan Change area, one to Studholme Street and two to Taukoro Road, along with connections to the roads as part of previous stages of the wider subdivision. There is also an allowance for connections to the east to ensure a well-integrated network should that site ever be developed.

7 Traffic Effects

7.1 Trip Generation

7.1.1 Similar to the assessment undertaken previously for Stage 1-3 of the subdivision, the Institute of Transportation Engineers *Trip Generation Manual* (ITE Manual) has been used to calculate the number of trips likely to be generated by the proposed subdivision. The Single-Family Detached Housing (Land Use 210) is considered to be represent the proposed residential dwellings.

7.1.2 The trip rates and number of trips expected to be generated are provided in Table 2. This also includes the development stages in the southern part of the site as was assessed in the transportation assessments that accompanied the consent application for those stages. For reference, the row highlighted in yellow below represents the trips relating to the subject Plan Change while the other rows are the other aspects of development within the Lockerbie Estate subdivision, as already consented.

Table 2: Trip Generation Summary

Activity	Size	AM Peak		PM Peak		Daily	
		Trip Rate	Trips	Trip Rate	Trips	Trip Rate	Trips
Stage 1	121 units	0.74 /unit	90	0.99 /unit	120	9.44 /unit	1,142
Stage 2	67 units	0.74 /unit	50	0.99 /unit	67	9.44 /unit	632
Stage 3	138 units	0.74 /unit	102	0.99 /unit	137	9.44 /unit	1,303
Retirement Village (independent units)	180 units	0.24 /unit	43	0.30 /unit	54	4.27 /unit	769
Retirement Village (care units)	60 units	0.19 /unit	11	0.26 /unit	16	2.6 /unit	156
Cafe	126sqm	15.6 /100sqm	20	15.6 /100sqm	20	92 /100sqm	116
Childcare	85 children	1.4 /child	119	1.4 /child	119	4.1 /child	349
Dairy/shops	800sqm	1.01 /100sqm	8	4.1 /100sqm	33	40.6 /100sqm	325
Medical	400sqm	3.97 /100sqm	16	3.53 /100sqm	14	41.1 /100sqm	164
Plan Change Area - Residential	1,200	0.74 /unit	888	0.99 /unit	1,188	9.44 /unit	11,328
Total			**1,346**		**1,766**		**16,284**

7.1.3 It is expected that 1,300vph to 1,800vph may be generated in the peak hour and approximately 16,300 trips over the course of the day once the full extent of development is completed. The majority of trips are expected to be made by light vehicles, with the only regular heavy commercial vehicle access being associated with refuse collection.

7.1.4 The MPODP includes thresholds that state whether a Simple or Broad ITA is required to accompany the consent application for a proposed development. A unit of 'car equivalent movements' (cem) is used by the MPODP for the thresholds which are defined as follows:

- 1 car to and from the site = 2cem
- 1 truck to and from the site = 6cem
- 1 truck and a trailer to and from the site = 10cem

7.1.5 The trips calculated above includes all movements to and from the development i.e. 16,284 trips, equates to 8,142 vehicles. For practical purposes, all trips are expected to be light vehicles, the site is expected to generate some 16,284cem. This is greater than 250cem and as such a Broad ITA is required. This report is considered to satisfy the requirements for a Broad ITA.

7.1.6 The MPODP states that no more than 250cem is permitted for a vehicle crossing onto a collector or local road. Individual dwellings do not typically generate more than 10cem per day and as such it is unlikely that vehicle crossings will breach this rule. Any private accesses serving multiple dwellings or other activities likely to generate more than 250cem can be assessed at the resource consent stage for those activities. This report can be referred to when assessing wider traffic effects.

7.2 Trip Distribution

7.2.1 The early stages of the subdivision will establish roading connections to Fairway Drive, George Street, Cobham Drive and Studholme Street. The proposed Plan Change area is likely to establish additional roading connections to Taukoro Road along with a second connection to Studholme Street. Additional connections will be possible to the sites to the east of the Plan Change area, however at this stage, no Plan Changes for rezoning the neighbouring sites are proposed. Regardless, the layout of the road network has been designed to allow for possible

future connections, allowing for good integration and connectivity between adjacent sites. For the purposes of this assessment, no traffic will be assumed to use these connections and they will not be relied upon to accommodate site traffic. This ensures that a robust assessment is undertaken.

7.2.2 In general, the development of the Plan Change area is likely to occur from south to north. The roading connections to Taukoro Road are therefore unlikely to be completed before some dwellings have started to be constructed. This assessment has considered the staging of roading connections to Taukoro Road to identify when such connections would be required to accommodate the future traffic volumes associated with the proposed subdivision.

7.2.3 Distribution of traffic to the wider road network has been based on a first principles approach. Most traffic is likely to head towards Morrinsville town centre as this is the closest centre of employment and retail. Hamilton is the closest major metropolitan centre and vehicles would travel towards Morrinsville town centre from the site in order to head towards Hamilton. Only a small percentage of vehicles are considered likely to head north or east from Morrinsville as there are no major centres in those directions. Therefore, it is assessed that approximately 10% of trips made to and from the subdivision will head towards the north and 10% to the east. The remaining 80% is considered to head south. This distribution is the same as that adopted as part of previous assessment of Lockerbie Estate.

7.2.4 The other nearby metropolitan centre of Tauranga is over 80km driving distance east from the site. It is possible that the number of trips in that may be higher than the 10% adopted for this assessment. However, increasing the proportion of trips to Tauranga would reduce the number using the Studholme Street intersection. As this is the critical location where traffic effects are most noticeable, reducing trips through the intersection would reduce the overall traffic effects of the proposed Plan Change. The adopted trip distribution therefore provides a robust assessment.

7.2.5 Based on an indicative staging plan for the Plan Change area, it is proposed that an intersection to Morrinsville-Tahuna Road will be established by the time approximately 500 dwellings are completed. Similarly, connections to Taukoro Road are proposed once 700 dwellings are completed. It is proposed to have a trigger that requires the connection to Morrinsville-Tahuna Road to be provided prior to the completion of 500 dwellings and the connections to Taukoro Road established prior to the completion of 700 dwellings.

7.2.6 Additional connections will slightly alter the distribution of traffic using each intersection given additional route choice is available. Analysis of the surrounding road network has been undertaken at each of these three stages of development, namely at 500 dwellings, 700 dwellings and 1,200 dwellings.

7.2.7 Prior to the completion of 500 dwellings, Studholme Street is likely to be the most popular route for vehicles heading south. Therefore, 67% of trips heading south (i.e. 53% of total trips i.e. 67% of 80%) are considered likely to use Studholme Street. This represents that Studholme Street is the most direct and convenient route for travellers heading south while Cobham Drive is the least direct.

7.2.8 At the time approximately 500 dwellings are completed, a second intersection to Morrinsville-Tahuna Road just north of Rhoda Read hospital will be added. Even prior to the completion of 700 dwellings, the bulk of development will have been completed in the southern part of the site with the northern part still yet to be developed. Therefore, the distribution of trips between the two intersections to Morrinsville-Tahuna Road / Studholme Street has been taken as 85% via Fairway Drive and 15% via the second northern intersection. By the time the site is fully developed, the distribution between the two Studholme Street intersections is expected to be approximately 50%/50%.

7.2.9 Of the connections heading north once the site is fully developed, it is likely that the western intersection to Taukoro Road is likely to be more popular than the eastern connection as this is the more direct route for those heading north. Vehicles are less likely to first head to Studholme Street directly as it is likely to be easier to turn right onto the arterial road from Taukoro Road rather than at an intersection further south given that they will be catering for higher volumes of site traffic and background traffic.

7.2.10 Appendix A includes the distribution figures for the three scenarios assessed. The 80/10/10 split for trip south/east/north as described above are included in the green cells. The blue cells represent the distribution of trips heading south via either Studholme Street, Cobham Drive or George Street, the grey cells represent the split of trips using the two intersections from the site to Studholme Street and the orange cells represent the split of trips north.

7.2.11 The inbound and outbound split of trips during the peak hours has been based on the rates provided in the ITE Manual. These are summarised in Table 3 below. For conciseness, the residential dwellings in all stages, including the Plan Change area, have been summarised in a single row.

Table 3: Trip Distribution Summary

Activity	Size	AM Peak			PM Peak		
		% Split	Inbound Trips	Outbound Trips	% Split	Inbound Trips	Outbound Trips
Residential	1,526 units	25/75	282	847	63/37	952	559
Retirement Village	240 units	33/67	21	33	61/39	39	31
Cafe	126sqm	50/50	10	10	50/50	10	10
Childcare	85 children	50/50	60	60	50/50	60	60
Dairy/shops	800sqm	62/38	5	3	48/52	16	17
Medical	400sqm	78/22	12	3	29/71	4	10
Total			390	956		1,080	686
			1,346			**1,766**	

7.2.12 Both the residential and retirement village activities have a higher proportion of trips outbound in the morning as people leave their homes to go to work, shopping etc. This trend reverses in the evening with more people inbound. The commercial activities have an equal inbound/outbound split for both peak periods as people typically do not stay at these locations for more than one hour.

7.2.13 Appendix A includes illustrations of the trips generated by the potential future development and how these will be distributed to the wider road network. The traffic volumes shown have been adopted within subsequent modelling and analysis.

7.2.14 It is reiterated the assessment that accompanied the consent application for these activities did not assume any reduction in trips as a result of the new dwellings within the Lockerbie Estate development to ensure that the assessment undertaken was robust. This assessment has also not reduced any trips to the external road network to maintain the conservative and robust assessment.

8 Traffic Modelling

8.1 Overview

8.1.1 A SIDRA model has been developed of the following intersections to assess the effects of the proposed Plan Change:

- Fairway Drive / Studholme Street
- Turnbull Crescent / Studholme Street
- Loveridge Place / Studholme Street
- Road 2 / Studholme Street
- Taukoro Road / Morrinsville-Tahuna Road / Hangawera Road

8.1.2 The modelling has also considered the potential for growth in background traffic volumes. A future year of 2031 has been adopted with a background growth rate of 2% per annum. This has been applied to the surveyed traffic volumes along Studholme Street.

8.1.3 Overall, four scenarios have been assessed as follows:

- 2031 without Plan Change
- 2031 with 500 dwellings
- 2031 with 700 dwellings and extra intersection to Studholme Street
- 2031 with 1,200 dwellings with northern connections to Taukoro Road

8.1.4 The Road 2 / Studholme Street has only been included for the 700 and 1,200 dwelling scenarios as it may not be constructed for the earlier scenarios. Similarly, the Taukoro Road / Morrinsville-Tahuna Road / Hangawera Road has been modelled as a crossroad intersection for all scenarios based on the existing layout. The 1,200 dwellings scenario also includes this modelled as a single-lane roundabout as a potential layout option.

8.1.5 Given their proximity to each other, the intersections involving Turnbull Crescent, Fairway Drive and Loveridge Place to Studholme Street have also been modelled as a network to ensure that any interactions between these intersections are considered. For the 1,200

dwelling scenario, the Fairway Drive intersection has been modelled as both having all vehicles undertaking staged right turns and also single right turns.

8.1.6 A summary of the key results from the modelling is presented below with the full results included within Appendix B. The summarised results include the 95th percentile queue lengths, average delay for each movement and the associated Level of Service (LOS) which is a qualitative measure of performance where LOS A represents free flowing conditions an LOS F represents flow breakdown.

8.2 Fairway Drive / Studholme Street

8.2.1 The key intersection where traffic effects are likely to be most noticeable is the Fairway Drive intersection onto Studholme Street between Loveridge Place and Turnbull Crescent. This is likely to be where most new trips enter or exit the site and is also the road with the highest amount of existing background traffic. The layout of the new intersection will be similar to those for Loveridge Place and Turnbull Crescent, namely utilising the median on Studholme Street to provide a right turn bay. The detailed design of this intersection is going through the Engineering Pan Approval process as part of Stage 3 of the subdivision however a conceptual layout is shown in Figure 16.

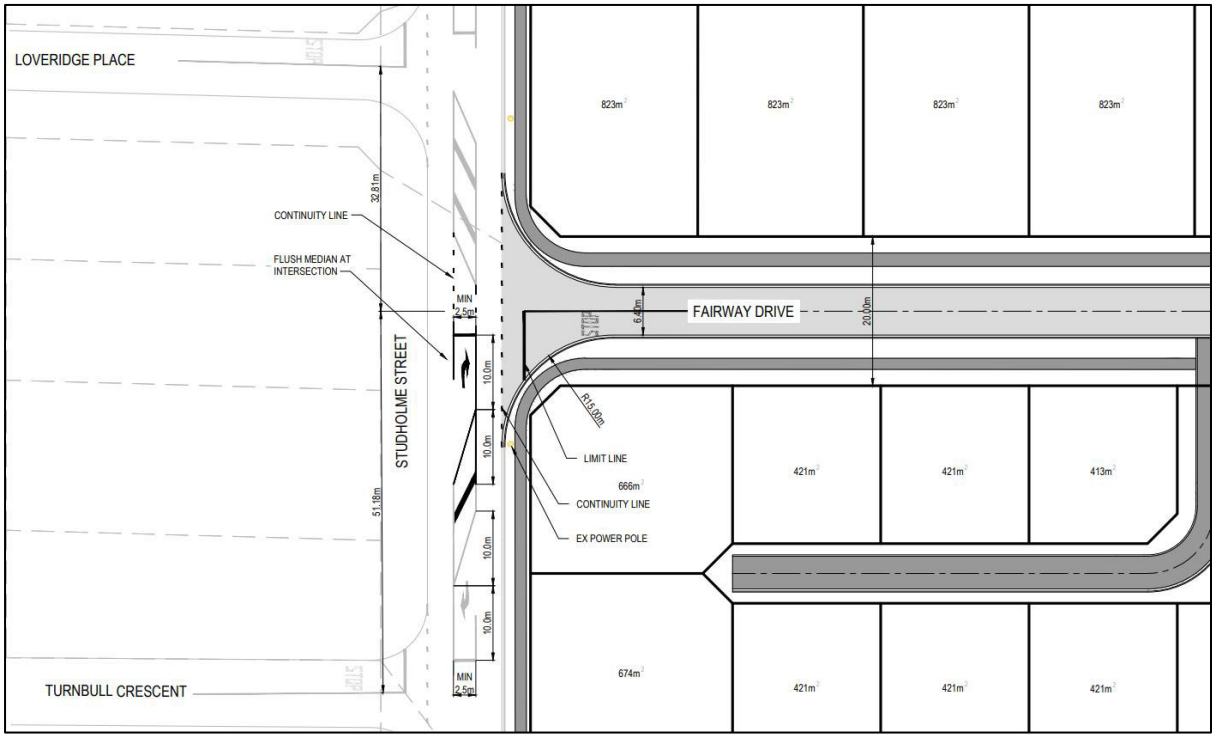


Figure 16: New Studholme Street Conceptual Design

8.2.2 Table 4 and Table 5 below summarise the results of the Fairway Drive / Studholme Street intersection for the 500 and 700 dwelling scenarios.

Table 4: Fairway Drive / Studholme Street 500/700 Dwelling Scenario Results – AM Peak

Approach	Movement	500 Development			700 Development		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Studholme Street (south)	Through	0.0	A	0.0	0.0	A	0.0
	Right	6.2	A	4.4	6.6	A	4.5
Fairway Drive (east)	Left	15.4	C	34.1	18.8	C	43.1
	Right	30.1	D	34.1	36.8	E	43.1
Studholme Street (north)	Left	2.7	A	0.0	2.7	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0
All Vehicles		**5.7**		**34.1**	**6.5**		**43.1**

Table 5: Fairway Drive / Studholme Street 500/700 Dwelling Scenario Results – PM Peak

Approach	Movement	500 Development			700 Development		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Studholme Street (south)	Through	0.3	A	9.0	0.4	A	10.8
	Right	5.8	A	11.0	6.3	A	12.6
Fairway Drive (east)	Left	12.8	B	24.0	15.7	C	30.3
	Right	39.1	E	24.0	49.8	E	30.3
Studholme Street (north)	Left	2.7	A	0.0	2.7	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0
All Vehicles		**4.6**		**24.0**	**5.2**		**30.3**

8.2.3 The above results indicate that the intersection performs well in both peak hours for both scenarios. There is some delay to the right turn movement out of the site during the evening peak hour. However, this only affects up to 58 vehicles in the peak hour and the average delay for this movement is still less than one minute and the queuing is not expected to exceed 5m or one car length. All other movements are relatively free flowing with minimal congestion or queuing. Of note, the queue for the right turn into the site from Studholme Street is less than 20m long and therefore does not extend into the right turn queue into Turnbull Crescent.

8.2.4 Table 6 and Table 7 summarise the results of the Fairway Drive / Studholme Street intersection for 1,200 dwelling scenario, providing a comparison between staged and unstaged right turn movements out of Fairway Drive.

Table 6: Fairway Drive / Studholme Street 1200 Dwelling Scenario Results – AM Peak

Approach	Movement	Unstaged Right Turn			Staged Right Turn		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Studholme Street (south)	Through	0.0	A	0.0	0.0	A	0.0
	Right	8.3	A	4.3	16.1	C	3.1
Fairway Drive (east)	Left	18.4	C	22.6	17.7	C	8.4
	Right	48.5	E	22.6	22.6	C	8.4
Studholme Street (north)	Left	2.7	A	0.0	2.7	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0
All Vehicles		**3.9**		**22.6**	**4.2**		**8.4**

Table 7: Fairway Drive / Studholme Street 1200 Dwelling Scenario Results – PM Peak

Approach	Movement	Unstaged Right Turn			Staged Right Turn		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Studholme Street (south)	Through	0.4	A	15.3	0.0	A	0.0
	Right	6.8	A	10.9	14.0	B	8.6
Fairway Drive (east)	Left	11.5	B	9.5	11.2	B	3.1
	Right	79.0	F	9.5	19.4	C	3.1
Studholme Street (north)	Left	2.7	A	0.0	2.7	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0
All Vehicles		**2.6**		**15.3**	**3.5**		**8.6**

8.2.5 The results a significant difference in performance when allowing for staged right tuns within the model. In reality, the actual delays and queuing are likely to lie somewhere between these two values. Taking the average for the evening peak hour, which is likely to be the more critical time period, the delay for right turn movements out of Fairway Drive is likely to be less than 50 seconds per vehicle. Given that the associated queue lengths are also likely to be low (less than 10m or two car lengths), an average delay less than one minute is considered to be appropriate and that no further mitigation is necessary for the intersection.

8.2.6 In all scenarios, the performance of the Fairway Drive / Studholme Street intersection is assessed as being appropriate. No further mitigation at this intersection is considered necessary.

8.3 Road 2 / Morrinsville-Tahuna Road

8.3.1 The second intersection to Morrinsville-Tahuna Road just north of the Rhoda Read hospital from the Plan Change area has been referred to as Road 2 for the purposes of this report. While yet to be confirmed, it is likely that the layout of this intersection will be similar to that where Fairway Drive meets Studholme Street, namely a stop-controlled T-intersection with a right turn bay on the main road.

8.3.2 The trigger for this intersection is proposed to be prior to the completion of 700 dwellings and as such has only been included for the 700 and 1,200 dwelling scenarios. These results are summarised in Table 8 and Table 9 below.

Table 8: Road 2 / Studholme Street 700/1200 Dwelling Scenario Results – AM Peak

Approach	Movement	700 Development			1200 Development		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Morrinsville-Tahuna Road (south)	Through	0.0	A	0.0	0.0	A	0.0
	Right	5.9	A	0.7	5.9	A	3.1
Road 2 (east)	Left	10.5	B	2.9	11.6	B	12.8
	Right	19.6	C	2.9	22.8	C	12.8
Morrinsville-Tahuna Road (north)	Left	2.7	A	0.0	2.7	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0
All Vehicles		**1.0**		**2.9**	**3.3**		**12.8**

Table 9: Road 2 / Studholme Street 700/1200 Dwelling Scenario Results – PM Peak

Approach	Movement	700 Development			1200 Development		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Studholme Street (south)	Through	0.0	A	0.0	0.0	A	0.0
	Right	5.3	A	1.6	5.3	A	8.2
Road 2 (east)	Left	9.5	A	2.1	9.4	A	6.2
	Right	22.9	C	2.1	29.6	D	6.2
Studholme Street (north)	Left	2.7	A	0.0	2.7	A	0.0
	Through	0.0	A	0.0	0.0	A	0.0
All Vehicles		**0.9**		**2.1**	**2.6**		**8.2**

8.3.3 The above results show that the intersection will perform at acceptable levels and is likely to be less congested than the Fairway Drive intersection to Studholme Street. The priority control is therefore assessed to be sufficient and that no additional features beyond the right turn bay are necessary.

8.4 Taukoro Road / Morrinsville-Tahuna Road / Hangawera Road

8.4.1 Traffic volumes on Taukoro Road are not expected to change notably until the additional intersection to Taukoro Road are added. Similarly, the turning movements at the Taukoro Road intersection with Morrinsville-Tahuna Road are unlikely to notably prior to this stage of development.

8.4.2 Table 10 and Table 11 below summarise the performance of this intersection for the 1,200 dwelling scenario, providing a comparison between the existing crossroad layout and a potential single lane roundabout layout.

Table 10: Taukoro / Morrinsville-Tahuna Road 1200 Dwelling Scenario – AM Peak

Approach	Movement	Crossroads			Roundabout		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Morrinsville-Tahuna Rd (south)	Left	4.6	A	0.0	3.4	A	11.4
	Through	0.0	A	0.0	3.4	A	11.4
	Right	6.4	A	0.1	7.9	A	11.4
Taukoro Road (east)	Left	11.9	B	10.6	6.1	A	5.3
	Through	19.8	C	10.6	6.1	A	5.3
	Right	21.8	C	10.6	10.6	B	5.3
Morrinsville-Tahuna Rd (north)	Left	4.6	A	0.2	3.1	A	20.6
	Through	0.0	A	0.2	3.2	A	20.6
	Right	5.9	A	0.2	7.6	A	20.6
Hangawera Road (west)	Left	8.6	A	4.3	4.8	A	2.1
	Through	17.5	C	4.3	4.8	A	2.1
	Right	19.1	C	4.3	9.3	A	2.1
All Vehicles		**3.7**		**10.6**	**4.4**	**A**	**20.6**

Table 11: Taukoro / Morrinsville-Tahuna Road 1200 Dwelling Scenario – PM Peak

Approach	Movement	Crossroads			Roundabout		
		Ave Delay (s)	LOS	95% Q (m)	Ave Delay (s)	LOS	95% Q (m)
Morrinsville-Tahuna Rd (south)	Left	4.6	A	0.0	3.3	A	21.9
	Through	0.1	A	0.0	3.3	A	21.9
	Right	6.3	A	0.4	7.8	A	21.9
Taukoro Road (east)	Left	11.3	B	8.4	5.1	A	2.9
	Through	24.3	C	8.4	5.1	A	2.9
	Right	25.8	D	8.4	9.6	A	2.9
Morrinsville-Tahuna Rd (north)	Left	4.7	A	0.7	3.0	A	17.9
	Through	0.1	A	0.7	3.0	A	17.9
	Right	7.3	A	0.7	7.5	A	17.9
Hangawera Road (west)	Left	9.6	A	2.1	5.9	A	1.1
	Through	21.6	C	2.1	5.9	A	1.1
	Right	22.0	C	2.1	10.4	B	1.1
All Vehicles		**2.9**		**8.4**	**3.8**	**A**	**21.9**

8.4.3 The above results indicate that no notable congestion is expected at the crossroads intersection even allowing for growth to background traffic volumes and the full build-out of the Plan Change area. As such, any upgrades to this intersection would be for safety reasons rather than being required to mitigate additional traffic volumes.

8.4.4 The roundabout is also readily able to accommodate the future traffic volumes through the intersection. Upgrading the intersection to a roundabout will therefore not create any notable congestion.

8.5 Summary

8.5.1 Overall, the traffic modelling indicates that the existing road network is expected to be able to accommodate the future demands associated with the Plan Change area. Any upgrades to the road network would be required for safety reasons rather than to increase the carrying capacity of the network.

8.5.2 An initial staging plan has identified that connections to Morrinsville-Tahuna Road will be established prior to the completion of 50 dwellings and connections to Taukoro Road will be established prior to the completion of 700 dwellings within the site. The modelling has demonstrated that the road network can operate at appropriate levels both before and after the road network changes expected at this level of development. As such, the proposed triggers at 500 and 700 dwellings are assessed as being appropriate thresholds at which time upgrades to the surrounding road network can be undertaken.

8.5.3 It is reiterated that the traffic generation rates adopted have not included any reductions for trips made within the subdivision. Given that there are some commercial activities within earlier stages of the subdivision, it would be reasonable to expect some level of internal trips. Similarly, it is typical that trip rates of residential subdivisions reduce when considering the subdivision as a whole rather than focussing on individual dwellings. The assessment undertaken as not accounted for these factors and as such the results presented are considered to be robust.

9 External Roads

9.1 Morrinsville-Tahuna Road

9.1.1 Morrinsville-Tahuna Road across the frontage of the Plan Change area is currently a rural road with no kerb of footpaths. With the surrounding environment becoming urbanised, it is therefore appropriate for this road to be upgraded to reflect a more urban environment.

9.1.2 Through consultation with Matamata-Piako District Council (MPDC), it is proposed to widen the carriageway to extend the median along the frontage of the site and to provide a 3m shared on the eastern side of the road. It is also proposed to provide a kerb and channel along the frontage to the Plan Change area for urbanisation purposes. An example of the expected future cross-section of the road is illustrated in Figure 17 below.

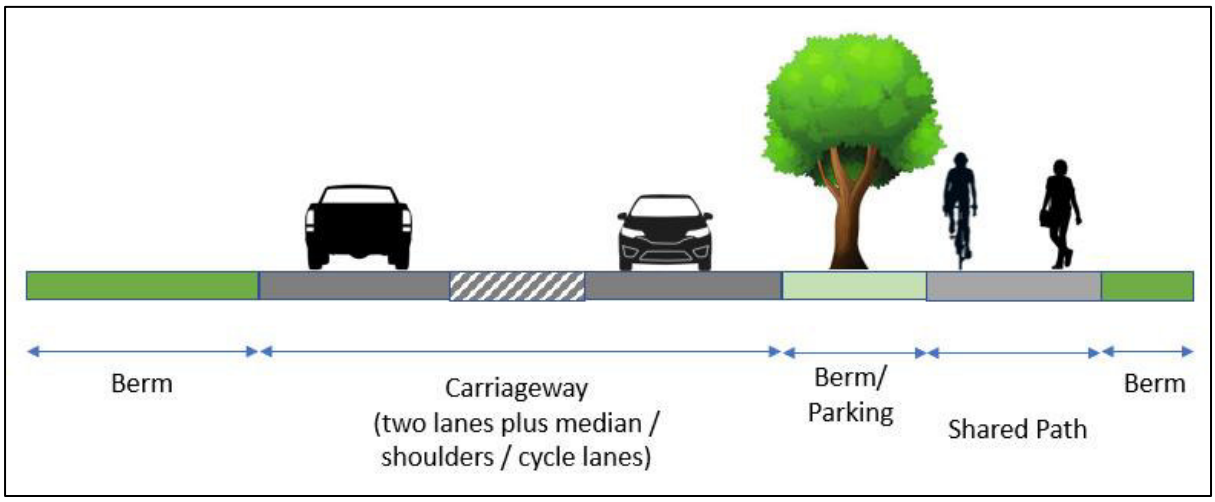


Figure 17: Potential Morrinsville-Tahuna Road Cross Section

9.1.3 The exact cross section design will be confirmed with MPDC and is expected to vary slightly along its length as the width of the road increases towards the north. There may be also be localised differences around intersections.

9.1.4 In order to align with the Vision Zero road safety objectives of avoiding any fatal or serious injuries on the road network, it is recommended that the current 50km/h speed limit on Morrinsville Tahuna Road be extended to north of the intersection with Taukoro Road. With the surrounding environment changing from rural to urban, this change in speed is considered to be appropriate and pre-empts changes in traffic volumes, rather than waiting for crashes

to occur before any improvements to road safety are made. The exact extent of any speed limit changes would be confirmed as part of the consultation with Council.

9.1.5 It is noted that Morrinsville-Tahuna Road is classified as a significant arterial road and is the main route north from Morrinsville. The primary purpose of an arterial road is to cater for through moving traffic with less emphasis on providing access to abutting properties. However, the addition of vehicle crossings and intersections along the frontage of Morrinsville-Tahuna Road will add side friction to traffic flow and therefore assist in reducing the operating speed of vehicles along the road. Therefore, the addition of vehicle crossings and intersection is considered to assist in reducing vehicle speeds and therefore aligns with the Vision Zero safety objectives.

9.1.6 The existing urban section of Studholme Street within Morrinsville has intersections at frequent intervals in addition to many vehicle crossings for single dwellings. Despite the intersections and vehicle crossings on the existing urban section of the road, Studholme Street is still able to function effectively as an arterial road. As such, the Plan Change is not considered to have a material effect on the arterial function of Morrinsville-Tahuna Road / Studholme Street.

9.1.7 From the assessment within Section 7 and 8 of this report, it has been identified that no upgrades to the road network are required to increase its carrying capacity. With the proposed urbanisation of the road and recommendations to reduce the speed limit, it is considered that the upgrades are sufficient to mitigate the effects of the proposed Plan Change. The upgrades to Morrinsville-Tahuna Road shall be completed prior to the completion of 500 dwellings, which is when connections to Morrinsville-Tahuna Road are proposed.

9.2 Taukoro Road

9.2.1 Similar to Morrinsville-Tahuna Road, and as noted in Section 3 of this report, Taukoro Road is constructed like a typical New Zealand rural road with a narrow carriageway and no shoulders or footpaths. Prior to any roading connections being established onto Taukoro Road, it is recommended that the road is upgraded. A potential cross-section for this road is illustrated in Figure 18 below.

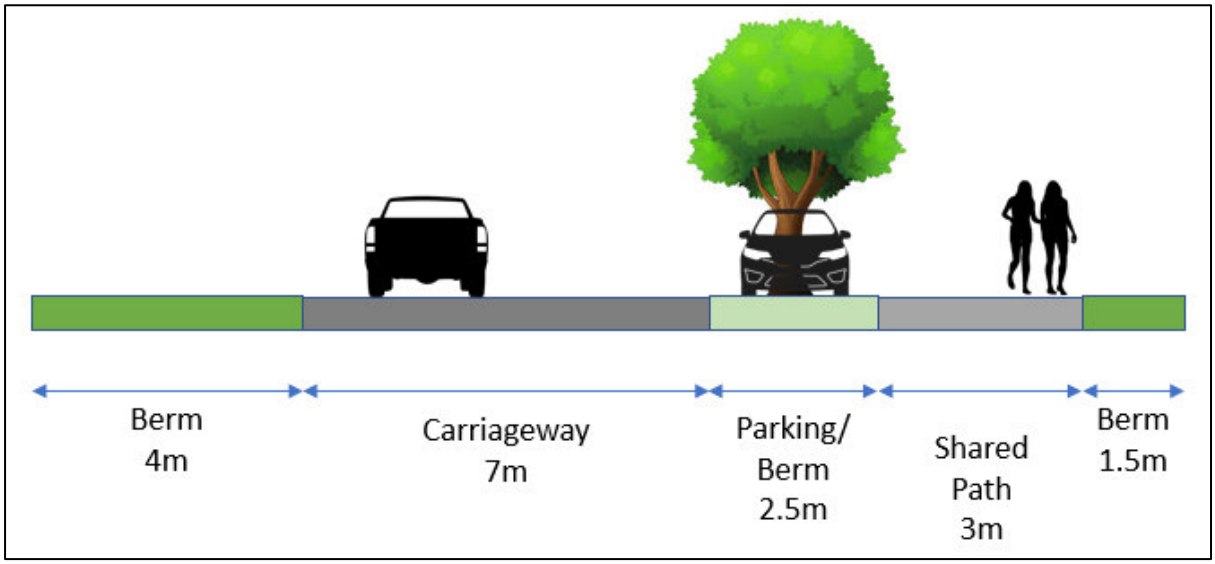


Figure 18: Potential Taukoro Road Cross Section

9.2.2 Similar to Morrinsville-Tahuna Road, the exact cross section design will be confirmed with MPDC and is expected to vary slightly along its length. The shared path along the frontage of the site has been agreed with MPDC and will integrate with that included along Morrinsville-Tahuna Road.

9.2.3 With the recommended change in speed limits, the full length of Taukoro Road would have a posted speed limit of 50km/h. This is considered appropriate as the surrounding environment becomes more urban in nature.

9.2.4 The trigger to upgrade Taukoro Road is proposed to be prior to the completion of 700 dwellings. This aligns with the threshold when intersection onto Taukoro Road would be established.

9.3 Morrinsville-Tahuna Road / Taukoro Road Intersection

9.3.1 As part of the recommended changes in the posted speed limit, it is proposed to upgrade the Morrinsville-Tahuna Road / Taukoro Road intersection into a roundabout. This will further emphasise the change between the urban and rural environment and force vehicles to slow down as they circulate around the central island. The inclusion of the roundabout also removes an existing crossroads intersection which are generally considered to be less safe than a roundabout.

9.3.2 Figure 19 is a concept design of the roundabout intersection. It is possible that some additional land take may be required in order for the roundabout to comply with the standards included within the Waikato Regional Infrastructure Technical Specification (RITS). The design shown is a concept only and the exact extent of any land take would be confirmed through the detailed engineering design process.

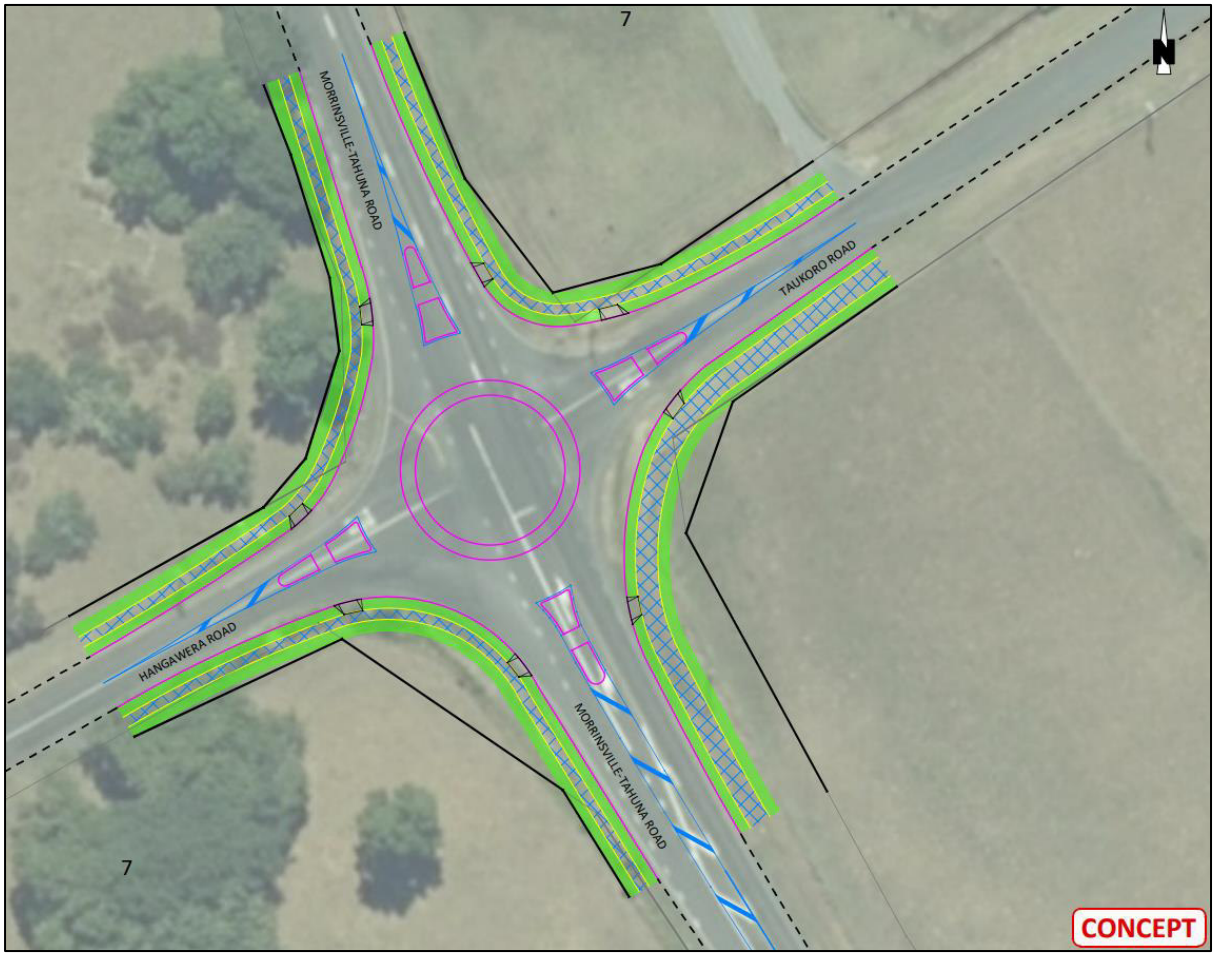


Figure 19: Roundabout Concept Design

9.3.3 The trigger point for the installation of the roundabout will be prior to the completion of 700 dwellings which aligns with the upgrade of Taukoro Road. As with the upgrades of the surrounding roads, further consultation with MPDC will be undertaken as the roundabout design is refined further.

9.4 Coronation Road

9.4.1 As part of the consultation with MPDC, further information was requested regarding the George Street, Cobham Drive and Studholme Street intersections with Coronation Road.

9.4.2 In the case of George Street, the traffic expected on this road for the scenarios assessed in Section 7 and 8 are less than those assessed as part of Stage 3A of the consented Lockerbie Estate subdivision. This is due to the addition of the Fairway Drive intersection to Studholme Street which creates a more direct route for the consented dwellings to travel towards Morrinsville.

9.4.3 A review of the existing road safety record has found that no crashes have been reported along George Street within the last 10 years. Visibility at its intersection with Coronation Road is greater than 150m in all directions which readily satisfies the AUSTROADs standards of 97m.

9.4.4 Rat running was identified by MPDC as a potential effect. However, rat-running generally only occurs where vehicles avoid a congested route. Given the existing low volumes of traffic on the road within Morrisnville, it is unlikely that rat running would occur even allowing for future growth. For reference, George Street currently carries 119vph and Coronation Road carries 461vph in the peak. Given a single lane typically has a carrying capacity above 1,000vph and the reported volumes are two-way flows, the addition of ~400-500vph (again two-way flow) would be well within the carrying capacity of the road. Hence rat running is unlikely to occur due to network congestion.

9.4.5 For drivers travelling to schools, they would take the most direct and convenient route. Cobham Drive is likely to be most popular for travelling to David Street School while Willow Grove might be more popular for Morrinsville Intermediate. These alternative route options would only decrease the concentration of traffic at any one location and therefore reduce traffic effects. As such the effect on George Street including its intersection with Coronation Road are assessed as being no greater than what has been previously assessed.

9.4.6 For Cobham Drive, the increase in traffic volumes is relatively minor. As such, the turning movements its intersection with Coronation Road are expected to be less than at the George Street intersection. It is therefore considered that the effects of the Plan Change would be no greater than what has been previously consented for the Lockerbie subdivision.

9.4.7 The intersection between Coronation Road and Studholme Street is in close proximity to the Snell Street intersection. These intersections from offset T-intersection where the

intersections are on the right-hand side of each other. This means any queuing to turn right into either side road will not occur on the section of Studholme Street between the two-intersections. Any other users of the staggered T-intersection have multiple other route options available should congestion in the vicinity of the staggered T-intersection increase over time. This allows for traffic flow to rebalance throughout the road network especially on roads that are underutilised. As such, it is considered that the Plan Change is unlikely to have a material effect on the staggered T-intersection.

10 Internal Roads

10.1.1 The detailed design and layout of the internal roads will be assessed in detail as part of any subdivision consent application. The conceptual layout of the Plan Change area, included previously as Figure 14 in Section 6, shows an indicative collector road layout that continues from the development under construction in the southern part of the Lockerbie Estate subdivision. Figure 15 included a finer grained network that will be subject to confirmation as part of each respective future subdivision stage.

10.1.2 The exact cross-section of the roads will be confirmed at the subdivision consenting stage. However, it is expected that the cross-sections will be similar to the cross-sections proposed and accepted by Council in the earlier stages of the Lockerbie Estate development. The roads will likely comprise a 7m carriageway within a 20m road reserve and roads serving less than 25 lots will likely include a 5.6m carriageway within a 16m road reserve. Figure 20 and Figure 21 below illustrate the likely cross sections for these two road types.

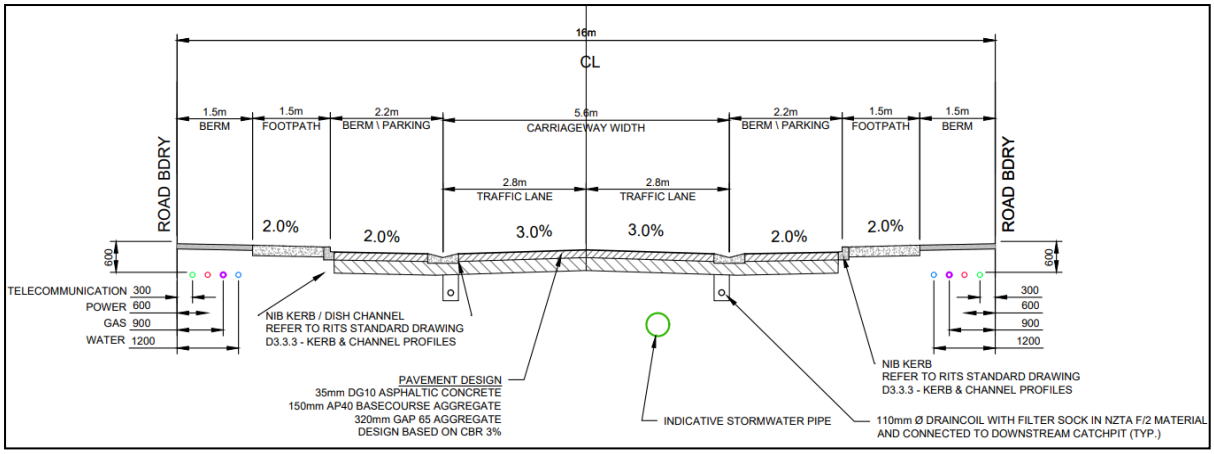


Figure 20: 16m Cross Section

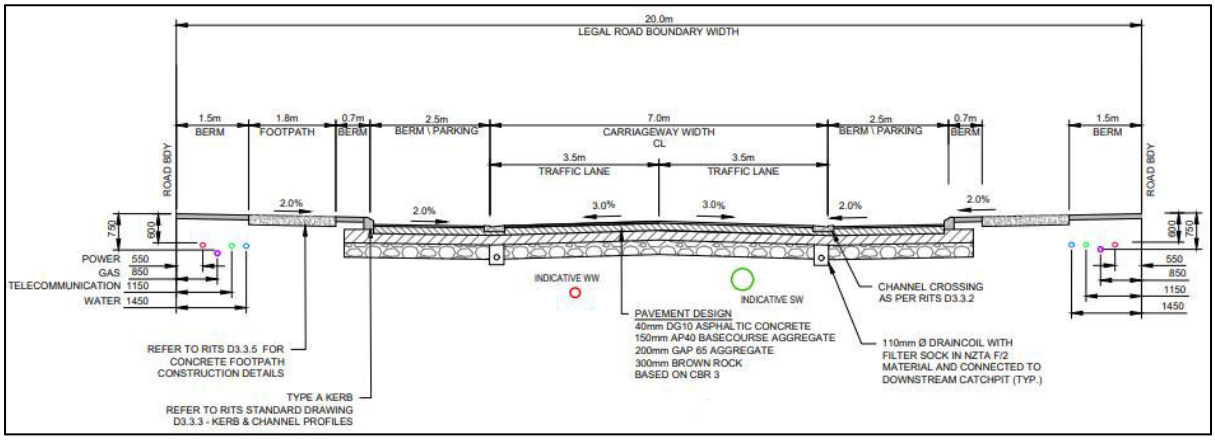


Figure 21: 20m Road Cross Section

10.1.3 The above road reserve widths and limit of 25 lots for the 16m roads have been agreed through consultation with MPDC. The exact cross-sections within these road reserves may vary in some places to include shared paths or other features.

10.1.4 A 16m cross-section width is considered to be appropriate for a local road serving a limited number of dwellings within a residential environment. NZS4404:2010 states that the legal road width for a local road in a suburban setting providing access for up to 200 dwellings should be at least 15m wide. The proposed 16m width satisfies this standard and have been accepted for previous stages of development within the Lockerbie Estate subdivision.

10.1.5 The carriageway width for the local roads is likely to be 5.6m so that each lane is 2.8m wide to comply with the NZS4404 standards for a 40km/h design speed limit. It is intended that the local roads will have a posted speed limit of 50km/h however the narrow lane widths are intended to create a speed environment of 40km/h to reflect the local and residential nature of the surrounding land use environment. The disconnect between the posted speed and design speed is to reduce the amount of signage and clutter within the road reserve. This is considered to be appropriate given that the design speed is below the posted speed and is similar to the approach used for the southern part of the Lockerbie Estate development.

10.1.6 The carriageway width for the collector and sub-collector roads is 7m wide allowing for the traffic lanes to be 3.5m wide. This facilitates a 50km/h operating speed. Given the higher traffic volumes expected and higher through function of these road, the additional width is considered to be appropriate.

10.1.7 All new internal roads will include footpaths on both sides of the road. These will integrate with the footpaths on the surrounding roads in the vicinity of the site. There is also a 3m wide shared path within Stage 1 of the Lockerbie subdivision that will be extended through the Plan Change area.

10.1.8 Consideration has been given to the future intersections between the roads within the Plan Change area. While the conceptual layout shows mostly T-intersections, there is one intersection which may include four approaches. This intersection, along with any other four-legged intersections, the intersection will take the form of a small roundabout. This roundabout may be smaller than the standards within RITS however would still be designed to accommodate a rubbish truck. Crossroad intersections may be appropriate between local roads and this can be assessed at the subdivision consent stage. The purpose of the roundabout is to reduce the risk associated with road safety rather than addressing high traffic volumes. A roundabout reduces the number of conflict points between traffic streams travelling in different directions at the intersection and also requires vehicles to slow down when circulating around the roundabout.

10.1.9 RITS includes minimum separation distances that should be provided between intersections. For local roads, the minimum separation for side roads on the same side should be at least 60m and this increases to 90m for collector or arterial roads. It is likely that the future road network will be able to achieve suitable intersection separation. For reference, the two intersections onto Taukoro Road are likely to have a separation of over 500m while the proposed access to Morrinsville-Tahuna Road will be over 200m north of Goodwin Avenue. All new intersections will also be at least 100m from the Morrinsville-Tahuna Road / Taukoro Road intersection which readily satisfies the RITS standard. Separation will be assessed in further detail as part of a resource consent application. Similarly, visibility available at the future intersections will also be assessed as part of the resource consent application.

10.1.10 As noted above, the cross sections of the future roads are expected to include footpaths on both sides of the road. The reserves within the wider subdivision area are also expected to include off-road paths that can be used by pedestrians and cyclists further improving the permeability and connectivity for these transport modes. The future roads also allow for potential future bus services. These provisions are considered to align with the overarching transport policy to reduce reliance on private vehicle modes.

10.1.11 Overall, the roads within the Plan Change area will be similar to those proposed within the southern part of the wider Lockerbie Estate development. Further assessment will be undertaken of the detailed design as part of a resource consent application.

11 Access and Parking

11.1.1 It is proposed for garages to be setback at least 5m from the road reserve. This would ensure that there is sufficient space for a second vehicle to park on-site. Therefore, the majority of car parking is likely to comply with District Plan standards and be contained within future lots, minimising potential effects within the road reserve.

11.1.2 An assessment of the detailed access and parking arrangements will be undertaken as part of a subdivision consent application when the lot sizes, access locations etc are known. It is expected that the future development will be able to comply with the traffic and transportation rules of the MPODP. Should there be non-compliances, the effects can be assessed at the subdivision consent stage.

11.1.3 It is noted that the National-Policy Statement on Urban Development (NPS-UD) requires all territorial authorities to remove any minimum parking requirements from their district plans by February 2022. It is therefore possible that some development within the future Plan Change area may not provide any parking or provide parking at a rate that is less than current District Plan requirements. Morrinsville is a predominantly car-dependant area given its rural location and absence of any public transport services. Any reduction in on-site parking provision is likely to increase the demand for on-street parking. The proposed cross-sections of the internal road network include provision for on-street parking. This is considered to provide sufficient buffer if there is a future reduction in on-site car parking provision.

12 Policy Setting

12.1 Regional Policy Statement (RPS)

12.1.1 The RPS became operative in May 2016. It is a long-term planning tool which identifies significant resource management issues and sets out objectives, policies and methods to address the same.

12.1.2 In relation to subdivision, Policy 6.1 of the RPS states:

"Subdivision, use and development of the built environment, including transport, occurs in a planned and co-ordinated manner which:

a) Has regard to the principles in Section 6A

b) Recognises and addresses potential cumulative effects of subdivision, use and development;

c) Is based on sufficient information to allow assess of the potential long-term effects of subdivision, use and development; and

d) Has regard to the existing built environment."

12.1.3 Under the recommended implementation methods, Section 6.1.8 outlines the information needed to support new urban development and subdivision includes:

- The location, type, scale, funding and staging of infrastructure required to serve the area; and

- Multimodal transport links and connectivity both within the area of new urban development and to neighbouring areas and existing transport infrastructure and how the safe and efficient functioning of existing and planned transport infrastructure will be protected.

12.1.4 An appropriate internal road network is considered to be achievable for the proposed Plan Change area that integrates with the existing road network and the roads proposed within the subdivision area to the south. It also allows for connections to the adjacent sites to the east should development be proposed on those sites in the future.

12.1.5 The development is not considered to adversely affect any existing or planned transportation infrastructure.

12.2 Regional Land Transport Plan (RLTP) 2015-2045: 2018 Update

12.2.1 The RLTP sets the strategic direction for land transport within the region and is built around three key transport issues:

- Protecting the function of our strategic corridors in the context of growth pressures in and around Hamilton, North Waikato and the Upper North Island;
- Tackling our complex road safety problem and the disproportionate number of deaths and serious injuries in the region; and
- Providing for the access and mobility needs of our communities in a changing social, demographic, economic, and technological landscape.

12.2.2 As is detailed further in Section 7 of this report, the surrounding road network is expected to be able to accommodate the future traffic volumes associated with the full buildout of the site. Overall, it is considered that the proposed development is consistent the with the relevant transportation objectives and policies.

12.3 Government Policy Statement on Land Transport (GPS) 2021/22 – 2030/31

12.3.1 The GPS is where the government determines how investment into the land transport system from the Fund will contribute to achieving overall government outcomes. The four strategic priorities of the GPS are defined as follows:

- A transport system where no-one is killed or seriously injured;
- Improving freight connections for economic development;
- Providing people with better transport options; and
- Developing a low carbon transport system that support emissions reductions while improving safety and inclusive access.

12.3.2 It is proposed to ultimately upgrade Morrinsville-Tahuna Road and Taukoro Road across the frontage of the Plan Change area to an urban form. A roundabout at the intersection between these two roads will also be provided. These upgrades to an urban form will reduce the operating speed of vehicles in the vicinity of the site which will reduce the likelihood or serious or fatal crashes.

12.3.3 The inclusion of shared paths will also provide alternative travel options for the future residents within the Pan Change area.

12.3.4 Overall, the proposed Plan Change is considered to align with the strategic priorities of the GPS.

12.4 National Road to Zero Strategy 2020-2030

12.4.1 The Road to Zero strategy seeks to stop people being killed or seriously injured on our roads. Reducing vehicle speeds is a critical method to reducing the likelihood or a crash resulting in serious or fatal injuries. With the urbanisation and associated speed reductions on the surrounding roads, it is considered that the proposed Plan Change aligns with the Road to Zero objectives.

13 Planning Framework

13.1 Policies and Objectives

13.1.1 Chapter 3.8 of the MPODP includes the transportation objectives and policies for the district. These are discussed in Table 12.

Table 12: Objectives and Polices Assessment

Policy	Description	Comment	Alignment
3.8.2 Transportation			
O1 The strategic importance of significant transport infrastructure is recognised			
P1	Subdivision, use and development shall be managed to recognise, enable and protect: • The primary function of significant transport infrastructure as inter-regional connectors; and • The local, regional and national benefits of significant transport infrastructure.	The subdivision includes appropriate external access locations and is considered to align with the respective hierarchy rating of the surrounding transport corridors.	Aligns
O2 A safe, efficient, integrated and environmentally sustainable transport network that ensures our social, economic and cultural wellbeing.			
P2	The District's road hierarchy shall recognise and manage significant road corridors as the highest order of road	The subdivision does not impact on the hierarchy of the District's road network.	Aligns
O3 The avoidance, remediation or mitigation of the adverse effects of transportation			
P3	Subdivision, use and development shall enable a safe, integrated, efficient, and well-connected transport network that provides for all modes of passenger and freight transport in a manner that: • Ensures land-use and transportation successfully interface with each other; • Manages the adverse environmental effects of the network, and the effects of other activities on the network (i.e. reverse-sensitivity effects); • Considers the transport needs of an ageing population; and	The internal road network is considered to be suitable for the proposed land use and does not preclude provision for a public transport network.	Aligns

	• Ensures route security across all modes of travel.		
O4 To ensure that those activities that place demands on the roading network contribute fairly to any works considered necessary to meet those demands			
P4	The road network shall be hierarchical, differentiating between roads according to their primary function thereby assisting in the planning and management of the network and surrounding land-uses.	A suitable road hierarchy is included within the subdivision, recognising routes that are likely to cater for higher volumes of through traffic.	Aligns
O5 To protect residential amenity from the effects of excessive traffic generation and on-street parking on residential streets			
P5	To ensure that access points and intersections meet safe sightline and spacing standards for the class of road within the hierarchy and are formed to appropriate design standards.	It is anticipated that suitable vehicle crossings and on-site parking can be provided. Residential amenity can be further protected through providing trees within the road carriageway.	Can align
O6 To maximise safety and convenience for pedestrians and vehicle traffic on all sites			
P6	To manage the location of subdivision and land use activities to avoid compromising road intersection and railway level crossing safety sightlines.	The assessment concludes that the proposed subdivision does not compromise any road intersection or railway level crossing.	Can align
O7 Provision for parking and loading is adequate to ensure the safety and efficiency of the road network, without stifling development or leading to inefficient use of land.			
P7	To ensure that the safety and efficiency of the state highways and district road networks are not compromised by proposed subdivision and/or development and the cumulative effect of subdivision and/or development.	The proposed subdivision is not considered to directly impact the state highway network or other key district roads.	Aligns
O8 To encourage the provision of alternative transportation networks where it is clearly demonstrated that the provision of such networks will positively benefit and enhance the environment and community which they serve.			
P8	To promote appropriate roading connections within and between land being subdivided to ensure our towns are well connected	Ultimately, multiple connections will be provided from the subdivision to its surrounds.	Aligns
P9	To implement measures to avoid, or mitigate reverse-sensitivity effects on land near significant transport infrastructure, and at the Matamata airport	The proposed subdivision is not considered to result in any perceivable effects on significant transportation infrastructure.	Aligns
P10	To ensure that traffic safety is maintained by carefully managing the location and design of any signs visible from state highway and District roads	No large signs are expected near state highway or key district roads.	Aligns
P11	Subdivision, use and development shall be managed in a way that takes into account the planning and availability of funding for transport infrastructure.	The internal road network will be developed privately without the need for additional public funding.	Aligns
P12	To ensure that subdivision and development takes into account the existing and proposed capacity and design of the transportation networks and that any adverse effects are avoided, remedied or mitigated.	Section 7 of this report has discussed the effects of the subdivision on the surrounding transport network. It is assessed that the road network can accommodate the traffic associated with the subdivision.	Aligns

P13	To manage unrelated through traffic on local roads to maintain and enhance the amenity values of the locality.	The road hierarchy has been designed to promote roads of a higher hierarchy rating. Unrelated traffic is unlikely to travel through the site given that there are more efficient routes around the site.	Aligns
P14	To require landscaping within the transportation facilities or corridors where appropriate.	Suitable landscaping can be provided	Aligns
P15	To avoid dust and noise nuisance by requiring formation, sealing and screening of parking and loading areas and access ways in residential, business and Industrial zones and Kaitiaki (Conservation) zones that adjoin an urban area.	All roads and accesses will be suitably sealed.	Aligns
P16	Parking and loading facilities must be designed to ensure safe manoeuvring of vehicles and safe movement of pedestrians and cyclists.	It is expected that suitable parking areas can be provided.	Can align
P17	Outside "shopping frontage" areas, development shall provide adequate parking and loading facilities on-site, for foreseeable future needs.	It is expected that sufficient parking areas can be provided on each site.	Can align
P18	Within "shopping frontage" areas in the town centres: • Provision for parking and loading shall avoid adverse effects on the safety and efficiency of the road network; while: • The requirement for on-site parking and loading must not unnecessarily constrain development, or result in development that is not in keeping with the character of the town centre.	The site does not include any "shopping frontage" areas	N/A
P19	To enhance the amenity value of the central business area of Te Aroha, Matamata, and Morrinsville by ensuring that such areas are not congested by service delivery activities and a lack of adequate parking.	The site is not within the central Morrinsville area	N/A
P20	To establish and maintain service lanes and public carparks which assist in reducing traffic congestion on surrounding streets.	No notable congestion is expected to be generated on existing roads in the vicinity of the subdivision.	Aligns
P21	To encourage alternative transport modes by making provision for cycleways and walkways.	The design of the roads does not preclude future implementation of alternative transport modes.	Aligns
P22	To provide for the transportation needs of an ageing population and the mobility impaired.	Suitable footpaths will be provided on all internal roads for the mobility impaired.	Aligns
P23	To require the retention of all roads, including paper roads, where alternative public access to the District's rivers is not available	The site is not near a river.	N/A

13.1.2 Overall, the proposed subdivision is considered to align with the objectives and policies of the MPODP. The method of implementing these objectives and policies is primarily through the Development Manual and the rules of the MPODP.

13.2 Rules

13.2.1 The proposed development is located within the Matamata-Piako District and is required to meet the provisions set out in the Section 9 of the MPODP. The MPODP sets out the various transport related matters for the proposed development in Section 9. The relevant standards and criteria are provided in Table 13.

Table 13: Rules Compliance Assessment

Rule	Requirement	Proposed	Compliance
9.1.2.3.4 Section iv – New vehicle crossing to collector and local roads			
a. Performance standards The following performance standards shall apply to vehicle crossings onto collector and local roads:			
i.	The vehicle crossing shall be designed, formed, and constructed in accordance with the Development Manual	Future vehicle crossings are expected to comply with the standards in the Development Manual	Can comply
ii.	There shall be less than an average of 250 car equivalent movements per day within any one week using the vehicle crossing, where a car equivalent movement is defined as follows: 1 car to and from the site = 2 car equivalent movements 1 truck to and from the site = 6 car equivalent movements 1 truck and a trailer to & from the site = 10 car equivalent movements Provided that a single residential dwelling is deemed to generate 8 car equivalent movements per day;	Each residential vehicle crossing is unlikely to generate more than 250cem per day.	Can comply
iii.	The vehicle crossing shall comply with the minimum sight distances, and separation distances to intersections, contained within the Development Manual;	It is expected that vehicle crossings can be provided that comply with the standards of the Development Manual	Can comply
iv.	A second or subsequent vehicle crossing serving the same site shall meet the vehicle crossing separation standards in the Development Manual.	All lots will likely only have one vehicle crossing.	Can comply
9.1.4 On-Site Parking			
ii	Where a site does not have frontage to "Shopping Frontage": Every person who proposes to erect, re-erect, construct or substantially reconstruct, alter or add to a building on a site or who changes the use of any land or building, shall provide suitable for the parking of vehicles as required below:	It is expected that provision for at least two cars to park for each dwelling can be provided.	Can comply

	Dwellings – 2 spaces per dwelling (Note: One may be "stacked" where it does not interfere with shared access		

13.2.2 All matters in relation to on access, site loading, parking provision, formation and layout are expected to be able to be compliant given the scale of the proposed development and the availability of land. Such matters will be assessed in further detail at subdivision and land use consent stages.

13.2.3 Section 9.1.6. sets out the requirements for Integrated Transport Assessments (ITA) and the criteria for activities to provide an ITA. The proposed Plan Change area is likely to generate more than 250 car equivalents per day as outlined Section 7. The threshold table provided in Rule 9.1.6 (i) shows that a Broad ITA is required. This report is considered to satisfy the requirements of a Broad ITA.

14 Consultation

14.1.1 Consultation has been undertaken with MPDC and their consultants Gray Matter in relation to the proposed Plan Change. This included providing a draft version of this ITA. The comments and requests for additional information received have been incorporated into this document. By way of summary, these include the following:

- Assess the Plan Change against the Government Policy Statement and Road to Zero Strategy (see Sections 12.3 and 12.4)
- Assess the effect of additional vehicle crossings and intersection on the arterial function of Morrinsville-Tahuna Road (see Section 9.1)
- Assess the effects of additional traffic on Coronation Road intersections with Studholme Street, George Street and Cobham Drive (See Section 9.4)
- Consider the effects of growth to background traffic (see Section 8.1)
- Consider the triggers for infrastructure staging (see Section 7.2)

- Assess the effects of the Taukoro Road / Morrinsville-Tahuna Road intersection (see Section 9.3)
- Provide further detail on the urbanisation of Taukoro Road (see Section 9.2)
- Provide further clarification on the removal of minimum parking standards (see Section 11)
- Update the site layout plans to show connected shared path network (see Figure 15 in Section 6)
- Review the provisions of vehicle crossings to higher density development within the site
- Assess whether a direct roading connection from the higher density area east to Werewere Street is necessary.

14.1.2 It is noted that consultation will continue at the subdivision and land use consent stages for future development within the Plan Change area. This will include finalising the cross-sections of Morrinsville-Tahuna Road and Taukoro across the frontage of the site, the design of the intersection between the two roads and any associated cost sharing agreements.

14.1.3 In terms of the location of vehicle crossings within the higher density area, it is proposed to include minimum lot widths to ensure that vehicle crossings can be provided so that on-street parking spaces can be included at a ratio of at least one space per five dwellings.

14.1.4 Consultation was also undertaken with MPDC in relation to the road reserve widths for the proposed internal roads. It has been agreed that the internal roads will have a total width of 20m. Roads that serve up to 25 lots can have a road reserve width that is reduced to 16m.

14.1.5 MPDC also sought to investigate whether a roading connection could be established from the higher density area in the centre of the subdivision area across the riparian margin to Werewere Street to its east. It is noted that paths for pedestrian and cyclists are proposed however there is no direct connection proposed for vehicles. From an environmental perspective, a roading link at this location was not a preferred option due to the effects on the riparian margin. From a transportation perspective, the benefits of a roading link in this area are considered to be limited. The extra link would only benefit a small number of lots with most traffic still likely to travel to the west as this is the more direct route towards the

external roading connections. All dwellings within the centre of the site have at least two routes to be able to access the external roading connections and therefore the network resilience is considered to be sufficient. The addition of another roading connection would also create another intersection and conflict point onto Werewere Street and across the shared path that is proposed along the western side of this road. As such, given the negligible benefits and potential for other adverse effects, it is assessed that a roading link from the central higher density area direct to Werewere Street is not necessary or required.

14.1.6 Consultation was also undertaken with Waka Kotahi who confirmed that they have no concerns with the proposed Plan Change.

15 Conclusions

15.1.1 It is proposed to rezone the current dairy farm on the northern side of the Morrinsville township known as Lockerbie Estate. It is anticipated that up to 1,200 dwellings could be established within the Plan Change area. The southern part of the site is included within the Residential and Medium Density Residential zone and is currently going through the resource consent process to enable construction of dwellings to commence. Overall, it is assessed that:

- The proposed Plan Change generally aligns with the relevant transportation policy documents and the policies and objectives of the MPODP. The internal road network will integrate with the surrounding roads and pedestrian networks.

- Combined with the earlier stages of the subdivision, the overall Lockerbie Estate may generate some 1,300-1,800 trips in the peak and some 16,300 trips over the course of the day. The surrounding road network has been assessed as being appropriate to accommodate these trips.

- Based on the staging expected for the site, a roading connection to Morrinsville-Tahuna Road prior to the completion of 500 dwellings within the Plan Change area and connections to Taukoro Road are expected prior to the completion of 700 dwellings. At the same time, it is proposed to upgrade the sections of Taukoro Road and Morrinsville-Tahuna Road across the frontage of the site and upgrade the intersection between these roads into a roundabout. It is recommended for a trigger to require the upgrade of Morrinsville-Tahuna Road to be undertaken at the same

time roading connections are established i.e. prior to 500 dwellings within the Plan Change area. Similarly, the upgrade and connections to Taukoro Road, including its intersection with Morrinsville-Tahuna Road, would be undertaken prior to the completion of 700 dwellings.

- It is recommended to reduce the posted speed to 50km/h on Studholme Street along Morrinsville-Tahuna Road to the north of the Taukoro Road intersection.

- The detailed design of new roads within the subdivision will be undertaken at the subdivision consent stage. However, it has been agreed with MPDC that the roads will be 20m wide except for roads serving up to 25 lots that may have their width reduced to 16m. It is expected that these can be designed to appropriate standards that are unlikely to exacerbate the existing road safety record.

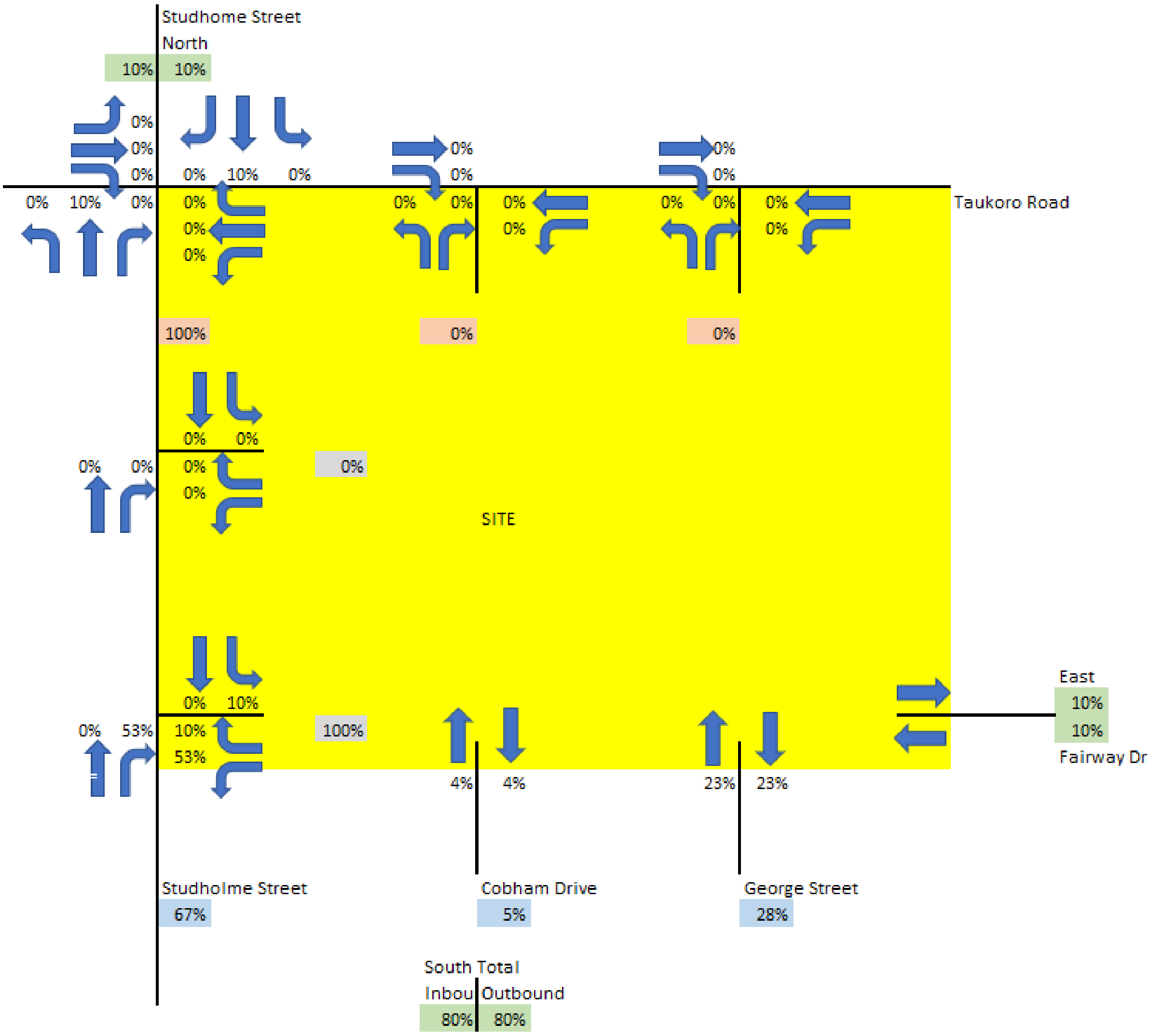
- It is expected that the future subdivision can comply with the parking and access requirements of the MPODP. Any direct property access onto Morrinsville-Tahuna Road should not require reverse manoeuvres. Any other non-compliances can be addressed and assessed as part of any future subdivision consent application.

15.1.2 With the above recommendations in place, it is assessed that the traffic effects of the proposed Plan Change will be less than minor.

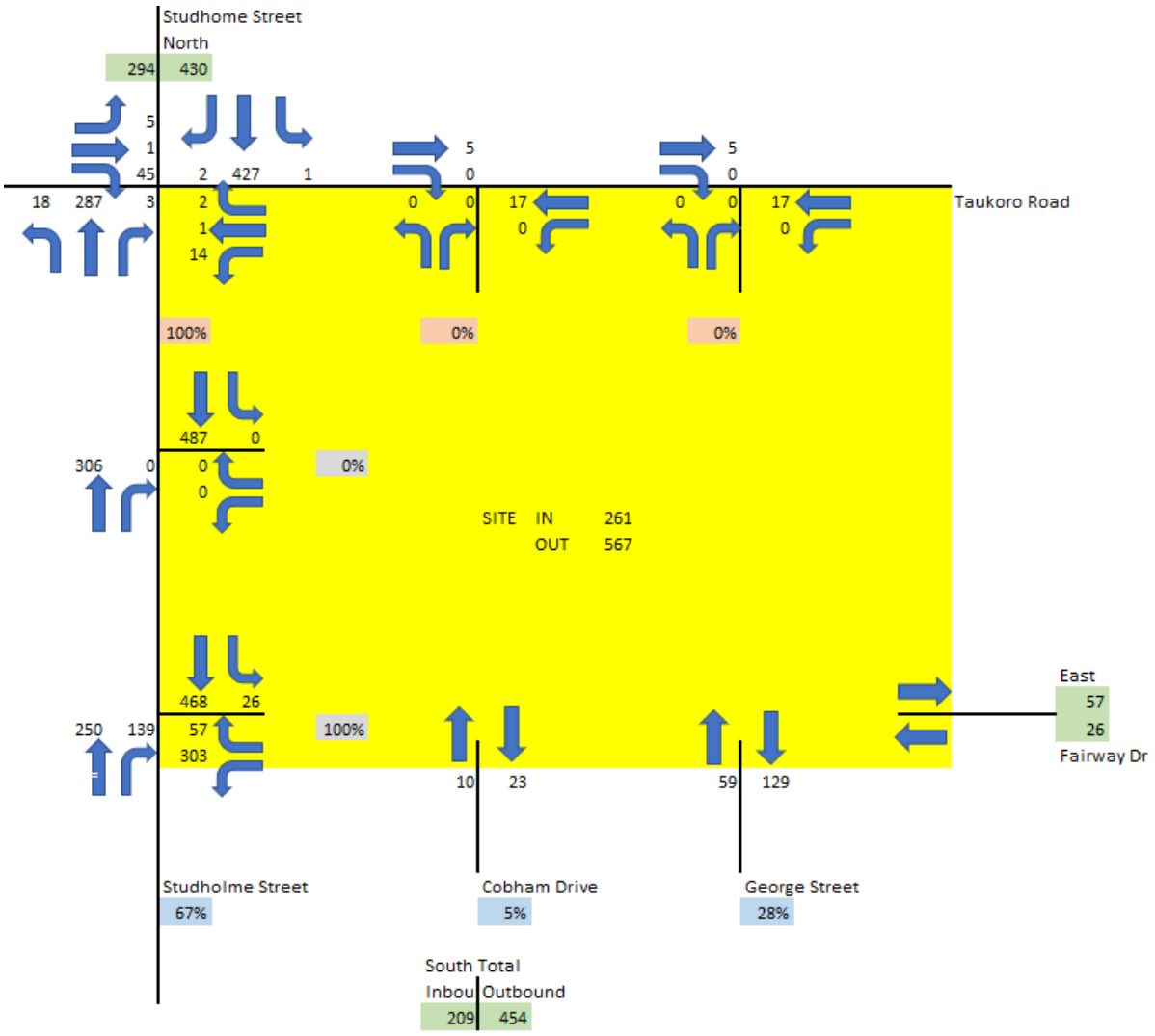
CKL

Appendix A – Traffic Distribution Diagrams

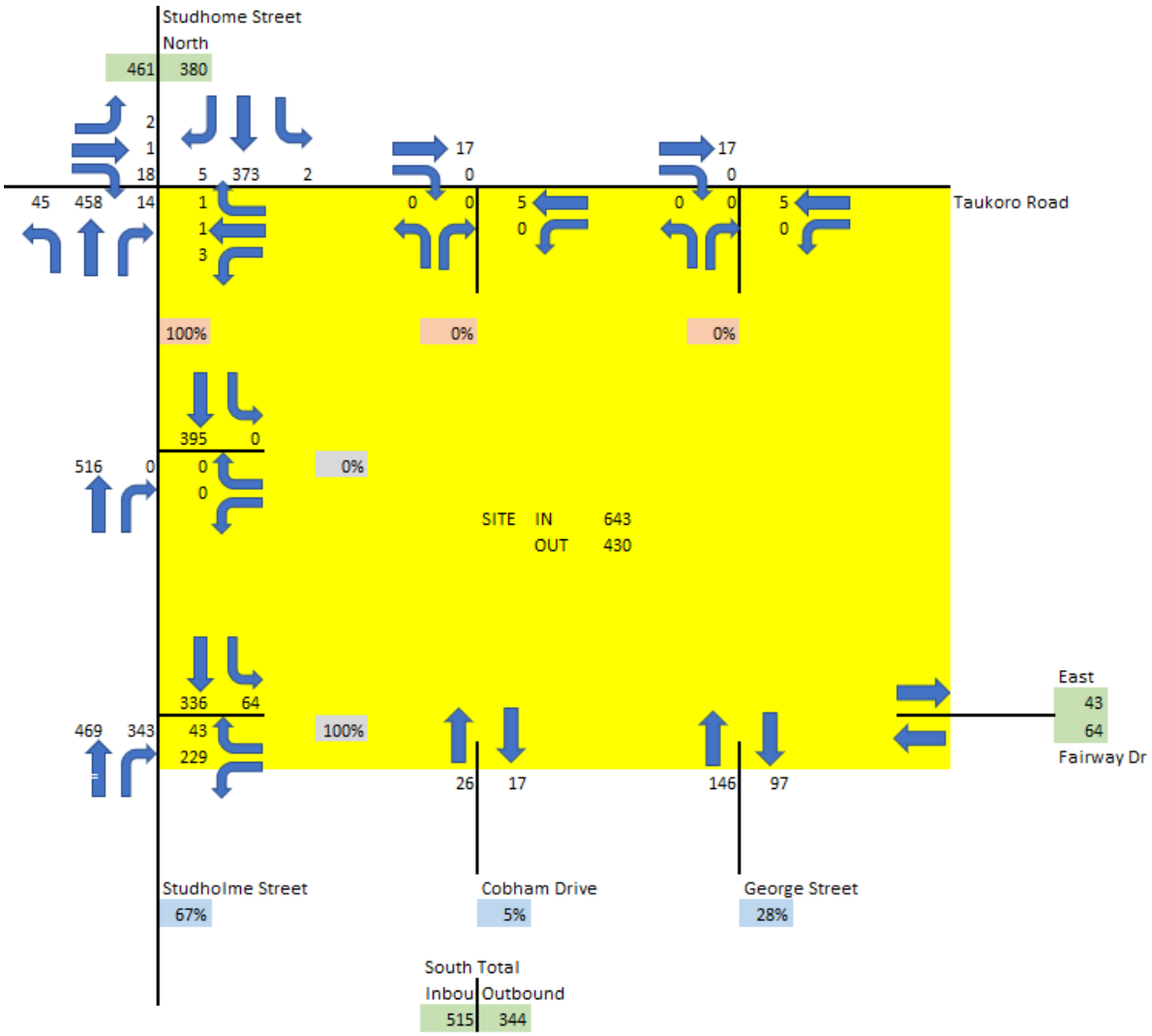
500 Dwellings – Distribution



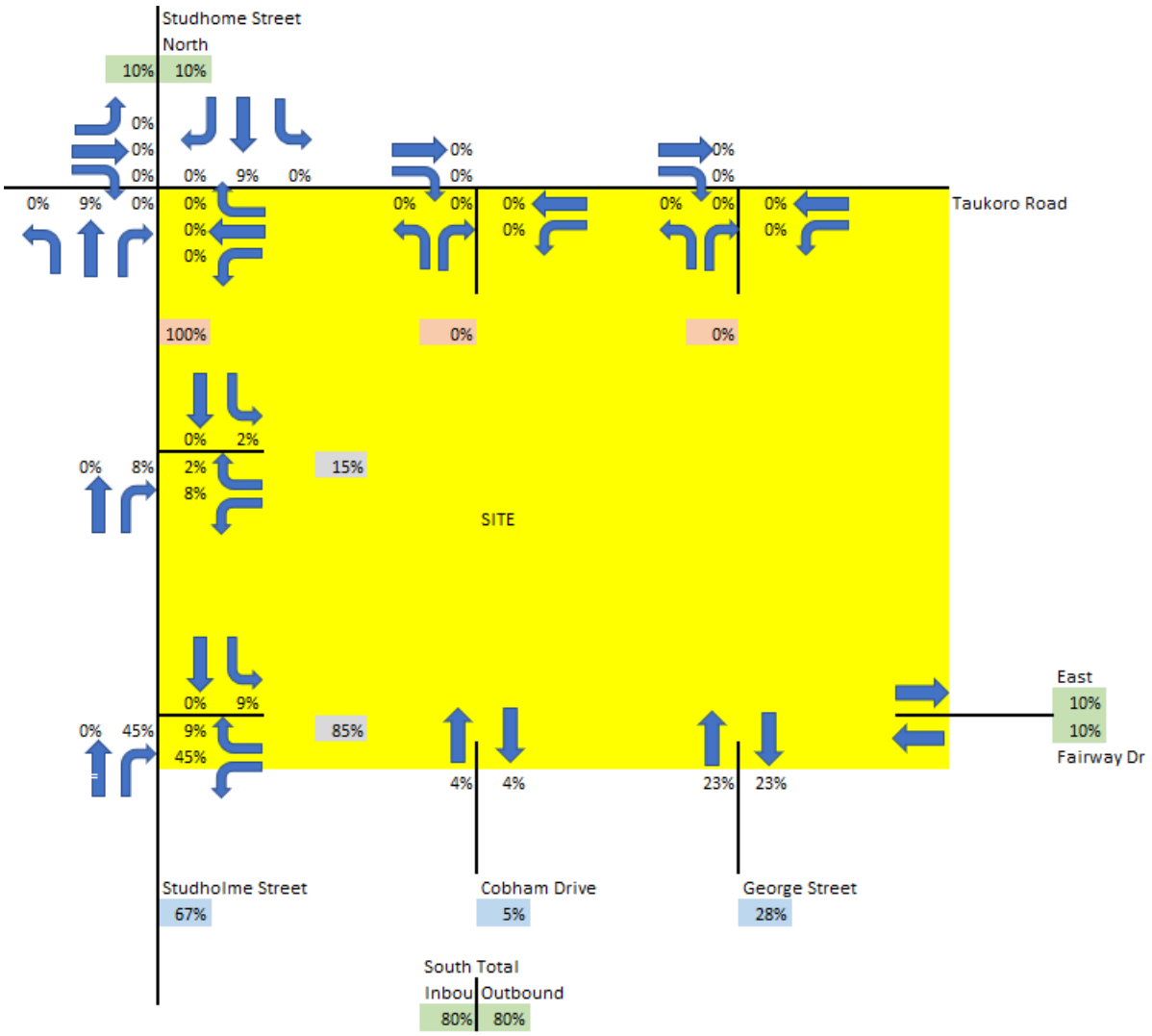
500 Dwellings – AM Peak



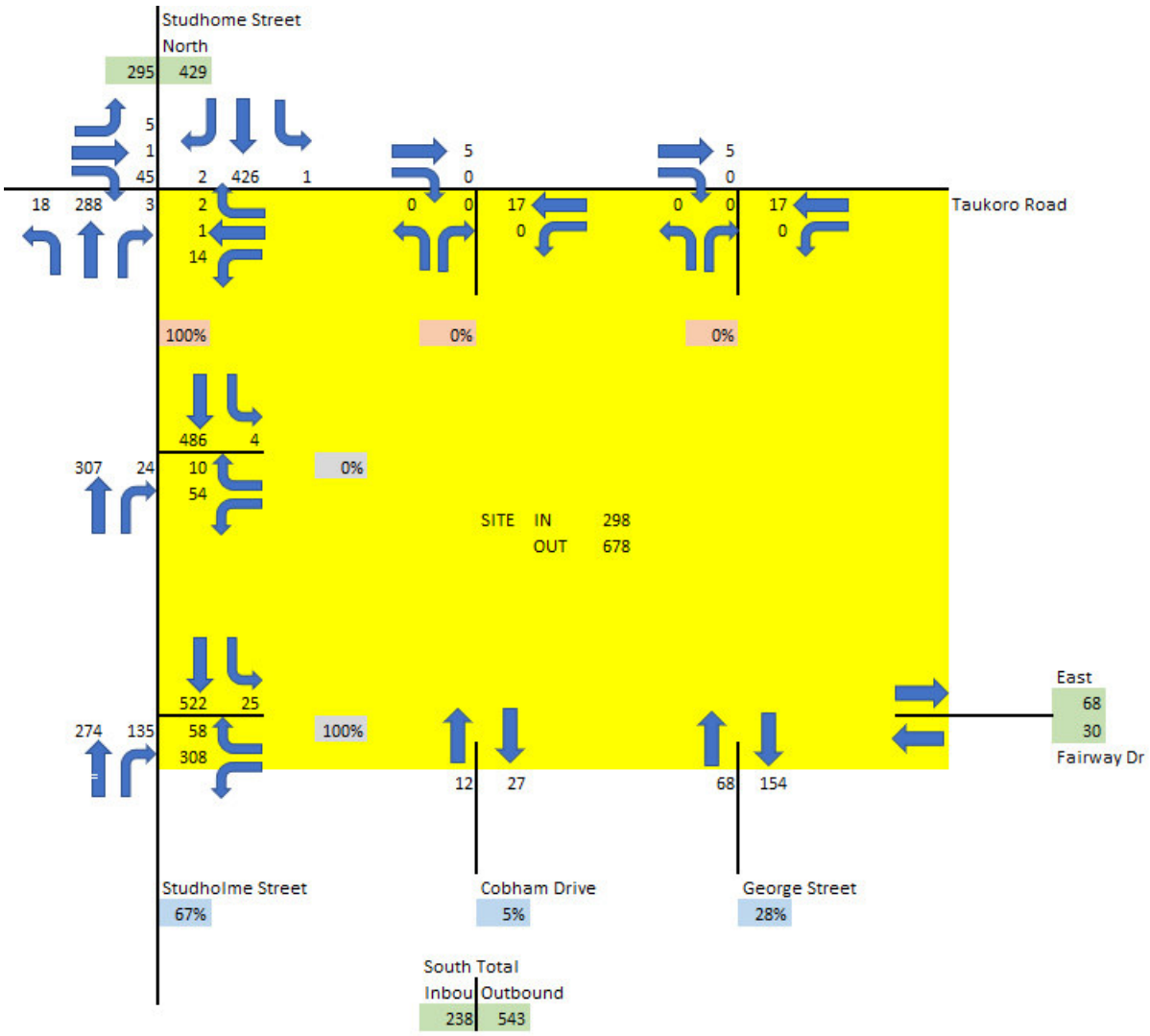
500 Dwellings – PM Peak



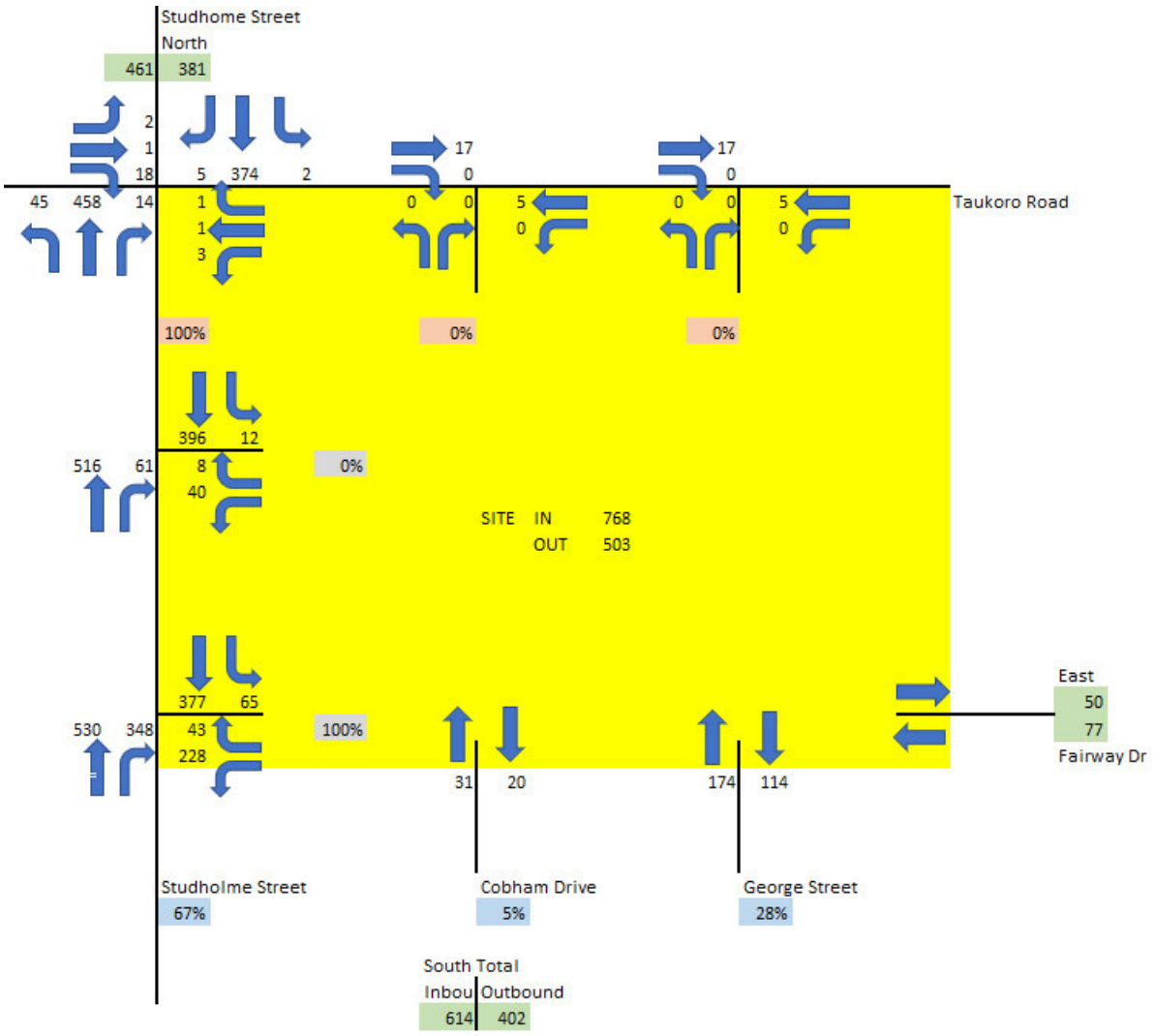
700 Dwellings – Distribution



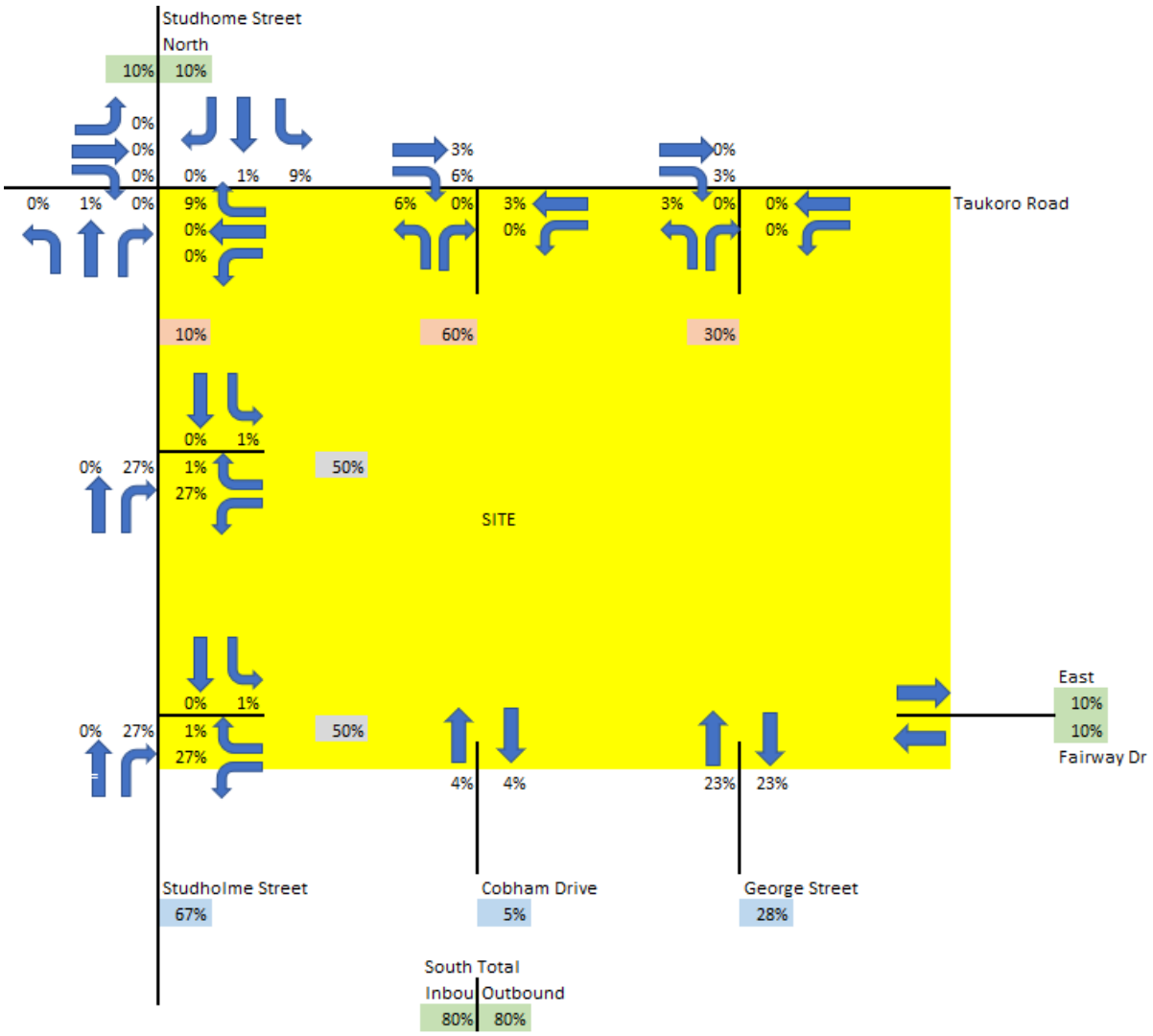
700 Dwellings – AM Peak



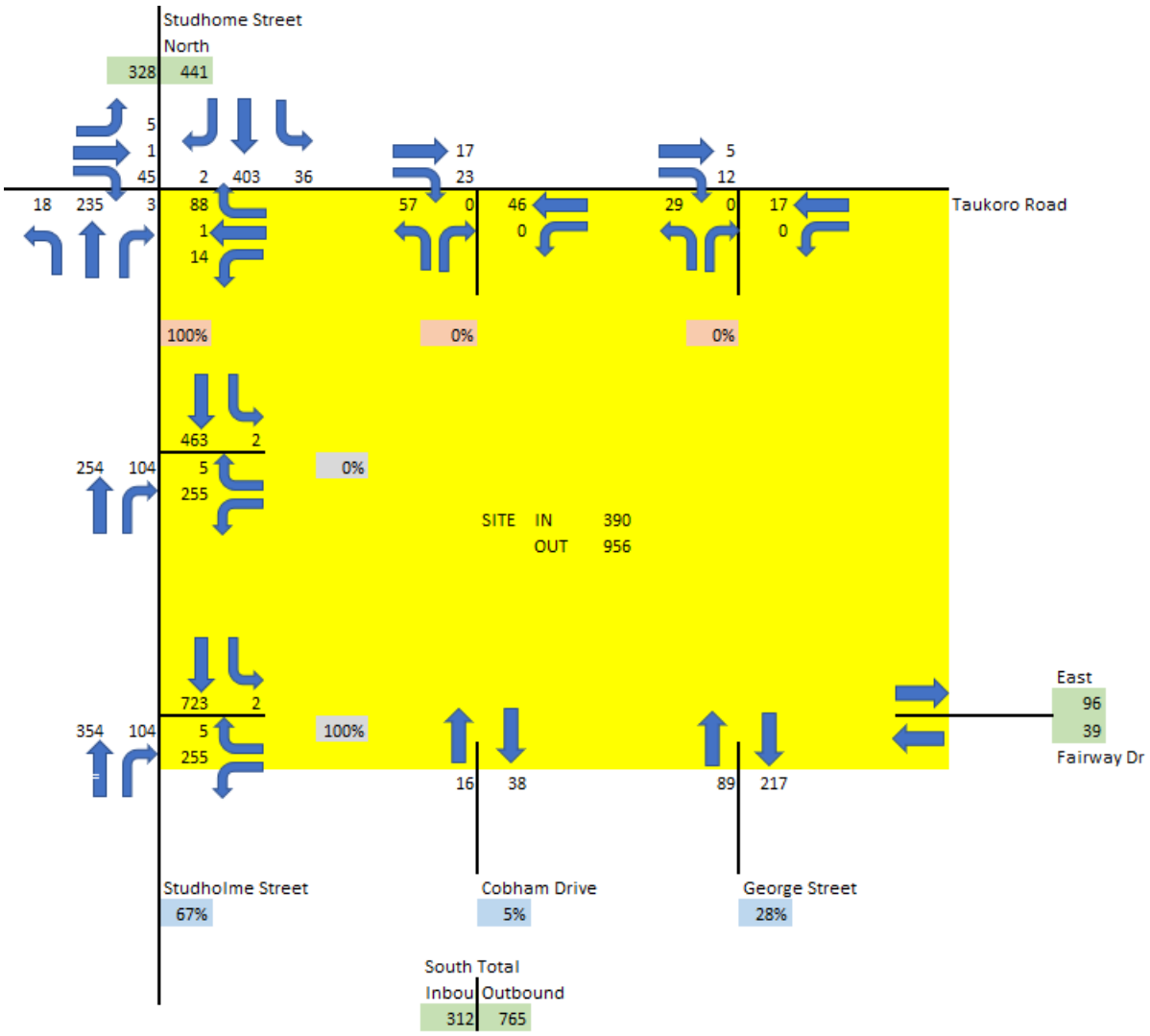
700 Dwellings – PM Peak



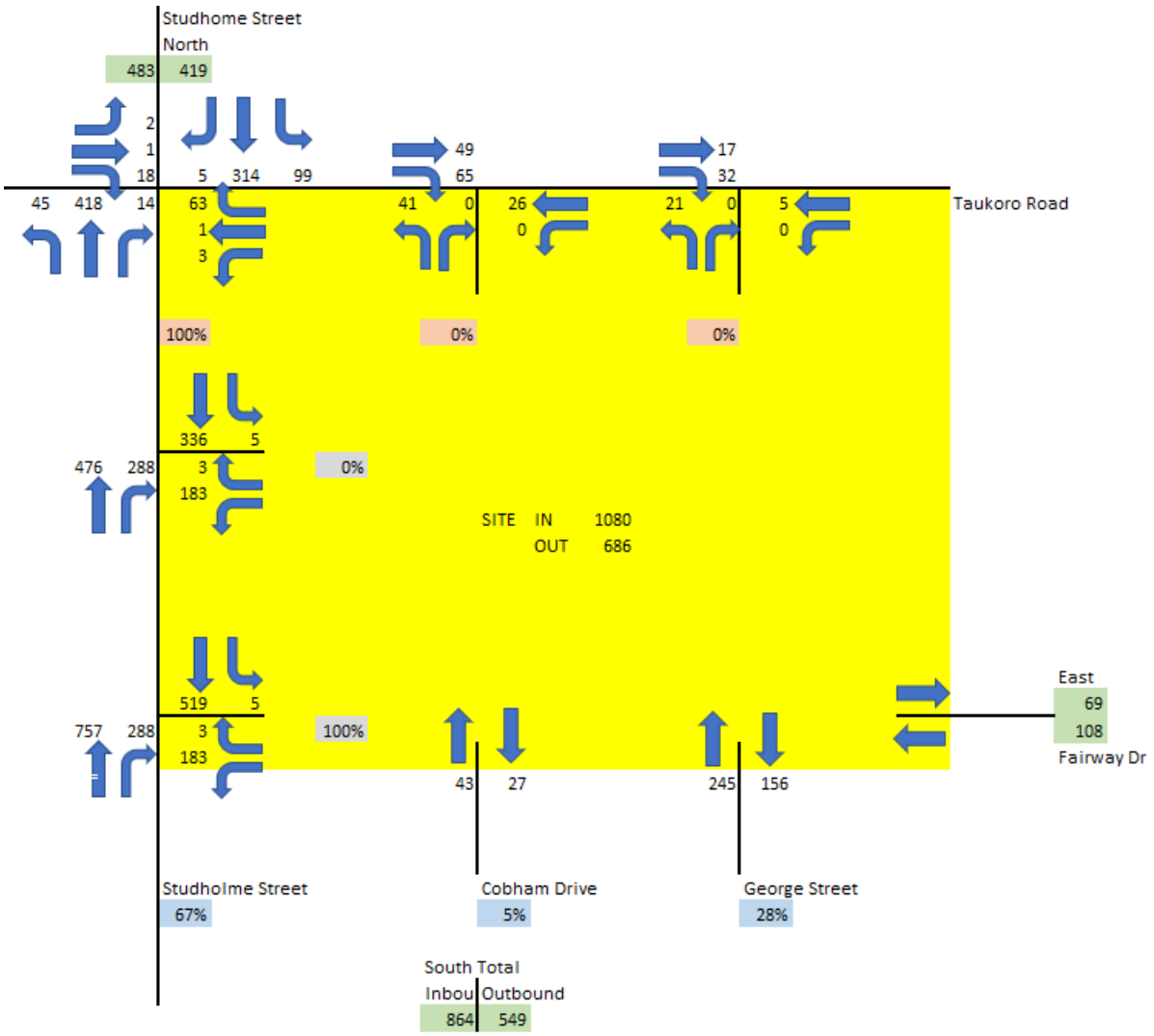
1,200 Dwellings – Distribution



1,200 Dwellings – AM Peak



1,200 Dwellings – PM Peak



Appendix B – SIDRA Modelling Results

MOVEMENT SUMMARY

Site: 101 [M-T/T AM Peak (Site Folder: Existing 2031)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Morrinsville-Tahuna Road														
1	L2	18	0	19	0.0	0.145	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	49.2
2	T1	242	12	255	5.0	0.145	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.7
3	R2	3	0	3	0.0	0.003	6.2	LOS A	0.0	0.1	0.47	0.55	0.47	45.2
Approach		263	12	277	4.6	0.145	0.4	NA	0.0	0.1	0.01	0.04	0.01	49.6
East: Taukoro Road														
4	L2	14	0	15	0.0	0.027	9.6	LOS A	0.1	0.7	0.53	0.88	0.53	43.7
5	T1	1	0	1	0.0	0.027	15.8	LOS C	0.1	0.7	0.53	0.88	0.53	43.6
6	R2	2	0	2	0.0	0.027	17.3	LOS C	0.1	0.7	0.53	0.88	0.53	43.3
Approach		17	0	18	0.0	0.027	10.9	LOS B	0.1	0.7	0.53	0.88	0.53	43.6
North: Morrinsville-Tahuna Road														
7	L2	1	0	1	0.0	0.243	5.5	LOS A	0.0	0.2	0.01	0.00	0.01	49.5
8	T1	428	27	451	6.3	0.243	0.0	LOS A	0.0	0.2	0.01	0.00	0.01	50.0
9	R2	2	0	2	0.0	0.243	5.8	LOS A	0.0	0.2	0.01	0.00	0.01	49.0
Approach		431	27	454	6.3	0.243	0.0	NA	0.0	0.2	0.01	0.00	0.01	50.0
West: Hangawera Road														
10	L2	5	0	5	0.0	0.173	8.5	LOS A	0.6	4.3	0.70	0.98	0.70	40.5
11	T1	1	0	1	0.0	0.173	16.3	LOS C	0.6	4.3	0.70	0.98	0.70	40.4
12	R2	45	0	47	0.0	0.173	18.9	LOS C	0.6	4.3	0.70	0.98	0.70	40.3
Approach		51	0	54	0.0	0.173	17.8	LOS C	0.6	4.3	0.70	0.98	0.70	40.3
All Vehicles		762	39	802	5.1	0.243	1.6	NA	0.6	4.3	0.06	0.10	0.06	48.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Loveridge AM Peak Base (Site Folder: Existing 2031)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	1	0	1	0.0	0.146	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.0
2	T1	262	12	276	4.6	0.146	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		263	12	277	4.6	0.146	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Studholme Street														
8	T1	485	27	511	5.6	0.271	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	1	0	1	0.0	0.001	5.4	LOS A	0.0	0.0	0.36	0.50	0.36	45.4
Approach		486	27	512	5.6	0.271	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Loveridge Place														
10	L2	1	0	1	0.0	0.026	8.5	LOS A	0.1	0.6	0.65	0.94	0.65	41.6
12	R2	8	0	8	0.0	0.026	16.0	LOS C	0.1	0.6	0.65	0.94	0.65	35.6
Approach		9	0	9	0.0	0.026	15.2	LOS C	0.1	0.6	0.65	0.94	0.65	36.6
All Vehicles		758	39	798	5.1	0.271	0.3	NA	0.1	0.6	0.01	0.01	0.01	49.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Turnbull AM Peak Base (Site Folder: Existing 2031)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	6	0	6	0.0	0.149	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	49.4
2	T1	262	12	276	4.6	0.149	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.8
Approach		268	12	282	4.5	0.149	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.8
North: Studholme Street														
8	T1	495	27	521	5.5	0.277	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	1	0	1	0.0	0.001	4.5	LOS A	0.0	0.0	0.36	0.49	0.36	43.2
Approach		496	27	522	5.4	0.277	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Turnbull Crescent														
10	L2	1	0	1	0.0	0.050	8.6	LOS A	0.2	1.2	0.69	0.98	0.69	23.0
12	R2	15	0	16	0.0	0.050	16.5	LOS C	0.2	1.2	0.69	0.98	0.69	40.9
Approach		16	0	17	0.0	0.050	16.0	LOS C	0.2	1.2	0.69	0.98	0.69	39.8
All Vehicles		780	39	821	5.0	0.277	0.4	NA	0.2	1.2	0.01	0.03	0.01	49.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [M-T/T PM Peak (Site Folder: Existing 2031)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Morrinsville-Tahuna Road														
1	L2	45	0	47	0.0	0.262	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	49.1
2	T1	427	12	449	2.8	0.262	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	49.6
3	R2	14	0	15	0.0	0.012	5.8	LOS A	0.0	0.3	0.42	0.56	0.42	45.3
Approach		486	12	512	2.5	0.262	0.7	NA	0.0	0.3	0.01	0.07	0.01	49.4
East: Taukoro Road														
4	L2	3	0	3	0.0	0.011	9.0	LOS A	0.0	0.3	0.57	0.84	0.57	42.6
5	T1	1	0	1	0.0	0.011	18.7	LOS C	0.0	0.3	0.57	0.84	0.57	42.5
6	R2	1	0	1	0.0	0.011	19.8	LOS C	0.0	0.3	0.57	0.84	0.57	42.3
Approach		5	0	5	0.0	0.011	13.1	LOS B	0.0	0.3	0.57	0.84	0.57	42.5
North: Morrinsville-Tahuna Road														
7	L2	2	0	2	0.0	0.197	6.6	LOS A	0.1	0.5	0.03	0.01	0.03	49.4
8	T1	336	27	354	8.0	0.197	0.1	LOS A	0.1	0.5	0.03	0.01	0.03	49.9
9	R2	5	0	5	0.0	0.197	7.0	LOS A	0.1	0.5	0.03	0.01	0.03	48.9
Approach		343	27	361	7.9	0.197	0.2	NA	0.1	0.5	0.03	0.01	0.03	49.8
West: Hangawera Road														
10	L2	2	0	2	0.0	0.088	9.6	LOS A	0.3	2.1	0.76	0.99	0.76	39.4
11	T1	1	0	1	0.0	0.088	18.7	LOS C	0.3	2.1	0.76	0.99	0.76	39.3
12	R2	18	0	19	0.0	0.088	21.7	LOS C	0.3	2.1	0.76	0.99	0.76	39.3
Approach		21	0	22	0.0	0.088	20.4	LOS C	0.3	2.1	0.76	0.99	0.76	39.3
All Vehicles		855	39	900	4.6	0.262	1.0	NA	0.3	2.1	0.04	0.07	0.04	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Loveridge PM Peak Base (Site Folder: Existing 2031)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	1	0	1	0.0	0.257	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.0
2	T1	473	4	498	0.8	0.257	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		474	4	499	0.8	0.257	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Studholme Street														
8	T1	339	10	357	2.9	0.187	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	1	0	1	0.0	0.001	6.3	LOS A	0.0	0.0	0.49	0.53	0.49	45.2
Approach		340	10	358	2.9	0.187	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Loveridge Place														
10	L2	4	0	4	0.0	0.026	9.9	LOS A	0.1	0.6	0.63	0.92	0.63	42.1
12	R2	6	0	6	0.0	0.026	17.1	LOS C	0.1	0.6	0.63	0.92	0.63	36.3
Approach		10	0	11	0.0	0.026	14.2	LOS B	0.1	0.6	0.63	0.92	0.63	39.3
All Vehicles		824	14	867	1.7	0.257	0.2	NA	0.1	0.6	0.01	0.01	0.01	49.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Turnbull PM Peak Base (Site Folder: Existing 2031)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	16	0	17	0.0	0.265	4.6	LOS A	0.0	0.0	0.00	0.02	0.00	49.3
2	T1	471	4	496	0.8	0.265	0.1	LOS A	0.0	0.0	0.00	0.02	0.00	49.7
Approach		487	4	513	0.8	0.265	0.2	NA	0.0	0.0	0.00	0.02	0.00	49.7
North: Studholme Street														
8	T1	346	10	364	2.9	0.190	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	1	0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.49	0.53	0.49	42.6
Approach		347	10	365	2.9	0.190	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Turnbull Crescent														
10	L2	2	0	2	0.0	0.020	9.8	LOS A	0.1	0.5	0.67	0.92	0.67	23.2
12	R2	5	0	5	0.0	0.020	17.3	LOS C	0.1	0.5	0.67	0.92	0.67	41.3
Approach		7	0	7	0.0	0.020	15.1	LOS C	0.1	0.5	0.67	0.92	0.67	36.2
All Vehicles		841	14	885	1.7	0.265	0.3	NA	0.1	0.5	0.01	0.02	0.01	49.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [M-T/T AM Peak - 500 (Site Folder: 2031 + 500)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Morrinsville-Tahuna Road														
1	L2	18	0	19	0.0	0.176	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	49.3
2	T1	299	12	315	4.0	0.176	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	49.7
3	R2	3	0	3	0.0	0.003	6.3	LOS A	0.0	0.1	0.48	0.56	0.48	45.2
Approach		320	12	337	3.8	0.176	0.4	NA	0.0	0.1	0.00	0.04	0.00	49.7
East: Taukoro Road														
4	L2	14	0	15	0.0	0.030	9.8	LOS A	0.1	0.7	0.55	0.89	0.55	43.4
5	T1	1	0	1	0.0	0.030	17.8	LOS C	0.1	0.7	0.55	0.89	0.55	43.3
6	R2	2	0	2	0.0	0.030	19.8	LOS C	0.1	0.7	0.55	0.89	0.55	43.1
Approach		17	0	18	0.0	0.030	11.5	LOS B	0.1	0.7	0.55	0.89	0.55	43.4
North: Morrinsville-Tahuna Road														
7	L2	1	0	1	0.0	0.257	5.8	LOS A	0.0	0.2	0.01	0.00	0.01	49.5
8	T1	454	27	478	5.9	0.257	0.0	LOS A	0.0	0.2	0.01	0.00	0.01	50.0
9	R2	2	0	2	0.0	0.257	6.1	LOS A	0.0	0.2	0.01	0.00	0.01	49.0
Approach		457	27	481	5.9	0.257	0.0	NA	0.0	0.2	0.01	0.00	0.01	50.0
West: Hangawera Road														
10	L2	5	0	5	0.0	0.204	9.2	LOS A	0.7	5.1	0.76	0.99	0.79	39.3
11	T1	1	0	1	0.0	0.204	18.8	LOS C	0.7	5.1	0.76	0.99	0.79	39.2
12	R2	45	0	47	0.0	0.204	22.0	LOS C	0.7	5.1	0.76	0.99	0.79	39.1
Approach		51	0	54	0.0	0.204	20.7	LOS C	0.7	5.1	0.76	0.99	0.79	39.2
All Vehicles		845	39	889	4.6	0.257	1.6	NA	0.7	5.1	0.06	0.09	0.06	48.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Loveridge AM Peak Base - 500 (Site Folder: 2031 + 500)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	1	0	1	0.0	0.176	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.0
2	T1	318	12	335	3.8	0.176	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		319	12	336	3.8	0.176	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Studholme Street														
8	T1	513	27	540	5.3	0.286	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	1	0	1	0.0	0.001	5.6	LOS A	0.0	0.0	0.40	0.51	0.40	45.4
Approach		514	27	541	5.3	0.286	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Loveridge Place														
10	L2	1	0	1	0.0	0.031	8.8	LOS A	0.1	0.7	0.71	0.97	0.71	40.8
12	R2	8	0	8	0.0	0.031	18.1	LOS C	0.1	0.7	0.71	0.97	0.71	34.5
Approach		9	0	9	0.0	0.031	17.0	LOS C	0.1	0.7	0.71	0.97	0.71	35.5
All Vehicles		842	39	886	4.6	0.286	0.3	NA	0.1	0.7	0.01	0.01	0.01	49.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Fairway AM Peak - 500 (Site Folder: 2031 + 500)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	262	12	276	4.6	0.147	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	139	0	146	0.0	0.147	6.2	LOS A	0.6	4.4	0.55	0.73	0.55	42.0
Approach		401	12	422	3.0	0.147	2.2	NA	0.6	4.4	0.19	0.25	0.19	43.5
East: Fairway Drive														
4	L2	303	0	319	0.0	0.643	15.4	LOS C	4.9	34.1	0.73	1.27	1.45	34.6
6	R2	57	0	60	0.0	0.643	30.1	LOS D	4.9	34.1	0.73	1.27	1.45	34.2
Approach		360	0	379	0.0	0.643	17.7	LOS C	4.9	34.1	0.73	1.27	1.45	34.5
North: Studholme Street														
7	L2	26	0	27	0.0	0.291	2.7	LOS A	0.0	0.0	0.00	0.03	0.00	48.8
8	T1	495	27	521	5.5	0.291	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	48.7
Approach		521	27	548	5.2	0.291	0.1	NA	0.0	0.0	0.00	0.03	0.00	48.7
All Vehicles		1282	39	1349	3.0	0.643	5.7	NA	4.9	34.1	0.27	0.45	0.47	38.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Turnbull AM Peak Base - 500 (Site Folder: 2031 + 500)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	6	0	6	0.0	0.224	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	49.4
2	T1	401	12	422	3.0	0.224	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	49.8
Approach		407	12	428	2.9	0.224	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.8
North: Studholme Street														
8	T1	798	27	840	3.4	0.440	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
9	R2	1	0	1	0.0	0.001	5.1	LOS A	0.0	0.0	0.45	0.51	0.45	43.0
Approach		799	27	841	3.4	0.440	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.7
West: Turnbull Crescent														
10	L2	1	0	1	0.0	0.136	9.4	LOS A	0.4	2.9	0.89	0.99	0.89	18.8
12	R2	15	0	16	0.0	0.136	37.2	LOS E	0.4	2.9	0.89	0.99	0.89	33.7
Approach		16	0	17	0.0	0.136	35.5	LOS E	0.4	2.9	0.89	0.99	0.89	32.8
All Vehicles		1222	39	1286	3.2	0.440	0.5	NA	0.4	2.9	0.01	0.02	0.01	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [M-T/T PM Peak - 500 (Site Folder: 2031 + 500)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Morrinsville-Tahuna Road														
1	L2	45	0	47	0.0	0.286	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	49.1
2	T1	470	12	495	2.6	0.286	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	49.6
3	R2	14	0	15	0.0	0.013	6.1	LOS A	0.1	0.4	0.46	0.59	0.46	45.2
Approach		529	12	557	2.3	0.286	0.6	NA	0.1	0.4	0.01	0.06	0.01	49.4
East: Taukoro Road														
4	L2	3	0	3	0.0	0.014	9.4	LOS A	0.0	0.3	0.62	0.86	0.62	41.8
5	T1	1	0	1	0.0	0.014	22.1	LOS C	0.0	0.3	0.62	0.86	0.62	41.7
6	R2	1	0	1	0.0	0.014	23.8	LOS C	0.0	0.3	0.62	0.86	0.62	41.5
Approach		5	0	5	0.0	0.014	14.8	LOS B	0.0	0.3	0.62	0.86	0.62	41.7
North: Morrinsville-Tahuna Road														
7	L2	2	0	2	0.0	0.232	7.1	LOS A	0.1	0.6	0.02	0.01	0.02	49.4
8	T1	400	27	421	6.8	0.232	0.1	LOS A	0.1	0.6	0.02	0.01	0.02	49.9
9	R2	5	0	5	0.0	0.232	7.5	LOS A	0.1	0.6	0.02	0.01	0.02	48.9
Approach		407	27	428	6.6	0.232	0.2	NA	0.1	0.6	0.02	0.01	0.02	49.9
West: Hangawera Road														
10	L2	2	0	2	0.0	0.110	9.9	LOS A	0.4	2.5	0.81	0.99	0.81	37.8
11	T1	1	0	1	0.0	0.110	22.0	LOS C	0.4	2.5	0.81	0.99	0.81	37.7
12	R2	18	0	19	0.0	0.110	26.2	LOS D	0.4	2.5	0.81	0.99	0.81	37.7
Approach		21	0	22	0.0	0.110	24.4	LOS C	0.4	2.5	0.81	0.99	0.81	37.7
All Vehicles		962	39	1013	4.1	0.286	1.0	NA	0.4	2.5	0.04	0.06	0.04	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Loveridge PM Peak Base - 500 (Site Folder: 2031 + 500)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	1	0	1	0.0	0.281	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.0
2	T1	516	4	543	0.8	0.281	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		517	4	544	0.8	0.281	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Studholme Street														
8	T1	405	10	426	2.5	0.222	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	1	0	1	0.0	0.001	6.5	LOS A	0.0	0.0	0.51	0.54	0.51	45.0
Approach		406	10	427	2.5	0.222	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Loveridge Place														
10	L2	4	0	4	0.0	0.031	10.2	LOS B	0.1	0.7	0.69	0.94	0.69	41.2
12	R2	6	0	6	0.0	0.031	20.1	LOS C	0.1	0.7	0.69	0.94	0.69	35.1
Approach		10	0	11	0.0	0.031	16.1	LOS C	0.1	0.7	0.69	0.94	0.69	38.3
All Vehicles		933	14	982	1.5	0.281	0.2	NA	0.1	0.7	0.01	0.01	0.01	49.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Fairway PM Peak - 500 (Site Folder: 2031 + 500)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	473	4	498	0.8	0.321	0.3	LOS A	1.3	9.0	0.34	0.00	0.34	41.9
3	R2	343	0	361	0.0	0.309	5.8	LOS A	1.6	11.0	0.54	0.72	0.56	42.4
Approach		816	4	859	0.5	0.321	2.6	NA	1.6	11.0	0.42	0.30	0.43	42.3
East: Fairway Drive														
4	L2	229	0	241	0.0	0.525	12.8	LOS B	3.4	24.0	0.64	1.14	1.08	34.9
6	R2	43	0	45	0.0	0.525	39.1	LOS E	3.4	24.0	0.64	1.14	1.08	34.6
Approach		272	0	286	0.0	0.525	16.9	LOS C	3.4	24.0	0.64	1.14	1.08	34.9
North: Studholme Street														
7	L2	64	0	67	0.0	0.227	2.7	LOS A	0.0	0.0	0.00	0.08	0.00	48.5
8	T1	346	10	364	2.9	0.227	0.0	LOS A	0.0	0.0	0.00	0.08	0.00	46.5
Approach		410	10	432	2.4	0.227	0.4	NA	0.0	0.0	0.00	0.08	0.00	47.5
All Vehicles		1498	14	1577	0.9	0.525	4.6	NA	3.4	24.0	0.35	0.39	0.43	40.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Turnbull PM Peak Base - 500 (Site Folder: 2031 + 500)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	16	0	17	0.0	0.450	4.7	LOS A	0.0	0.0	0.00	0.01	0.00	49.2
2	T1	814	4	857	0.5	0.450	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	49.6
Approach		830	4	874	0.5	0.450	0.3	NA	0.0	0.0	0.00	0.01	0.00	49.6
North: Studholme Street														
8	T1	576	10	606	1.7	0.314	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
9	R2	1	0	1	0.0	0.002	8.4	LOS A	0.0	0.0	0.66	0.64	0.66	40.2
Approach		577	10	607	1.7	0.314	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Turnbull Crescent														
10	L2	2	0	2	0.0	0.073	14.0	LOS B	0.2	1.5	0.91	1.00	0.91	18.0
12	R2	5	0	5	0.0	0.073	51.7	LOS F	0.2	1.5	0.91	1.00	0.91	32.1
Approach		7	0	7	0.0	0.073	40.9	LOS E	0.2	1.5	0.91	1.00	0.91	28.1
All Vehicles		1414	14	1488	1.0	0.450	0.4	NA	0.2	1.5	0.00	0.01	0.00	49.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [M-T/T AM Peak - 700 (Site Folder: 2031 + 700)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Morrinsville-Tahuna Road														
1	L2	18	0	19	0.0	0.176	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	49.3
2	T1	300	12	316	4.0	0.176	0.1	LOS A	0.0	0.0	0.00	0.03	0.00	49.7
3	R2	3	0	3	0.0	0.003	6.3	LOS A	0.0	0.1	0.48	0.56	0.48	45.2
Approach		321	12	338	3.7	0.176	0.4	NA	0.0	0.1	0.00	0.04	0.00	49.7
East: Taukoro Road														
4	L2	14	0	15	0.0	0.030	9.8	LOS A	0.1	0.7	0.55	0.89	0.55	43.4
5	T1	1	0	1	0.0	0.030	17.8	LOS C	0.1	0.7	0.55	0.89	0.55	43.3
6	R2	2	0	2	0.0	0.030	19.8	LOS C	0.1	0.7	0.55	0.89	0.55	43.1
Approach		17	0	18	0.0	0.030	11.5	LOS B	0.1	0.7	0.55	0.89	0.55	43.4
North: Morrinsville-Tahuna Road														
7	L2	1	0	1	0.0	0.256	5.8	LOS A	0.0	0.2	0.01	0.00	0.01	49.5
8	T1	453	27	477	6.0	0.256	0.0	LOS A	0.0	0.2	0.01	0.00	0.01	50.0
9	R2	2	0	2	0.0	0.256	6.2	LOS A	0.0	0.2	0.01	0.00	0.01	49.0
Approach		456	27	480	5.9	0.256	0.1	NA	0.0	0.2	0.01	0.00	0.01	50.0
West: Hangawera Road														
10	L2	5	0	5	0.0	0.204	9.2	LOS A	0.7	5.1	0.76	0.99	0.79	39.3
11	T1	1	0	1	0.0	0.204	18.8	LOS C	0.7	5.1	0.76	0.99	0.79	39.2
12	R2	45	0	47	0.0	0.204	22.0	LOS C	0.7	5.1	0.76	0.99	0.79	39.1
Approach		51	0	54	0.0	0.204	20.7	LOS C	0.7	5.1	0.76	0.99	0.79	39.2
All Vehicles		845	39	889	4.6	0.256	1.6	NA	0.7	5.1	0.06	0.09	0.06	48.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Site AM Peak - 700 (Site Folder: 2031 + 700)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	319	12	336	3.8	0.178	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	24	0	25	0.0	0.025	5.9	LOS A	0.1	0.7	0.52	0.64	0.52	42.3
Approach		343	12	361	3.5	0.178	0.4	NA	0.1	0.7	0.04	0.05	0.04	47.0
East: Fairway Drive														
4	L2	54	0	57	0.0	0.113	10.5	LOS B	0.4	2.9	0.58	0.96	0.58	38.2
6	R2	10	0	11	0.0	0.113	19.6	LOS C	0.4	2.9	0.58	0.96	0.58	37.9
Approach		64	0	67	0.0	0.113	11.9	LOS B	0.4	2.9	0.58	0.96	0.58	38.1
North: Studholme Street														
7	L2	4	0	4	0.0	0.289	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	48.9
8	T1	513	27	540	5.3	0.289	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
Approach		517	27	544	5.2	0.289	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.6
All Vehicles		924	39	973	4.2	0.289	1.0	NA	0.4	2.9	0.05	0.09	0.05	44.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Loveridge AM Peak Base - 700 (Site Folder: 2031 + 700)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	1	0	1	0.0	0.189	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.0
2	T1	342	12	360	3.5	0.189	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		343	12	361	3.5	0.189	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Studholme Street														
8	T1	567	27	597	4.8	0.316	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
9	R2	1	0	1	0.0	0.001	5.7	LOS A	0.0	0.0	0.41	0.51	0.41	45.3
Approach		568	27	598	4.8	0.316	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Loveridge Place														
10	L2	1	0	1	0.0	0.036	9.0	LOS A	0.1	0.8	0.75	0.97	0.75	39.8
12	R2	8	0	8	0.0	0.036	20.5	LOS C	0.1	0.8	0.75	0.97	0.75	33.2
Approach		9	0	9	0.0	0.036	19.2	LOS C	0.1	0.8	0.75	0.97	0.75	34.3
All Vehicles		920	39	968	4.2	0.316	0.3	NA	0.1	0.8	0.01	0.01	0.01	49.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Fairway AM Peak - 700 (Site Folder: 2031 + 700)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	286	12	301	4.2	0.160	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	135	0	142	0.0	0.154	6.6	LOS A	0.6	4.5	0.58	0.76	0.58	41.6
Approach		421	12	443	2.9	0.160	2.1	NA	0.6	4.5	0.19	0.24	0.19	43.3
East: Fairway Drive														
4	L2	308	0	324	0.0	0.731	18.8	LOS C	6.2	43.1	0.81	1.40	1.88	32.5
6	R2	58	0	61	0.0	0.731	36.8	LOS E	6.2	43.1	0.81	1.40	1.88	32.1
Approach		366	0	385	0.0	0.731	21.6	LOS C	6.2	43.1	0.81	1.40	1.88	32.4
North: Studholme Street														
7	L2	25	0	26	0.0	0.320	2.7	LOS A	0.0	0.0	0.00	0.02	0.00	48.8
8	T1	549	27	578	4.9	0.320	0.0	LOS A	0.0	0.0	0.00	0.02	0.00	48.8
Approach		574	27	604	4.7	0.320	0.1	NA	0.0	0.0	0.00	0.02	0.00	48.8
All Vehicles		1361	39	1433	2.9	0.731	6.5	NA	6.2	43.1	0.27	0.46	0.56	37.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Turnbull AM Peak Base - 700 (Site Folder: 2031 + 700)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	6	0	6	0.0	0.235	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	49.4
2	T1	421	12	443	2.9	0.235	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	49.8
Approach		427	12	449	2.8	0.235	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.8
North: Studholme Street														
8	T1	857	27	902	3.2	0.472	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
9	R2	1	0	1	0.0	0.001	5.2	LOS A	0.0	0.0	0.46	0.52	0.46	42.9
Approach		858	27	903	3.1	0.472	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.7
West: Turnbull Crescent														
10	L2	1	0	1	0.0	0.169	10.4	LOS B	0.5	3.5	0.92	1.00	0.94	17.5
12	R2	15	0	16	0.0	0.169	45.7	LOS E	0.5	3.5	0.92	1.00	0.94	31.4
Approach		16	0	17	0.0	0.169	43.4	LOS E	0.5	3.5	0.92	1.00	0.94	30.5
All Vehicles		1301	39	1369	3.0	0.472	0.6	NA	0.5	3.5	0.01	0.02	0.01	49.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [M-T/T PM Peak - 700 (Site Folder: 2031 + 700)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Morrinsville-Tahuna Road														
1	L2	45	0	47	0.0	0.286	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	49.1
2	T1	470	12	495	2.6	0.286	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	49.6
3	R2	14	0	15	0.0	0.013	6.1	LOS A	0.1	0.4	0.46	0.59	0.46	45.2
Approach		529	12	557	2.3	0.286	0.6	NA	0.1	0.4	0.01	0.06	0.01	49.4
East: Taukoro Road														
4	L2	3	0	3	0.0	0.014	9.4	LOS A	0.0	0.3	0.62	0.86	0.62	41.8
5	T1	1	0	1	0.0	0.014	22.1	LOS C	0.0	0.3	0.62	0.86	0.62	41.7
6	R2	1	0	1	0.0	0.014	23.8	LOS C	0.0	0.3	0.62	0.86	0.62	41.5
Approach		5	0	5	0.0	0.014	14.8	LOS B	0.0	0.3	0.62	0.86	0.62	41.7
North: Morrinsville-Tahuna Road														
7	L2	2	0	2	0.0	0.232	7.1	LOS A	0.1	0.6	0.02	0.01	0.02	49.4
8	T1	401	27	422	6.7	0.232	0.1	LOS A	0.1	0.6	0.02	0.01	0.02	49.9
9	R2	5	0	5	0.0	0.232	7.5	LOS A	0.1	0.6	0.02	0.01	0.02	48.9
Approach		408	27	429	6.6	0.232	0.2	NA	0.1	0.6	0.02	0.01	0.02	49.9
West: Hangawera Road														
10	L2	2	0	2	0.0	0.110	9.9	LOS A	0.4	2.5	0.81	0.99	0.81	37.8
11	T1	1	0	1	0.0	0.110	22.1	LOS C	0.4	2.5	0.81	0.99	0.81	37.7
12	R2	18	0	19	0.0	0.110	26.2	LOS D	0.4	2.5	0.81	0.99	0.81	37.7
Approach		21	0	22	0.0	0.110	24.5	LOS C	0.4	2.5	0.81	0.99	0.81	37.7
All Vehicles		963	39	1014	4.0	0.286	1.0	NA	0.4	2.5	0.04	0.06	0.04	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Site PM Peak - 700 (Site Folder: 2031 + 700)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	520	4	547	0.8	0.284	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	61	0	64	0.0	0.056	5.3	LOS A	0.2	1.6	0.47	0.63	0.47	42.8
Approach		581	4	612	0.7	0.284	0.6	NA	0.2	1.6	0.05	0.07	0.05	46.4
East: Fairway Drive														
4	L2	40	0	42	0.0	0.085	9.5	LOS A	0.3	2.1	0.55	0.91	0.55	38.2
6	R2	8	0	8	0.0	0.085	22.9	LOS C	0.3	2.1	0.55	0.91	0.55	38.0
Approach		48	0	51	0.0	0.085	11.8	LOS B	0.3	2.1	0.55	0.91	0.55	38.2
North: Studholme Street														
7	L2	12	0	13	0.0	0.229	2.7	LOS A	0.0	0.0	0.00	0.01	0.00	48.9
8	T1	406	10	427	2.5	0.229	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.2
Approach		418	10	440	2.4	0.229	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.2
All Vehicles		1047	14	1102	1.3	0.284	0.9	NA	0.3	2.1	0.05	0.08	0.05	45.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Loveridge PM Peak Base - 700 (Site Folder: 2031 + 700)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	1	0	1	0.0	0.313	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.0
2	T1	577	4	607	0.7	0.313	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach		578	4	608	0.7	0.313	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.8
North: Studholme Street														
8	T1	446	10	469	2.2	0.244	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	1	0	1	0.0	0.001	6.9	LOS A	0.0	0.0	0.54	0.56	0.54	44.8
Approach		447	10	471	2.2	0.244	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
West: Loveridge Place														
10	L2	4	0	4	0.0	0.038	10.8	LOS B	0.1	0.9	0.75	0.96	0.75	40.2
12	R2	6	0	6	0.0	0.038	23.8	LOS C	0.1	0.9	0.75	0.96	0.75	33.6
Approach		10	0	11	0.0	0.038	18.6	LOS C	0.1	0.9	0.75	0.96	0.75	37.0
All Vehicles		1035	14	1089	1.4	0.313	0.2	NA	0.1	0.9	0.01	0.01	0.01	49.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Fairway PM Peak - 700 (Site Folder: 2031 + 700)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	534	4	562	0.7	0.367	0.4	LOS A	1.5	10.8	0.36	0.00	0.37	41.5
3	R2	348	0	366	0.0	0.331	6.3	LOS A	1.8	12.6	0.57	0.77	0.63	41.9
Approach		882	4	928	0.5	0.367	2.7	NA	1.8	12.6	0.45	0.30	0.47	41.9
East: Fairway Drive														
4	L2	228	0	240	0.0	0.612	15.7	LOS C	4.3	30.3	0.70	1.27	1.39	32.6
6	R2	43	0	45	0.0	0.612	49.8	LOS E	4.3	30.3	0.70	1.27	1.39	32.2
Approach		271	0	285	0.0	0.612	21.1	LOS C	4.3	30.3	0.70	1.27	1.39	32.6
North: Studholme Street														
7	L2	65	0	68	0.0	0.249	2.7	LOS A	0.0	0.0	0.00	0.07	0.00	48.5
8	T1	387	10	407	2.6	0.249	0.0	LOS A	0.0	0.0	0.00	0.07	0.00	46.7
Approach		452	10	476	2.2	0.249	0.4	NA	0.0	0.0	0.00	0.07	0.00	47.6
All Vehicles		1605	14	1689	0.9	0.612	5.2	NA	4.3	30.3	0.36	0.40	0.49	38.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Turnbull PM Peak Base - 700 (Site Folder: 2031 + 700)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	16	0	17	0.0	0.486	4.8	LOS A	0.0	0.0	0.00	0.01	0.00	49.2
2	T1	880	4	926	0.5	0.486	0.2	LOS A	0.0	0.0	0.00	0.01	0.00	49.6
Approach		896	4	943	0.4	0.486	0.3	NA	0.0	0.0	0.00	0.01	0.00	49.6
North: Studholme Street														
8	T1	615	10	647	1.6	0.335	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
9	R2	1	0	1	0.0	0.002	9.3	LOS A	0.0	0.0	0.70	0.67	0.70	39.4
Approach		616	10	648	1.6	0.335	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Turnbull Crescent														
10	L2	2	0	2	0.0	0.098	15.3	LOS C	0.3	1.9	0.94	1.00	0.94	16.3
12	R2	5	0	5	0.0	0.098	67.5	LOS F	0.3	1.9	0.94	1.00	0.94	29.1
Approach		7	0	7	0.0	0.098	52.6	LOS F	0.3	1.9	0.94	1.00	0.94	25.5
All Vehicles		1519	14	1599	0.9	0.486	0.4	NA	0.3	1.9	0.00	0.01	0.00	49.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [M-T/T AM Peak - 1200 (Site Folder: 2031 + 1200)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Morrinsville-Tahuna Road														
1	L2	18	0	19	0.0	0.148	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	49.2
2	T1	247	12	260	4.9	0.148	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	49.7
3	R2	3	0	3	0.0	0.003	6.4	LOS A	0.0	0.1	0.49	0.56	0.49	45.2
Approach		268	12	282	4.5	0.148	0.4	NA	0.0	0.1	0.01	0.04	0.01	49.6
East: Taukoro Road														
4	L2	14	0	15	0.0	0.350	11.9	LOS B	1.5	10.6	0.77	1.06	0.97	39.3
5	T1	1	0	1	0.0	0.350	19.8	LOS C	1.5	10.6	0.77	1.06	0.97	39.3
6	R2	88	0	93	0.0	0.350	21.8	LOS C	1.5	10.6	0.77	1.06	0.97	39.0
Approach		103	0	108	0.0	0.350	20.4	LOS C	1.5	10.6	0.77	1.06	0.97	39.1
North: Morrinsville-Tahuna Road														
7	L2	36	0	38	0.0	0.264	4.6	LOS A	0.0	0.2	0.01	0.04	0.01	49.2
8	T1	430	27	453	6.3	0.264	0.0	LOS A	0.0	0.2	0.01	0.04	0.01	49.7
9	R2	2	0	2	0.0	0.264	5.9	LOS A	0.0	0.2	0.01	0.04	0.01	48.7
Approach		468	27	493	5.8	0.264	0.4	NA	0.0	0.2	0.01	0.04	0.01	49.7
West: Hangawera Road														
10	L2	5	0	5	0.0	0.175	8.6	LOS A	0.6	4.3	0.71	0.98	0.71	40.4
11	T1	1	0	1	0.0	0.175	17.5	LOS C	0.6	4.3	0.71	0.98	0.71	40.3
12	R2	45	0	47	0.0	0.175	19.1	LOS C	0.6	4.3	0.71	0.98	0.71	40.2
Approach		51	0	54	0.0	0.175	18.1	LOS C	0.6	4.3	0.71	0.98	0.71	40.3
All Vehicles		890	39	937	4.4	0.350	3.7	NA	1.5	10.6	0.13	0.22	0.16	47.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101v [M-T/T AM Peak - 1200 - Roundabout (Site Folder: 2031 + 1200)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Morrinsville-Tahuna Road														
1	L2	18	0	19	0.0	0.219	3.4	LOS A	1.6	11.4	0.34	0.38	0.34	47.0
2	T1	247	12	260	4.9	0.219	3.4	LOS A	1.6	11.4	0.34	0.38	0.34	48.0
3	R2	3	0	3	0.0	0.219	7.9	LOS A	1.6	11.4	0.34	0.38	0.34	48.3
Approach		268	12	282	4.5	0.219	3.5	LOS A	1.6	11.4	0.34	0.38	0.34	48.0
East: Taukoro Road														
4	L2	14	0	15	0.0	0.123	6.1	LOS A	0.8	5.3	0.64	0.71	0.64	44.2
5	T1	1	0	1	0.0	0.123	6.1	LOS A	0.8	5.3	0.64	0.71	0.64	45.1
6	R2	88	0	93	0.0	0.123	10.6	LOS B	0.8	5.3	0.64	0.71	0.64	45.3
Approach		103	0	108	0.0	0.123	9.9	LOS A	0.8	5.3	0.64	0.71	0.64	45.2
North: Morrinsville-Tahuna Road														
7	L2	36	0	38	0.0	0.343	3.1	LOS A	2.8	20.6	0.27	0.34	0.27	47.3
8	T1	430	27	453	6.3	0.343	3.2	LOS A	2.8	20.6	0.27	0.34	0.27	48.3
9	R2	2	0	2	0.0	0.343	7.6	LOS A	2.8	20.6	0.27	0.34	0.27	48.5
Approach		468	27	493	5.8	0.343	3.2	LOS A	2.8	20.6	0.27	0.34	0.27	48.2
West: Hangawera Road														
10	L2	5	0	5	0.0	0.054	4.8	LOS A	0.3	2.1	0.53	0.63	0.53	44.7
11	T1	1	0	1	0.0	0.054	4.8	LOS A	0.3	2.1	0.53	0.63	0.53	45.7
12	R2	45	0	47	0.0	0.054	9.3	LOS A	0.3	2.1	0.53	0.63	0.53	45.8
Approach		51	0	54	0.0	0.054	8.8	LOS A	0.3	2.1	0.53	0.63	0.53	45.7
All Vehicles		890	39	937	4.4	0.343	4.4	LOS A	2.8	20.6	0.35	0.41	0.35	47.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Site AM Peak - 1200 (Site Folder: 2031 + 1200)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	266	12	280	4.5	0.149	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	104	0	109	0.0	0.105	5.9	LOS A	0.4	3.1	0.53	0.70	0.53	42.2
Approach		370	12	389	3.2	0.149	1.7	NA	0.4	3.1	0.15	0.20	0.15	44.1
East: Fairway Drive														
4	L2	255	0	268	0.0	0.359	11.6	LOS B	1.8	12.8	0.61	1.06	0.75	38.4
6	R2	5	0	5	0.0	0.359	22.8	LOS C	1.8	12.8	0.61	1.06	0.75	38.1
Approach		260	0	274	0.0	0.359	11.8	LOS B	1.8	12.8	0.61	1.06	0.75	38.3
North: Studholme Street														
7	L2	2	0	2	0.0	0.275	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.0
8	T1	490	27	516	5.5	0.275	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach		492	27	518	5.5	0.275	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.8
All Vehicles		1122	39	1181	3.5	0.359	3.3	NA	1.8	12.8	0.19	0.31	0.22	41.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Fairway AM Peak - 1200 (Site Folder: 2031 + 1200)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	366	12	385	3.3	0.203	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	104	0	109	0.0	0.158	8.3	LOS A	0.6	4.3	0.66	0.84	0.66	40.2
Approach		470	12	495	2.6	0.203	1.8	NA	0.6	4.3	0.15	0.19	0.15	43.1
East: Fairway Drive														
4	L2	255	0	268	0.0	0.580	18.4	LOS C	3.2	22.6	0.82	1.19	1.39	34.0
6	R2	5	0	5	0.0	0.580	48.5	LOS E	3.2	22.6	0.82	1.19	1.39	33.6
Approach		260	0	274	0.0	0.580	18.9	LOS C	3.2	22.6	0.82	1.19	1.39	34.0
North: Studholme Street														
7	L2	2	0	2	0.0	0.415	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	48.9
8	T1	750	27	789	3.6	0.415	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.7
Approach		752	27	792	3.6	0.415	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.7
All Vehicles		1482	39	1560	2.6	0.580	3.9	NA	3.2	22.6	0.19	0.27	0.29	39.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Loveridge AM Peak Base - 1200 (Site Folder: 2031 + 1200)]

Network: N101 [2031 + 1200 Staged RT AM (Network Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	1	0.0	1	0.0	0.205	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	49.0
2	T1	389	3.2	389	3.2	0.205	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		391	3.2	391	3.2	0.205	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
North: Studholme Street														
8	T1	783	3.6	783	3.6	0.411	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
9	R2	1	0.0	1	0.0	0.001	5.8	LOS A	0.0	0.0	0.43	0.51	0.43	45.3
Approach		784	3.6	784	3.6	0.411	0.2	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Loveridge Place														
10	L2	1	0.0	1	0.0	0.059	9.2	LOS A	0.1	0.5	0.84	0.98	0.84	36.4
12	R2	8	0.0	8	0.0	0.059	30.5	LOS D	0.1	0.5	0.84	0.98	0.84	29.0
Approach		9	0.0	9	0.0	0.059	28.1	LOS D	0.1	0.5	0.84	0.98	0.84	30.3
All Vehicles		1184	3.5	1184	3.5	0.411	0.3	NA	0.1	0.5	0.01	0.01	0.01	49.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Fairway AM Peak - Top Stage - 1200 (Site Folder: 2031 + 1200)]

Network: N101 [2031 + 1200 Staged RT AM (Network Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	385	3.3	385	3.3	0.202	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		385	3.3	385	3.3	0.202	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.9
East: Fairway Drive														
6	R2	5	0.0	5	0.0	0.006	5.2	LOS A	0.0	0.1	0.38	0.85	0.38	10.6
Approach		5	0.0	5	0.0	0.006	5.2	LOS A	0.0	0.1	0.38	0.85	0.38	10.6
All Vehicles		391	3.2	391	3.2	0.202	0.1	NA	0.0	0.1	0.01	0.01	0.01	49.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 [Fairway AM Peak - Bottom Stage - 1200 (Site Folder: 2031 + 1200)]

Network: N101 [2031 + 1200 Staged RT AM (Network Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Fairway Drive														
4	L2	268	0.0	268	0.0	0.548	17.7	LOS C	1.2	8.4	0.81	1.16	1.30	34.9
5	T1	5	0.0	5	0.0	0.548	17.4	LOS C	1.2	8.4	0.81	1.16	1.30	34.9
Approach		274	0.0	274	0.0	0.548	17.7	LOS C	1.2	8.4	0.81	1.16	1.30	34.9
North: Studholme Street														
7	L2	2	0.0	2	0.0	0.415	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	48.9
8	T1	789	3.6	789	3.6	0.415	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.6
Approach		792	3.6	792	3.6	0.415	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.6
SouthWest: Studholme Street														
32a	R1	109	0.0	109	0.0	0.302	16.1	LOS C	0.4	3.1	0.75	1.10	0.89	36.3
Approach		109	0.0	109	0.0	0.302	16.1	LOS C	0.4	3.1	0.75	1.10	0.89	36.3
All Vehicles		1175	2.4	1175	2.4	0.548	5.6	NA	1.2	8.4	0.26	0.37	0.39	36.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Turnbull AM Peak Base - 1200 (Site Folder: 2031 + 1200)]

Network: N101 [2031 + 1200 Staged RT AM (Network Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	6	0.0	6	0.0	0.266	4.6	LOS A	0.0	0.0	0.00	0.38	0.00	47.6
1a	L1	385	3.3	385	3.3	0.266	3.7	LOS A	0.0	0.0	0.00	0.38	0.00	46.4
2	T1	109	0.0	109	0.0	0.266	0.1	LOS A	0.0	0.0	0.00	0.38	0.00	46.4
Approach		501	2.5	501	2.5	0.266	2.9	NA	0.0	0.0	0.00	0.38	0.00	46.4
North: Studholme Street														
8	T1	1058	2.7	1058	2.7	0.552	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.6
9	R2	1	0.0	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.49	0.53	0.49	42.6
Approach		1059	2.7	1059	2.7	0.552	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.6
West: Turnbull Crescent														
10b	L3	1	0.0	1	0.0	0.527	65.4	LOS F	0.6	4.3	0.98	1.05	1.17	8.9
12	R2	16	0.0	16	0.0	0.527	177.9	LOS F	0.6	4.3	0.98	1.05	1.17	15.0
Approach		17	0.0	17	0.0	0.527	170.9	LOS F	0.6	4.3	0.98	1.05	1.17	14.6
All Vehicles		1577	2.6	1577	2.6	0.552	2.8	NA	0.6	4.3	0.01	0.13	0.01	46.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [M-T/T PM Peak - 1200 (Site Folder: 2031 + 1200)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Morrinsville-Tahuna Road														
1	L2	45	0	47	0.0	0.264	4.6	LOS A	0.0	0.0	0.00	0.05	0.00	49.1
2	T1	430	12	453	2.8	0.264	0.1	LOS A	0.0	0.0	0.00	0.05	0.00	49.6
3	R2	14	0	15	0.0	0.013	6.3	LOS A	0.1	0.4	0.48	0.60	0.48	45.2
Approach		489	12	515	2.5	0.264	0.7	NA	0.1	0.4	0.01	0.07	0.01	49.4
East: Taukoro Road														
4	L2	3	0	3	0.0	0.310	11.3	LOS B	1.2	8.4	0.82	1.04	0.98	37.5
5	T1	1	0	1	0.0	0.310	24.3	LOS C	1.2	8.4	0.82	1.04	0.98	37.4
6	R2	63	0	66	0.0	0.310	25.8	LOS D	1.2	8.4	0.82	1.04	0.98	37.2
Approach		67	0	71	0.0	0.310	25.2	LOS D	1.2	8.4	0.82	1.04	0.98	37.2
North: Morrinsville-Tahuna Road														
7	L2	99	0	104	0.0	0.255	4.7	LOS A	0.1	0.7	0.03	0.12	0.03	48.7
8	T1	341	27	359	7.9	0.255	0.1	LOS A	0.1	0.7	0.03	0.12	0.03	49.2
9	R2	5	0	5	0.0	0.255	7.3	LOS A	0.1	0.7	0.03	0.12	0.03	48.2
Approach		445	27	468	6.1	0.255	1.2	NA	0.1	0.7	0.03	0.12	0.03	49.0
West: Hangawera Road														
10	L2	2	0	2	0.0	0.090	9.6	LOS A	0.3	2.1	0.76	0.99	0.76	39.2
11	T1	1	0	1	0.0	0.090	21.6	LOS C	0.3	2.1	0.76	0.99	0.76	39.2
12	R2	18	0	19	0.0	0.090	22.0	LOS C	0.3	2.1	0.76	0.99	0.76	39.1
Approach		21	0	22	0.0	0.090	20.8	LOS C	0.3	2.1	0.76	0.99	0.76	39.1
All Vehicles		1022	39	1076	3.8	0.310	2.9	NA	1.2	8.4	0.09	0.18	0.10	48.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101v [M-T/T PM Peak - 1200 - Roundabout (Site Folder: 2031 + 1200)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Morrinsville-Tahuna Road														
1	L2	45	0	47	0.0	0.367	3.3	LOS A	3.1	21.9	0.33	0.37	0.33	47.0
2	T1	430	12	453	2.8	0.367	3.3	LOS A	3.1	21.9	0.33	0.37	0.33	48.1
3	R2	14	0	15	0.0	0.367	7.8	LOS A	3.1	21.9	0.33	0.37	0.33	48.3
Approach		489	12	515	2.5	0.367	3.4	LOS A	3.1	21.9	0.33	0.37	0.33	48.0
East: Taukoro Road														
4	L2	3	0	3	0.0	0.073	5.1	LOS A	0.4	2.9	0.55	0.65	0.55	44.5
5	T1	1	0	1	0.0	0.073	5.1	LOS A	0.4	2.9	0.55	0.65	0.55	45.4
6	R2	63	0	66	0.0	0.073	9.6	LOS A	0.4	2.9	0.55	0.65	0.55	45.6
Approach		67	0	71	0.0	0.073	9.3	LOS A	0.4	2.9	0.55	0.65	0.55	45.6
North: Morrinsville-Tahuna Road														
7	L2	99	0	104	0.0	0.315	3.0	LOS A	2.4	17.9	0.20	0.34	0.20	47.5
8	T1	341	27	359	7.9	0.315	3.0	LOS A	2.4	17.9	0.20	0.34	0.20	48.6
9	R2	5	0	5	0.0	0.315	7.5	LOS A	2.4	17.9	0.20	0.34	0.20	48.8
Approach		445	27	468	6.1	0.315	3.1	LOS A	2.4	17.9	0.20	0.34	0.20	48.3
West: Hangawera Road														
10	L2	2	0	2	0.0	0.026	5.9	LOS A	0.2	1.1	0.63	0.64	0.63	44.3
11	T1	1	0	1	0.0	0.026	5.9	LOS A	0.2	1.1	0.63	0.64	0.63	45.2
12	R2	18	0	19	0.0	0.026	10.4	LOS B	0.2	1.1	0.63	0.64	0.63	45.4
Approach		21	0	22	0.0	0.026	9.8	LOS A	0.2	1.1	0.63	0.64	0.63	45.3
All Vehicles		1022	39	1076	3.8	0.367	3.8	LOS A	3.1	21.9	0.29	0.38	0.29	47.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Site PM Peak - 1200 (Site Folder: 2031 + 1200)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	480	4	505	0.8	0.263	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
3	R2	288	0	303	0.0	0.242	5.3	LOS A	1.2	8.2	0.49	0.66	0.49	42.8
Approach		768	4	808	0.5	0.263	2.0	NA	1.2	8.2	0.18	0.25	0.18	44.0
East: Fairway Drive														
4	L2	183	0	193	0.0	0.214	9.4	LOS A	0.9	6.2	0.48	0.92	0.48	39.7
6	R2	3	0	3	0.0	0.214	29.6	LOS D	0.9	6.2	0.48	0.92	0.48	39.5
Approach		186	0	196	0.0	0.214	9.7	LOS A	0.9	6.2	0.48	0.92	0.48	39.7
North: Studholme Street														
7	L2	5	0	5	0.0	0.193	2.7	LOS A	0.0	0.0	0.00	0.01	0.00	49.0
8	T1	346	10	364	2.9	0.193	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.6
Approach		351	10	369	2.8	0.193	0.0	NA	0.0	0.0	0.00	0.01	0.00	49.5
All Vehicles		1305	14	1374	1.1	0.263	2.6	NA	1.2	8.2	0.18	0.28	0.18	43.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Fairway PM Peak - 1200 (Site Folder: 2031 + 1200)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] veh/h	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	761	4	801	0.5	0.509	0.4	LOS A	2.2	15.3	0.37	0.00	0.39	41.2
3	R2	288	0	303	0.0	0.306	6.8	LOS A	1.6	10.9	0.60	0.82	0.67	41.5
Approach		1049	4	1104	0.4	0.509	2.1	NA	2.2	15.3	0.44	0.22	0.47	41.4
East: Fairway Drive														
4	L2	183	0	193	0.0	0.309	11.5	LOS B	1.4	9.5	0.62	1.04	0.73	37.8
6	R2	3	0	3	0.0	0.309	79.0	LOS F	1.4	9.5	0.62	1.04	0.73	37.5
Approach		186	0	196	0.0	0.309	12.6	LOS B	1.4	9.5	0.62	1.04	0.73	37.8
North: Studholme Street														
7	L2	5	0	5	0.0	0.292	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	48.9
8	T1	529	10	557	1.9	0.292	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.6
Approach		534	10	562	1.9	0.292	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.6
All Vehicles		1769	14	1862	0.8	0.509	2.6	NA	2.2	15.3	0.32	0.24	0.35	41.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Loveridge PM Peak Base - 1200 (Site Folder: 2031 + 1200)]

Network: N101 [2031 + 1200 Staged RT PM (Network Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	1	0.0	1	0.0	0.414	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	48.9
2	T1	804	0.5	804	0.5	0.414	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach		805	0.5	805	0.5	0.414	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.8
North: Studholme Street														
8	T1	557	1.9	557	1.9	0.289	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
9	R2	1	0.0	1	0.0	0.002	8.5	LOS A	0.0	0.0	0.62	0.62	0.62	44.0
Approach		558	1.9	558	1.9	0.289	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Loveridge Place														
10	L2	4	0.0	4	0.0	0.070	13.1	LOS B	0.1	0.6	0.87	1.00	0.87	35.8
12	R2	6	0.0	6	0.0	0.070	41.1	LOS E	0.1	0.6	0.87	1.00	0.87	28.3
Approach		11	0.0	11	0.0	0.070	29.9	LOS D	0.1	0.6	0.87	1.00	0.87	32.1
All Vehicles		1374	1.1	1374	1.1	0.414	0.3	NA	0.1	0.6	0.01	0.01	0.01	49.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Fairway PM Peak - Top Stage - 1200 (Site Folder: 2031 + 1200)]

Network: N101 [2031 + 1200 Staged RT PM (Network Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
2	T1	801	0.5	801	0.5	0.412	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
Approach		801	0.5	801	0.5	0.412	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.8
East: Fairway Drive														
6	R2	3	0.0	3	0.0	0.006	8.5	LOS A	0.0	0.1	0.62	0.89	0.62	7.0
Approach		3	0.0	3	0.0	0.006	8.5	LOS A	0.0	0.1	0.62	0.89	0.62	7.0
All Vehicles		804	0.5	804	0.5	0.412	0.1	NA	0.0	0.1	0.00	0.00	0.00	49.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 [Fairway PM Peak - Bottom Stage - 1200 (Site Folder: 2031 + 1200)]

Network: N101 [2031 + 1200 Staged RT PM (Network Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Fairway Drive														
4	L2	193	0.0	193	0.0	0.261	11.2	LOS B	0.4	3.1	0.58	1.01	0.62	39.4
5	T1	3	0.0	3	0.0	0.261	10.9	LOS B	0.4	3.1	0.58	1.01	0.62	39.4
Approach		196	0.0	196	0.0	0.261	11.2	LOS B	0.4	3.1	0.58	1.01	0.62	39.4
North: Studholme Street														
7	L2	5	0.0	5	0.0	0.292	2.7	LOS A	0.0	0.0	0.00	0.00	0.00	48.9
8	T1	557	1.9	557	1.9	0.292	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.3
Approach		562	1.9	562	1.9	0.292	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.3
SouthWest: Studholme Street														
32a	R1	303	0.0	303	0.0	0.542	14.0	LOS B	1.2	8.6	0.69	1.21	1.10	37.7
Approach		303	0.0	303	0.0	0.542	14.0	LOS B	1.2	8.6	0.69	1.21	1.10	37.7
All Vehicles		1061	1.0	1061	1.0	0.542	6.1	NA	1.2	8.6	0.30	0.54	0.43	39.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [Turnbull PM Peak Base - 1200 (Site Folder: 2031 + 1200)]

Network: N101 [2031 + 1200 Staged RT PM (Network Folder: General)]

New Site
Site Category: (None)
Stop (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Studholme Street														
1	L2	17	0.0	17	0.0	0.585	4.9	LOS A	0.0	0.0	0.00	0.36	0.00	47.4
1a	L1	801	0.5	801	0.5	0.585	3.9	LOS A	0.0	0.0	0.00	0.36	0.00	46.3
2	T1	303	0.0	303	0.0	0.585	0.3	LOS A	0.0	0.0	0.00	0.36	0.00	46.3
Approach		1121	0.4	1121	0.4	0.585	3.0	NA	0.0	0.0	0.00	0.36	0.00	46.3
North: Studholme Street														
8	T1	749	1.4	749	1.4	0.388	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.8
9	R2	1	0.0	1	0.0	0.003	12.8	LOS B	0.0	0.0	0.80	0.76	0.80	36.9
Approach		751	1.4	751	1.4	0.388	0.0	NA	0.0	0.0	0.00	0.00	0.00	49.8
West: Turnbull Crescent														
10b	L3	2	0.0	2	0.0	0.432	102.9	LOS F	0.5	3.2	0.99	1.03	1.09	5.8
12	R2	5	0.0	5	0.0	0.432	358.0	LOS F	0.5	3.2	0.99	1.03	1.09	10.2
Approach		7	0.0	7	0.0	0.432	285.1	LOS F	0.5	3.2	0.99	1.03	1.09	9.0
All Vehicles		1879	0.8	1879	0.8	0.585	2.9	NA	0.5	3.2	0.00	0.22	0.00	46.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.